



Research article

How to finance sustainable tourism: Factors influencing the attitude and willingness to pay green taxes among university students

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Abstract: Green taxes are an instrument for the development of many destinations where overtourism generates different externalities, helping to alleviate them and create sustainable tourism. Funds raised through green taxes can be used to finance conservation, environmental restoration, and sustainable development initiatives. However, these taxes are often unknown to tourists visiting a city and can often generate mistrust and even discomfort when they are forced to pay them. In terms of the management implications for destinations, green taxes should be seen and conveyed as a means to achieve both economic and environmental sustainability of destinations and not yet another tax to be borne by the tourist. For this reason, the aim of this study is to explore the factors that affect both the positive attitude and the willingness to pay these taxes. Thus, the opinion about green taxes of 120 university students from different countries were collected to use a structural equation model (SEM) to try to provide answers to the different hypotheses put forward. Young people represent a growing part of the tourism market, shaping the trends and practices of the sector, making them central to the future of tourism. The study seeks to deepen theoretical knowledge on this subject and to provide a series of conclusions and recommendations for education regarding green taxes. In addition, our study on green taxes has a direct relationship with the sustainable development goals promulgated by the United Nations, as both seek to promote balanced economic, social, and environmental development.

Keywords: green taxes; sustainable tourism; willingness to pay taxes; international tourism; structural equation model (SEM)

JEL Codes: H21, O23, L83, Z33

1. Introduction

Tourism, as a trade in services, is one of the leading generators of export earnings globally, and currently provides one in ten jobs worldwide (United Nations, 2022). However, when we refer to sustainable tourism it is a controversial topic (Johnson, 2002). The World Tourism Organization¹ (UNWTO), which is a United Nation Specialized Agency, defines sustainable tourism 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.” The fact is that tourism industries often generate negative impacts on the environment, society, culture, and sometimes even the economy (Logar, 2010). They provoke a reduction in the quality of life (Cetin et al., 2017) and include more detailed related aspects, such as population increase, inflation, air and water pollution, congestion, crime, cultural conflicts, social change, and overtourism (Durán-Román et al., 2021; Mihalič, 2000; Neshat et al., 2024; Oklevik et al., 2019). This is why there is an increased global focus on environmental sustainability and green economic transformation (Wang et al., 2023).

Regarding existing research on green finance, Li et al. (2023) pointed out the need to address it and rated it as of great importance for developed countries. Taghizadeh-Hesary and Yoshino (2019) found that green finance tools are an essential and valuable solution to attract private partnerships for green projects. In other words, increasing investment flows towards green projects (Meo and Karim, 2022). In this line, Behera and Sethi (2022) and Zaman et al. (2016) pointed out that the adoption of environmental fiscal policies are the best measures aimed at achieving a green industry. Furthermore, with this paper we contribute to so-called green growth defined as promoting economic growth and development while ensuring that natural assets continue to provide the environmental resources and services on which our well-being depends by the Organization for Economic Co-operation and Development (OECD). In this regard, pricing instruments, such as green taxes, encourage broad action to reduce environmental damage and should be the center of green growth policy. All of this also represents progress in the achievement by destinations of one of the sustainable development goals (SDGs) such as responsible production and consumption, which has aroused the recent interest of researchers in the field of tourism (Ivanov et al., 2024) and more specifically in research on the environmental attitudes of tourists (Xiong et al., 2023) and tourist taxation (Chen et al., 2022).

Internationally, increased efforts in environmental policy are being observed with regard to the introduction of environmental costs, environmental offsets, and emissions trading programs (Ilić et al., 2019). To overcome these problems caused by tourism, it is well-known in economic research that payments or taxes could correct some negative externalities that economic actors produce (Do Valle et al., 2012). In this sense, touristic tax implementation is widespread worldwide to contribute to developing specific actions in the tourist area to preserve historical assets (Logar, 2010). To this end, many cities decided to set a tax for a stay in commercial accommodations to finance actions or programs to protect the monumental heritage, reduce the environmental impact or improve the connections to make local life easier (Durán-Román et al., 2020). However, in many cases, these taxes generate problems for tourists, given the lack of knowledge and the lack of education that the

¹<https://www.unwto.org/>.

population has about them (Do Valle et al., 2012). So, it is essential to understand how future generations will face these payments according to actual implications in environmental and social problems. The paper focuses on these markets by analyzing university students from different countries with dissimilar social conceptions, concluding that environmental education is key if we want to generate awareness among the population when it comes to accepting payment for these tourist services. As for the main contributions of this work, as mentioned above, it not only focuses on an audience of high interest for tourist destinations, such as university students (Tran et al., 2018), but also tries to deepen the understanding of their willingness to pay (WTP) for green fees when they go sightseeing. While other works focus on the acceptability (Rotaris and Carrozz, 2019) or the benefits of these fees in the destination (Bhandari and Heshmati, 2010), this paper tries to shed light on this WTP based on a series of more psychological factors, which allows to advance in the understanding of the same which was mainly based on the sociodemographic characteristics of tourists (Schuhmann et al., 2019), also including cultural differences derived from the nationality of these students, which has been arousing interest in other sectors such as fashion (Khan et al., 2024) but which is still not entirely clear in the tourism sector.

The structure of this paper proceeds as follows: Section 2 discusses the theoretical background regarding green taxes and how they help destinations combat the adverse effects of tourism on society. The description of the methodology is given in Section 3. The results of the study are described in Section 4. Discussion can be found in section 5 and the conclusions of this research in section 6.

2. Theoretical background

2.1. Green taxes and their influence on the sustainability of tourism

For decades, the tourist sector has been demanding the implementation by destination managers of a series of strategies to increase the sustainability of these destinations while improving the tourism experience (Durán-Román et al., 2020). Different policy instruments have been employed to address these issues. The classic approach is to adopt regulatory, or command and control, instruments (Do Valle et al., 2012). Following the classification proposed by Perman et al. (1999) on policy instruments, a distinction can be made between economic, regulatory and institutional instruments. Economic instruments are ecotaxes, fees, financial incentives and tradable construction permits (See for example Zaman, 2023). Regulatory or command-and-control instruments include quotas and zoning, and institutional instruments refer to eco-labels and changes in property rights. However, few countries use economic, regulatory or institutional policy instruments for tourism management (Logar, 2010), such as promotion (Ripinga et al., 2024), which can help their sustainable development by achieving the agreements of the 2030 agenda, the 2050 horizon or the SDG (Chen et al., 2023; Ivanov et al., 2024; Xiong et al., 2023).

This paper focuses on economic instruments, with tourism taxes being increasingly common worldwide to address environmental problems associated with tourism (Do Valle et al., 2012) as well as being a viable option for financing these environmental policies (Durán-Román et al., 2020) or help in the recovery of destinations after a crisis (Chen et al., 2023). Existing taxes can be restructured with green tax reforms to reflect the polluting characteristics of different activities or products, the introduction of new taxes, and the elimination of tax exemptions and subsidies that are harmful to the environment (Raisová, 2012). In this regard, these are fiscal policies aimed at raising funds to improve

the quality of destinations and environmental conservation (Gago et al., 2009; Reynisdottir et al., 2008) by integrating environmental consequences into pricing through taxation, thus addressing the failure of economic policies to account for the environmental implications of resource use (Sineviciene et al., 2017). Moreover, green taxes are a flexible instrument, which can be differentiated according to the type of accommodation and its location and can be used in different countries to minimize energy usage, as well as the time of year and are relatively easy to collect and to target most tourists (Bashir et al., 2021; Logar, 2010). Another advantage are the revenues generated which constitute an important financial resource for local governments and tourism authorities, both to ensure the sustainability of tourism and to improve the quality of tourism experiences (Cetin et al., 2017) and a way to improve public coffers and create more robust fiscal systems (Cárdenas-García et al., 2015).

In sum, improving environmental laws and green taxes are key to climate change policy (Ahmed et al., 2022). Note that, these taxes are currently paid in practically all EU countries, with Italy and France being the countries with the highest number of cities requiring this fee from tourists². In sum, green finance tools have evolved to foster green economic growth (Tsai, 2024) and sustainability is becoming a key element to differentiate tourism markets and be competitive (Durán-Román et al., 2022).

2.2. *What influences a positive attitude towards green taxes?*

These green taxes have been collected from hotels, which help to conserve the environment and to improve and maintain the tourism services of the destination that collects those (Gago et al., 2009). However, despite the altruistic and environmental conservation motivation of this tax, factors such as lack of knowledge about its existence may make tourists reluctant to pay an extra once they check in (Do Valle et al., 2012). Thus, author such as Dolnicar (2010) understand environmental behavior as a key element in the study of tourist psychology. This author, along with others such as Mehmetoglu (2010), identifies environmental awareness as a key factor in understanding this behavior. This factor can help explain a positive or negative attitude towards certain social norms and expected behaviors within a social group (Christensen et al., 2004), with self-identity being a good predictor of people's behavior, including those related to pro-environmental actions (Fekadu and Kraft, 2001). Bringing the two concepts together, we see how pro-environmental self-identity can be defined as an individual's self-perception towards specific pro-environmental policies, being a good predictor for several categories of behavior, namely waste reduction, regular water, and domestic energy conservation (Whitmarsh and O'Neill, 2010):

H1: The higher pro-environmental self-identity implies a positive attitude toward green taxes.

It is not only this cognitive or self-perception component that has to be considered when assessing the attitude toward green policies, as the behavioral component also plays a key role in this relationship (Milfont and Duckitt, 2010). While the former refers rather to a positive perception, this one focuses on the adoption of these policies (Yang et al., 2022). Thus, this environmental attitude can be defined as a favorable behavior towards environmentally friendly policies that leads consumers to adopt such policies with altruistic characteristics (Rustam et al., 2020). This environmental attitude has been gaining weight among different sectors of the population (Yang et al., 2022), which not only makes them change their consumption patterns but also makes them more inclined to take external measures that benefit the environment (Oliver, 2013). With all this, we establish:

²https://www.hosteltur.com/130006_tasas-turisticas-en-espana-y-en-europa-en-2019-lo-que-hay-que-pagar.html.

H2: A greater environmental attitude will improve the attitude toward green taxes.

Finally, the culture of the country of origin has to be taken into account when it comes to studying psychological variables, especially in cross-cultural studies such as this one (Sabiote-Ortiz, 2010). The measurement of culture has been treated in the usual way following Hofstede's scheme of different cultural dimensions (Hofstede, 1980; Hofstede and Bond, 1984). On one side, individualism characterizes people focused on looking after themselves and their immediate family only, while on the opposite side, collectivism stands for society in which people concentrated more on group belonging, cohesion, and protecting others in exchange for unquestioning loyalty (Hofstede et al., 2010).

In relation to collectivism and individualism, numerous studies have dealt with their relationship with attitudes towards different green policies (Chwialkowska et al., 2020; Higuera-Castillo et al., 2019; Kumar et al., 2014; McCarty and Shrum, 2001; Owen and Videras, 2006; Sharma and Singh, 2022). It could be reasonable to suppose tourists from collectivistic culture have a more positive attitude towards green policies (and are more likely to pay environmental taxes) for the common good (Chwialkowska et al., 2020). For instance, Kumar et al. (2014) postulated that people who are more collectivistic are likely to be concerned more about environmental problems than those who are less collectivistic. Following this line of reasoning, there are many studies indicating a positive relationship of collectivism with a positive attitude towards green products (Sharma and Singh, 2022). Moreover, research shows that the level of collectivism-individualism is a determinant of the formation of different pro-environmental behaviors. Collectivists are more likely to engage in recycling behavior because they are more cooperative, more willing to help others, and prioritize group goals over personal goals than individualists (McCarty and Shrum, 2001). The country with the highest level of collectivism develops stronger eco-friendly behaviors and stronger intentions to adopt renewable energy technologies (biomass and solar) (Higuera-Castillo et al., 2019). Finally, according to Owen and Videras (2006) people in collectivistic societies are more likely to state pro-environment attitudes and intentions to pay higher taxes to protect the natural environment. In sum, we can conclude that:

H3: As the country becomes more collectivist, its citizens will develop a more pro-green tax attitude.

2.3. The moderator effect between the attitude toward a tax and the willingness to pay for it

In recent decades, the idea of sustainable tourism and efforts to mitigate its negative consequences have gained momentum (Durán-Román et al., 2020). Before adopting green taxes as a policy measure for environmental sustainability, it is necessary to determine people's WTP for its consequently effective implementation (Do Valle et al., 2012). The WTP can be expressed as the assessment that citizens who visit a destination have about its existence and the protection of their heritage which may represent benefits to non-users and constitute a substantial part of the total economic value of an area (Reynisdottir et al., 2008). Therefore, it is necessary to consider these characteristics before implementing a possible green tax policy in a certain destination. Understanding the behavior of the WTP helps formulate policies to increase recreational benefits, balance the flow of tourists, and minimize tourism congestion (Bhandari and Heshmati, 2010).

Many studies have been conducted on the WTP concerning environmental issues from the first published by Farhar and Houston (1996), as Sundt and Rehdanz (2015) pointed out in their study, which analyzes electricity from renewable energy in the United States. Focusing on the tourism sector, Gupta (2016) measured people's awareness, responsiveness, and WTP to mitigate the CO₂ emissions

problem of the passenger road transport sector. Fairbrother (2019), presented results from survey experiments investigating the conditions under which Britons are WTP taxes for polluting activities. Rotaris and Carrozzo (2019) evaluated the acceptability of a green tax and examined how it should be designed to better satisfy tourist preferences and, improve tourism sustainability in the Italian context. Their results showed that WTP for the tourist tax depends not only on the vacation and type of tourist, but also on how the tax revenue is used. Shehawy et al. (2024) identified the factors affecting consumer to pay more for green hotels across nations: intention, attitudes, and consumer effectiveness play critical role in improving WTP more for green hotels. Others have focused on the characteristics of the tourist and the itinerary to explain it (Göktaş and Çetin, 2023). Finally, Rotaris (2022) described in the paper the choices of policy makers in setting the tourist tax and compares them with the preferences of tourists, paying particular attention to the tax rates and the destination of choice. In analyzing tourists' preferences, it was shown that the acceptability of the tax increased significantly when the respondent knew that the tourist tax was earmarked for specific purposes.

In addition, the literature on WTP identifies, in different contexts, both the factors that determine such payment preference and the amount tourists are WTP (Chen et al., 2016; Durán-Román et al., 2021). In this regard, recent studies show that a large majority of tourists would pay an additional tax to improve their tourism experience (Cetin et al., 2017; Durán-Román et al., 2021) and to enhance greater sustainability at the destination (Durán-Román et al., 2021). According to Reynisdottir et al. (2008), the introduction of entrance green taxes will reduce congestion at natural attractions and thus improve the experience for tourists, who would be WTP more for this enhanced benefit. In this sense, as we have previously highlighted, both the pro-environmental self-identity, the environmental attitude and the culture of the country of origin play a fundamental role in the formation of a positive attitude towards this type of policies (Higueras-Castillo et al., 2019; Oliver, 2013; Whitmarsh and O'Neill, 2010). Thus, it is expected that those tourists more in favor of them are less reluctant to pay for them (Chen et al., 2016; Gupta, 2016), without detriment to their satisfaction with the destination (Berezan et al., 2013; Filimonau et al., 2022). This is why:

H4: A positive attitude towards green policies has a positive effect on the willingness to pay for it.

3. Methodology

This work was carried out in the cities of Jaén (Spain) and Torun (Poland) among university students from different international programs. This segment is very important for international tourism, and this has been noted in the literature (Glover, 2011; Ryan and Zhang, 2007), since their tourism behavior patterns are much more active than those of other same age groups (Tran et al., 2018) and their contribution to the economy of the destinations is quite important (Taylor et al., 2004). Thus, 120 business students were interviewed at the Universities of Jaén and Nicolaus Copernicus during 2022. Following the personal features plotted in the Figure 1, these students from international degree programs were mainly women (62%) with an average age of 21 years and of different nationalities, where, logically, Polish (37%) and Spanish (43%) prevailed, but there were also others such as Russian, Azerbaijani, Kazakh, Chinese, Italian, Equatorial Guinean, and from the USA.

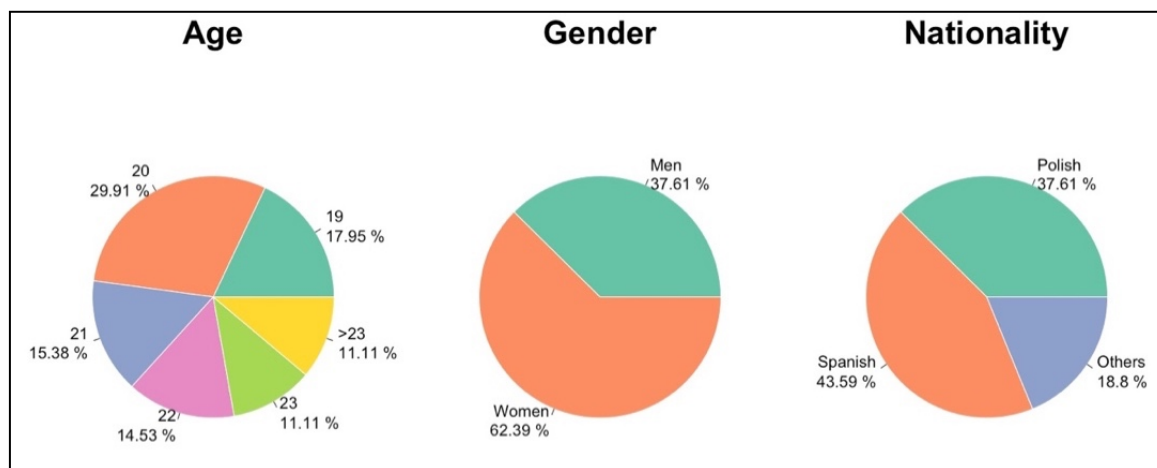


Figure 1. The pie charts depict the age, gender, and nationality of respondents. Source: Authors.

The surveys were conducted during a series of sessions held at these Universities. These sessions were aimed at students studying a degree in business administration in English and it was up to the students to decide whether or not to attend the sessions. The session consisted of 3 phases: in the first phase, the dynamics of the session were explained to them and they were told what green taxes were. After this brief introduction of less than 10 minutes through a mobile application, they were asked to fill in the survey, and finally, once the survey was completed, a session on awareness of over tourism and how these green taxes could mitigate its effects, thus avoiding possible biases. In the survey they were asked about: (1) their pro-environmental self-identity (Whitmarsh and O’Neill, 2010), (2) their proactive attitude towards climate change (action for climate change) (Becken, 2004), (3) their attitude towards green policies (Ru et al., 2019), and (4) their WTP for green taxes in a tourist destination (González-Rodríguez et al., 2019; Han et al., 2009). A Likert scale on a 1 to 7 point was used, among other questions. The questionnaire is available at the following link: <https://forms.gle/V8ZSRsJTjbYmcUEs9>. All latent variables reached the minimum Cronbach’s alpha of 0.7 recommended in the literature (Nunnally, 1994) (see Table 1).

A structural equation model (SEM) using AMOS Graphics software (IBM SPSS version 24) has been used to answer the 4 hypotheses formulated. Given that the sample size is sufficient ($n > 100$) and the final objective of this work is the confirmation of a theoretical model, a covariate-based procedure (CB-SEM) has been chosen over PLS following the recommendations of Hair Jr et al. (2017). After the corresponding outlier analysis using cook’s distance procedure (Sullivan et al., 2021), 3 outliers were removed, leaving the final sample size at 117 students. To check the reliability of the results for this type of analysis with this sample, the G-Power* software was used, which showed a reliability ($1-\beta$) of 98% when the minimum power to assume an error $\alpha=0.05$ is an 80% (Cohen, 1998), so this sample is more than enough to assume reliable results at 95% confidence. Finally, prior to the analysis of the results, the multivariate normality of the different variables is checked, as well as the goodness of fit of the model, which will be analyzed in the following section.

Table 1. Latent variables identification.

Item	Latent variable	Cronbach's Alpha	Source
I think of myself as an environment-friendly consumer. I think of myself as someone who is very concerned about environmental issues. The production of electricity from renewable sources such as solar, wind, and biomass is an effective way to combat global climate change.	Pro-environmental self-identity	0.75	(Whitmarsh and O'Neill, 2010)
We need more government regulations to force people to protect the environment. There is urgent need to take measures to prevent global climate change today.	Action for climate change	0.89	(Becken, 2004)
Global climate change will have a noticeably negative impact on the environment in which my family and I live. I am positive about environmental policies.			
I am generally satisfied with environmental policies.	Attitude towards green policies	0.72	(Ru et al., 2019)
I think environmental policies are worth it. Tourist should pay a green tax to protect the environment.			
Tourist should pay a green tax to protect future generations. In short, tourist should pay a green tax for sustainable tourism.	Willingness to pay	0.95	(González-Rodríguez et al., 2019; Han et al., 2009)

Source: Authors.

4. Study results

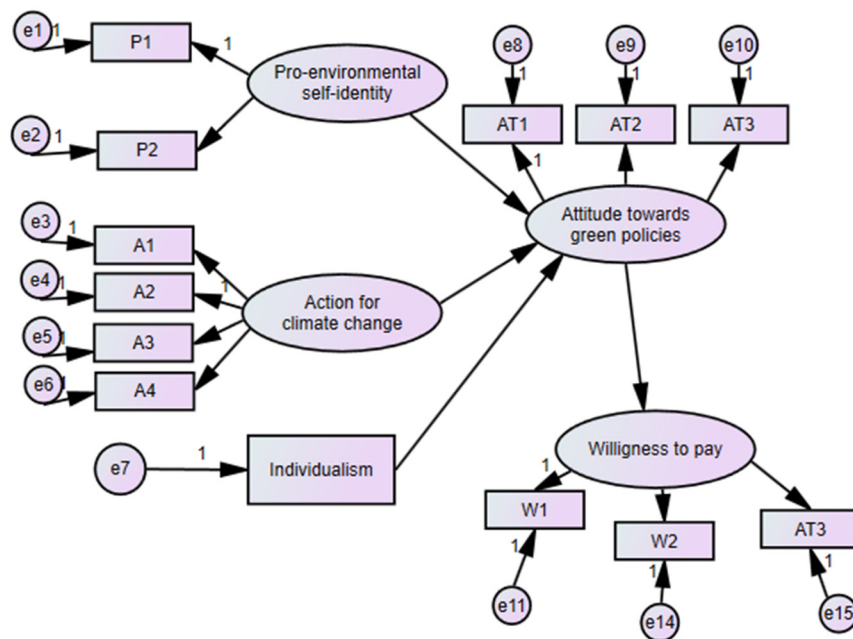
First, the multivariate normality analysis of the variables included in the model is undertaken, noting that all skewness and kurtosis values are below the critical scores of 3 and 8, no multicollinearity problems either (Kline, 2023). Regarding the goodness of fit, we see that the default model fits well in terms of CFI (0.901) and GFI (0.926) (Bentler and Bonett, 1980; Browne, 1993), and the information criteria of the default model with respect to the independence model improve significantly in all criteria (Akaike, Bayesian, and Consistent Akaike) (see table 2).

Table 2. Information criteria analysis.

	AIC	BIC	CAIC
Default model	49,92	83,07	95,07
Saturated model	30,00	71,43	86,43
Independence model	168,48	182,29	187,29

Source: Authors.

Following the formulation of the hypotheses, the paper proposed the path analysis below to test the significance of the hypotheses. Based on Section 2 could be designed the path model of Figure 2. The modelling expects a positive relation between the pro-environmental self-identity and attitude toward green taxes policies. In this sense, it assumes that the respondent more sensitive to the environmental problems will present more predisposition to accept the green taxes (Malerba, 2022). On the contrary, considering the dichotomy between individualism and collectivism, the culture will negatively affect the tolerance of green policies. Finally, the global attitude to these green actions will positively affect the WTP to finance these policies.

**Figure 2.** Conceptual model. Source: Authors.

These relationships were tested, resulting in all hypotheses being fulfilled. Thus, as we can see in Table 3, we observe a quasi-significant and positive relationship between pro-environmental self-identity and attitude towards green policies, ($\beta = 0.17$; p -value = 0.05), which indicates that a greater self-perception by people as pro-environmental will improve their attitude towards this type of policies in those places where they are implemented, confirming the first of the hypotheses proposed. The second hypothesis established an equally positive relationship between environmental attitudes

and attitudes toward green policies. As can be seen, not only is it significant (p -value < 0.01) but it is also the most decisive factor in explaining the positive attitude towards green policies ($\beta = 0.50$). The third hypothesis is also partially supported (p -value = 0.05). Thus, and considering the negative sign of the relationship, we see that as the country moves up the Hofstede scale in its levels of individualism (Hofstede et al., 2010) the positive attitude towards these green policies decreases, which is in line with what was stated in hypothesis 3. The last of our hypotheses established a positive relationship between attitudes toward green policies and WTP for them. Hypothesis 4 is also supported (p -value < 0.01) and the high value of the relationship ($\beta = 0.59$) suggests its importance in explaining this predisposition towards green policies among university students.

Table 3. Summary of the results.

Hypothesis	Beta (S.E.)	p-value	Decision
H1: The higher pro-environmental self-identity the positive attitude toward green taxes	0.17 (0.09)	0.05	Partially supported
H2: A greater environmental attitude will improve the attitude toward green taxes	0.50 (0.08)	0.00	Supported
H3: As the country becomes more collectivist, its individuals will develop a more pro-green tax attitude	-0.02 (0.01)	0.05	Partially supported
H4: A positive attitude towards green policies has a positive effect on the willingness to pay for it	0.59 (0.12)	0.00	Supported

Source: Authors.

5. Discussion of the results

Once the results obtained have been analyzed, it is necessary to place them critically in the existing literature. WTP has been studied recently, but from the perspective of the socio-demographic characteristics of the tourist and their stay in the destination (Göktaş and Çetin, 2023) while this paper focuses on psychological characteristics of the tourist, which have been less studied in recent literature. Thus, the first of our hypotheses proposed a positive relationship between the individual's pro-environmental self-perception and a positive attitude towards green policies. Previous literature supports these results. Different authors have established the importance of studying this type of psychological variable in this type of research (Dolnicar, 2010). However, not many studies have dealt with it, focusing more on sociodemographic variables of the individual (Do Valle et al., 2012) or on factors related to previous visits to the destination (Schuhmann et al., 2019). Although, as our results indicate and as suggested by authors such as Fekadu and Kraft (2001), the self-perception of an individual can be a good predictor of their behavior, which was verified years later by Whitmarsh and O'Neill (2010), but they were more oriented towards the adoption of behaviors related to saving resources. Therefore, our work brings together these perspectives, demonstrating what these authors already suspected, that an individual's pro-environmental self-perception positively affects the adoption of actions related to environmentalism. The second of our supported hypotheses, which establishes that a pro-environmental attitude positively influences the attitude towards these green policies, is framed in the same line that deals with psychological factors. Indeed, the literature is oriented along these lines. It is not only one's self-perception that will help explain whether an individual is more or less favorable to certain green policies, but also his or her attitude and behavior (Milfont and Duckitt, 2010). This pro-environmental attitude and behavior will therefore not only affect

the performance of certain pro-environmental activities but will also help to explain the assimilation of other types of external policies other than their behavior, such as these green policies (Oliver, 2013).

Moving away from the psychological variables of individuals, the literature has also been working on the effects of the individual's culture on attitudes towards green policies (Owen and Videras, 2006). In this sense, several papers support our results. Thus, we see how Higuera-Castillo et al. (Higuera-Castillo et al., 2019) find that the most collectivist societies are the ones that best assimilate eco-friendly behaviors. Moreover, in line with our results, it has been shown that this type of collectivist culture is more likely to adopt pro-environmental behaviors, even to pay for them (Chwialkowska et al., 2020). This influence has already been demonstrated in recent studies in the fashion sector (Khan et al., 2024), and this paper is one of the first to analyze this relationship from the perspective of green taxes.

Finally, the fourth of our hypotheses established that a favorable attitude towards these green policies had a positive effect on the willingness to WTP for them. This concern arises in the literature due to the increasing number of fees that tourists are forced to pay when visiting a destination (Durán-Román et al., 2020), which may lead to lower satisfaction at the destination (Filimonau et al., 2022). However, our results show how this effect can be attenuated in individuals with a more favorable attitude towards these policies. Other authors have worked along the same lines, reaching similar conclusions, notably Chen et al. (2016) and Gupta (2016), who suggest that people with a favorable attitude towards certain policies or actions are less reluctant to pay for them. This final hypothesis is particularly relevant as it shows the predisposition of tourists to finance the destination through these green taxes, which is of vital importance for the correct adoption of green tax policies (Behera and Sethi, 2022) that help the destination to achieve sustainable growth through its own tourism activity.

6. Conclusions

The conclusions drawn from this study are presented, divided into theoretical and practical implications, as well as highlighting the limitations of this work. First, with respect to the theoretical implications of this research, we see that it is one of the first to be able to relate a series of psychological variables of tourists to their WTP a tourist tax. Specifically, we observe how both their environmental attitude and pro-environmental self-identity, through the moderating effect of their positive attitude towards green policies, increase their WTP for them. This contribution is key to further study of the psychology of tourists and their pro-environmental actions (Do Valle et al., 2012). It may also help to lay the basis for a future predictive model of tourist pro-environmental behavior in a destination. On the other hand, this study is also pioneering in demonstrating the relationship between this positive attitude towards green policies and the WTP for them. Previous studies had focused more on the adoption of certain behaviors or concern for environmental issues (Higuera-Castillo et al., 2019; Kumar et al., 2014) or on the socio-demographic characteristics of the tourist (Göktaş and Çetin, 2023), without taking into account that often the adoption of these behaviors entails a cost for the tourist, which he or she must be WTP. Finally, the study of culture as a predictor of the adoption of certain environmental behaviors is further explored, but with the addition, along similar lines to that explained above, of having shown how people who come from individualistic cultures are less likely to pay for these types of actions, not just to adopt them (Chwialkowska et al., 2020).

In terms of the management implications for destinations, this tax should be seen and conveyed as a means to achieve both economic and environmental sustainability of destinations, and not yet another tax to be borne by the tourist. This will improve people's attitude towards this type of fee,

especially for those with a high pro-environmental self-perception and who also have an active environmental attitude, which will also prevent the payment of yet another fee from harming the tourist's enjoyment of the destination (Filimonau et al., 2022). On the contrary, there is a need for more education about the benefits of paying these fees in more individualistic cultures, especially at a younger age (Foss and Ko, 2019). Therefore, it is recommended that destinations carry out effective communication about the destination of these taxes, thereby improving attitudes towards this type of policy and increasing the WTP for them. Moreover, the study of WTP on these rates may be of vital importance for many destinations, as they could help in the recovery of destinations hit by a crisis (Chen et al., 2022), in financing the costs generated by the tourist activity itself in the destination (Kato et al., 2011), in the promotion of their destinations (Ripinga et al., 2024), and in the achievement of some SDGs outside of tourism (Ivanov et al., 2024; Xiong et al., 2023). Furthermore, as reported by Göktaş and Çetin (2023), "it would be interesting to study the WTP of tourist taxes in more destinations" using a sample of two cultural destinations such as Jaén and Torun.

In addition, as in any other work, this research has a few limitations. The first of these refers to the sample, both in terms of size and the type of individual interviewed. Regarding the former, it has been proven that the power of contrast for this type of methodology with the sample that has been obtained is more than sufficient to achieve reliable results. The use of university students as respondents should not be a problem, since they have a much more active international tourist profile than other segments of the population (Tran et al., 2018). However, we must bear in mind that this is a very specific segment of the market with limited disposable income, essentially provided by their families. Therefore, caution is urged in interpreting these results, which are more exploratory in nature, and other authors are invited to replicate this study to find out the intention of other students in other settings. Finally, we point out another limitation when considering the aggregate analysis of the data as each respondent might have thought in terms of different values. Recognizing these limitations is crucial for the credibility of the research as it helps to understand the context of the findings and provides a basis for future research that addresses these limitations. In addition, it has been considered that a multicultural context was required, so these students came from the English degrees offered in the different universities, thus bringing together more than 15 different nationalities from 5 continents.

Finally, our study on green taxes has a direct relationship with the SDGs (United Nations, 2022), as both seek to promote balanced economic, social and environmental development. We focus on the SDG 12: Responsible Consumption and Production, specifically the "Target 12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products." In short, with this goal in mind, we ask ourselves the following question: How can I help as a consumer of a tourist destination? The answer would be to act thoughtfully at the time of purchase and opt for a sustainable option or destination whenever possible. This greatly justifies and promotes our research in line with other recent studies such as Chen et al. (2022), Ivanov et al. (2024) or Xiong et al. (2023).

Author Contribution

Ortega-Rodríguez, Cristina: Survey design, development of theoretical framework and supervision of the research process; Vena-Oya, Julio: Data collection and development of the methodological framework; critical review of the methodology; Barreal, Jesús: data analysis and editing of specific sections of the manuscript; Józefowicz, Barbara: development of theoretical framework.

Use of AI tools declaration

The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

Conflict of interest

The authors declare no conflict of interest.

References

- Ahmed N, Sheikh AA, Hamid Z, et al. (2022) Exploring the causal relationship among green taxes, energy intensity, and energy consumption in nordic countries: Dumitrescu and Hurlin causality approach. *Energies* 15: 5199. <https://doi.org/10.3390/en15145199>
- Bashir MF, Benjiang MA, Shahbaz M, et al. (2021) Unveiling the heterogeneous impacts of environmental taxes on energy consumption and energy intensity: empirical evidence from OECD countries. 226: 120366. <https://doi.org/10.1016/j.energy.2021.120366>
- Becken S (2004) How tourists and tourism experts perceive climate change and carbon-offsetting schemes. *J Sustain Tour* 12: 332–345. <https://doi.org/10.1080/09669580408667241>
- Behera P, Sethi N (2022) Nexus between environment regulation, FDI, and green technology innovation in OECD countries. *Environ Sci Pollut R* 29: 52940–52953. <https://doi.org/10.1007/s11356-022-19458-7>
- Bentler PM, Bonett DG (1980) Significance tests and goodness of fit in the analysis of covariance structures. *Psychol Bull* 88: 588–606. <https://doi.org/10.1037/0033-2909.88.3.588>
- Berezan O, Raab C, Yoo M, et al. (2013) Sustainable hotel practices and nationality: The impact on guest satisfaction and guest intention to return. *Int J Hosp Manag* 34: 227–233. <https://doi.org/10.1016/j.ijhm.2013.03.010>
- Bhandari AK, Heshmati A (2010) Willingness to pay for biodiversity conservation. *J Travel Tour Mark* 27: 612–623. <https://doi.org/10.1080/10548408.2010.507156>
- Browne MW (1993) Alternative ways of assessing model fit. *Testing structural equation models*.
- Cárdenas-García PJ, Sánchez-Rivero M, Pulido-Fernández JI (2015) Does Tourism Growth Influence Economic Development? *J Travel Res* 54: 206–221. <https://doi.org/10.1177/0047287513514297>
- Cetin G, Alrawadieh Z, Dincer MZ, et al. (2017) Willingness to pay for tourist tax in destinations: Empirical evidence from Istanbul. *Economies* 5: 21. <https://doi.org/10.3390/economies5020021>
- Chen G, Cheng M, Edwards D, et al. (2022) COVID-19 pandemic exposes the vulnerability of the sharing economy: a novel accounting framework. In *Platform-Mediated Tourism*, 213–230. Routledge. <https://doi.org/10.4324/9781003230618-12>
- Chen JJ, Qiu RT, Jiao X, et al. (2023) Tax deduction or financial subsidy during crisis? Effectiveness of fiscal policies as pandemic mitigation and recovery measures. *Annal Tourism Res Empir Insights* 4: 100106. <https://doi.org/10.1016/j.annale.2023.100106>
- Chen JM, Zhang J, Nijkamp P (2016) A regional analysis of willingness-to-pay in Asian cruise markets. *Tourism Econ* 22: 809–824. <https://doi.org/10.1177/1354816616654254>
- Christensen N, Rothberger H, Wood W, et al. (2004) Social norms and identity relevance: a motivational approach to normative behaviour. *Pers Soc Psychol B Pers Soc Psychol B* 30: 1295–1309. <https://doi.org/10.1177/0146167204264480>

- Chwialkowska A, Bhatti WA, Glowik M (2020) The influence of cultural values on pro-environmental behavior. *J Clean Prod* 268: 122305. <https://doi.org/10.1016/j.jclepro.2020.122305>
- Cohen J (1998) *Statistical power analysis for the behavioural sciences*, xxi. Hillsdale, NJ: L Erlbaum Associates.
- Do Valle PO, Pintassilgo P, Matias A (2012) Tourist attitudes towards an accommodation tax earmarked for environmental protection: A survey in the Algarve. *Tourism Manage* 33: 1408–1416. <https://doi.org/10.1016/j.tourman.2012.01.003>
- Dolnicar S (2010) Identifying tourists with smaller environmental footprints. *J Sustain Tour* 18: 717–734. <https://doi.org/10.1080/09669581003668516>
- Durán-Román JL, Cárdenas-García PJ, Pulido-Fernández JI (2020) Tourist tax to improve sustainability and the experience in mass tourism destinations: The case of andalusia (spain). *Sustainability (Switzerland)* 13: 1–20. <https://doi.org/10.3390/su13010042>
- Durán-Román JL, Cárdenas-García PJ, Pulido-Fernández JI (2021) Tourists' willingness to pay to improve sustainability and experience at destination. *J Destin Mark Manage* 19: 100540. <https://doi.org/10.1016/j.jdmm.2020.100540>
- Durán-Román JL, Pulido-Fernández JI, Rey-Carmona FJ, et al. (2022) Willingness to Pay by Tourist Companies for Improving Sustainability and Competitiveness in a Mature Destination. *Leisure Sci*, 1–22. <https://doi.org/10.1080/01490400.2022.2123072>
- Fairbrother M (2019) When will people pay to pollute? Environmental taxes, political trust and experimental evidence from Britain. *Brit J Polit Sci* 49: 661–682. <https://doi.org/10.1017/S0007123416000727>
- Farhar BC, Houston AH (1996) *Willingness to pay for electricity from renewable energy (No. NREL/TP-460-21216) National Renewable Energy Lab.(NREL), Golden, CO (United States)*. <https://doi.org/10.2172/399985>
- Fekadu Z, Kraft P (2001) Self-identity in planned behavior perspective: Past behavior and its moderating effects on self-identity-intention relations. *Soc Behav Personal* 29: 671–685. <https://doi.org/10.2224/sbp.2001.29.7.671>
- Filimonau V, Matute J, Mika M, et al. (2022) Predictors of patronage intentions towards 'green' hotels in an emerging tourism market. *Int J Hosp Manag* 103: 103221. <https://doi.org/10.1016/j.ijhm.2022.103221>
- Foss AW, Ko Y (2019) Barriers and opportunities for climate change education: The case of Dallas-Fort Worth in Texas. *J Environ Edu* 50: 145–159. <https://doi.org/10.1080/00958964.2019.1604479>
- Gago A, Labandeira X, Picos F, et al. (2009) Specific and general taxation of tourism activities. Evidence from Spain. *Tourism Manage* 30: 381–392. <https://doi.org/10.1016/j.tourman.2008.08.004>
- Glover P (2011) International students: Linking education and travel. *J Travel Tour Mark* 28: 180–195. <https://doi.org/10.1080/10548408.2011.546210>
- Göktaş L, Çetin G (2023) Tourist tax for sustainability: Determining willingness to pay. *Eur J Tourism Res* 35: 3503–3503. <https://doi.org/10.54055/ejtr.v35i.2813>
- González-Rodríguez MR, Diaz-Fernandez MC, Font X (2019) Factors influencing willingness of customers of environmentally friendly hotels to pay a price premium. *International. Int J Contemp Hosp M* 32: 60–80. <https://doi.org/10.1108/IJCHM-02-2019-0147>

- Gupta M (2016) Willingness to pay for carbon tax: A study of Indian road passenger transport. *Transport Policy* 45: 46–54. <https://doi.org/10.1016/j.tranpol.2015.09.001>
- Hair Jr JF, Matthews LM, Matthews RL, et al. (2017) PLS-SEM or CB-SEM: updated guidelines on which method to use. *Int J Multivariate Data Anal* 1: 107–123. <https://doi.org/10.1504/IJMDA.2017.087624>
- Han H, Hsu LTJ, Lee J S (2009) Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel customers' eco-friendly decision-making process. *Int J Hosp Manag* 28: 519–528. <https://doi.org/10.1016/j.ijhm.2009.02.004>
- Higuera-Castillo E, Liébana-Cabanillas FJ, Muñoz-Leiva F, et al. (2019) The role of collectivism in modeling the adoption of renewable energies: A cross-cultural approach. *Int J Environ Sci Te* 16: 2143–2160. <https://doi.org/10.1007/s13762-019-02235-4>
- Hofstede G (1980) *Culture's consequences: International differences in work-related values* (Vol. 5) sage.
- Hofstede G, Bond MH (1984) Hofstede's culture dimensions: An independent validation using Rokeach's Value Survey. *J Cross-Cult Psychol* 15: 417–433. <https://doi.org/10.1177/0022002184015004003>
- Hofstede G, Hofstede GJ, Minkov M (2010) *Cultures and organizations: Software of the mind* (Vol. 2) New York: Mcgraw-hill.
- Ilić B, Stojanovic D, Djukic G (2019) Green economy: mobilization of international capital for financing projects of renewable energy sources. *Green Financ* 1: 94–109. <https://doi.org/10.3934/GF.2019.2.94>
- Ivanov S, Seyitoğlu F, Webster C (2024) Tourism, automation and responsible consumption and production: a horizon 2050 paper. *Tourism Rev*. <https://doi.org/10.1108/TR-12-2023-0898>
- Johnson D (2002) Environmentally sustainable cruise tourism: A reality check. *Marine Policy* 26: 261–270. [https://doi.org/10.1016/S0308-597X\(02\)00008-8](https://doi.org/10.1016/S0308-597X(02)00008-8)
- Kato A, Kwak S, Mak J (2011) Using the property tax to appropriate gains from tourism. *J Travel Res* 50: 144–153. <https://doi.org/10.1177/0047287510362783>
- Khan O, Varaksina N, Hinterhuber A (2024) The influence of cultural differences on consumers' willingness to pay more for sustainable fashion. *J Clean Prod* 442: 141024. <https://doi.org/10.1016/j.jclepro.2024.141024>
- Kline RB (2023) *Principles and practice of structural equation modeling*. Guilford publications.
- Kumar R, Philip PJ, Sharma C (2014) Attitude–value construct: A review of green buying behaviour. *Pac Bus Rev Int* 6: 25–30.
- Li Y, Zhou M, Sun H, et al. (2023) Assessment of environmental tax and green bonds impacts on energy efficiency in the European Union. *Econ Chang Restruct* 56: 1063–1081. <https://doi.org/10.1007/s10644-022-09465-6>
- Logar I (2010) Sustainable tourism management in Crikvenica, Croatia: An assessment of policy instruments. *Tourism Manage* 31: 125–135. <https://doi.org/10.1016/j.tourman.2009.02.005>
- Malerba D (2022) The effects of social protection and social cohesion on the acceptability of climate change mitigation policies: what do we (not) know in the context of low-and middle-income countries? *Eur J Dev Res* 34: 1358. <https://doi.org/10.1057/s41287-022-00537-x>
- McCarty JA, Shrum LJ (2001) The influence of individualism, collectivism, and locus of control on environmental beliefs and behavior. *J Public Policy Market* 20: 93–104. <https://doi.org/10.1509/jppm.20.1.93.1729>

- Mehmetoglu M (2010) Factors influencing the willingness to behave environmentally friendly at home and holiday settings. *Scand J Hosp Tour* 10: 430–447. <https://doi.org/10.1080/15022250.2010.520861>
- Meo M, Karim M (2022) The role of green finance in reducing CO₂ emissions: An empirical analysis. *Borsa Istanb Rev* 22: 169–178. <https://doi.org/10.1016/j.bir.2021.03.002>
- Mihalič T (2000) Environmental management of a tourist destination: A factor of tourism competitiveness. *Tourism Manage* 21: 65–78. [https://doi.org/10.1016/S0261-5177\(99\)00096-5](https://doi.org/10.1016/S0261-5177(99)00096-5)
- Milfont TL, Duckitt J (2010) The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *J Environ Psychol* 30: 80–94. <https://doi.org/10.1016/j.jenvp.2009.09.001>
- Nunnally JC (1994) *The assessment of reliability. Psychometric theory.*
- Oklevik O, Gössling S, Hall CM, et al. (2019) Overtourism, optimisation, and destination performance indicators: a case study of activities in Fjord Norway. *J Sustain Tour* 27: 1804–1824. <https://doi.org/10.1080/09669582.2018.1533020>
- Oliver JD (2013) Promoting sustainability by marketing green products to non-adopters. *Gestion 2000* 30: 77–86. <https://doi.org/10.3917/g2000.303.0077>
- Owen AL, Videras J (2006) Civic cooperation, pro-environment attitudes, and behavioral intentions. *Ecol Econ* 58: 814–829. <https://doi.org/10.1016/j.ecolecon.2005.09.007>
- Perman R, Ma Y, McGilvray J, et al. (1999) *Natural resource and environmental economics. Pearson Education.*
- Raisová M (2012) The implementation of green taxes into the economics. *Proc. of the 12th International Multidisciplinary Scientific Geoconference, IV*, 1153–1160.
- Reynisdottir M, Song H, Agrusa J (2008) Willingness to pay entrance fees to natural attractions: An Icelandic case study. *Tourism Manage* 29: 1076–1083. <https://doi.org/10.1016/j.tourman.2008.02.016>
- Ripinga BB, Mazenda A, Bello FG (2024) Tourism levy collection for ‘Marketing South Africa’. *Cogent Social Sci* 10: 2364765. <https://doi.org/10.1080/23311886.2024.2364765>
- Rotaris L, Carrozzo M (2019) Tourism taxes in Italy: A sustainable perspective. *J Global Bus Insights* 4: 92–105. <https://doi.org/10.5038/2640-6489.4.2.1079>
- Rotaris L (2022) Tourist taxes in Italy: The choices of the policy makers and the preferences of tourists. *Scienze Regionali* 21: 199–228.
- Ru X, Qin H, Wang S (2019) Young people’s behaviour intentions towards reducing PM_{2.5} in China: Extending the theory of planned behaviour. *Resour Conserv Recy* 141: 99–108. <https://doi.org/10.1016/j.resconrec.2018.10.019>
- Rustam A, Wang Y, Zameer H (2020) Environmental awareness, firm sustainability exposure and green consumption behaviors. *J Clean Prod* 268, 122016. <https://doi.org/10.1016/j.jclepro.2020.122016>
- Ryan C, Zhang Z (2007) Chinese students: holiday behaviours in New Zealand. *J Vacat Market* 13: 91–105. <https://doi.org/10.1177/1356766707074734>
- Sabiote-Ortiz CM (2010) *Valor percibido global del proceso de decisión de compra online de un producto turístico. Efecto moderador de la cultura (Doctoral dissertation, Universidad de Granada).*
- Schuhmann PW, Skeete R, Waite R, et al. (2019) Visitors’ willingness to pay marine conservation fees in Barbados. *Tourism Manage* 71: 315–326. <https://doi.org/10.1016/j.tourman.2018.10.011>

- Sharma MN, Singh S (2022) Role of Collectivism and Consumer Trust in Making Consumer Attitude Towards Green Products. *J Positive School Psychol* 6: 3580–3588.
- Shehawy YM, Agag G, Alamoudi HO, et al. (2024) Cross-national differences in consumers' willingness to pay (WTP) more for green hotels. *J Retail Consum Serv* 77: 103665.
- Sineviciene L, Sotnyk I, Kubatko O (2017) Determinants of energy efficiency and energy consumption of Eastern Europe post-communist economies. *Energ Environ* 28: 870–884. <https://doi.org/10.1177/0958305X17734386>
- Sullivan JH, Warkentin M, Wallace L (2021) So many ways for assessing outliers: What really works and does it matter? *J Bus Res* 132: 530–543. <https://doi.org/10.1016/j.jbusres.2021.03.066>
- Sundt S, Rehdanz K (2015) Consumers' willingness to pay for green electricity: A meta-analysis of the literature. *Energ Econ* 51: 1–8. <https://doi.org/10.1016/j.eneco.2015.06.005>
- Taghizadeh-Hesary F, Yoshino N (2019) The way to induce private participation in green finance and investment. *Financ Res Lett* 31: 98–103. <https://doi.org/10.1016/j.frl.2019.04.016>
- Taylor R, Shanka T, Pope J (2004) Investigating the significance of VFR visits to international students. *J Market High Educ* 14: 61–77. https://doi.org/10.1300/J050v14n01_04
- Tran MN, Moore K, Shone MC (2018) Interactive mobilities: Conceptualising VFR tourism of international students. *J Hosp Tourism Manage* 35: 85–91. <https://doi.org/10.1016/j.jhtm.2018.04.002>
- Tsai WT (2024) Green finance for mitigating greenhouse gases and promoting renewable energy development: Case study in Taiwan. *Green Financ* 6: 249–264. <https://doi.org/10.3934/GF.2024010>
- United Nations (2022) *Department of Economic and Social Affairs. Sustainable Development*. Available from: <https://sdgs.un.org/goals/goal12>.
- Wang Y, Liu J, Yang X, et al. (2023) The mechanism of green finance's impact on enterprises' sustainable green innovation. *Green Financ* 5: 452–478. <https://doi.org/10.3934/GF.2023018>
- Whitmarsh L, O'Neill S (2010) Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *J Environ Psychol* 30: 305–314. <https://doi.org/10.1016/j.jenvp.2010.01.003>
- Xiong W, Huang M, Leung XY, et al. (2023) How environmental emotions link to responsible consumption behavior: tourism agenda 2030. *Tourism Rev* 78: 517–530. <https://doi.org/10.1108/TR-01-2022-0010>
- Yang M, Chen H, Long R, et al. (2022) The impact of different regulation policies on promoting green consumption behavior based on social network modeling. *Sustain Prod Consump* 32: 468–478. <https://doi.org/10.1016/j.spc.2022.05.007>
- Zaman K, Awan U, Islam T, et al. (2016) Econometric applications for measuring the environmental impacts of biofuel production in the panel of worlds' largest region. *Int J Hydrogen Energ* 41: 4305–4325. <https://doi.org/10.1016/j.ijhydene.2016.01.053>
- Zaman KAU (2023) Financing the SDGs: How Bangladesh May Reshape Its Strategies in the Post-COVID Era? *Eur J Dev Res* 35: 51. <https://doi.org/10.1057/s41287-022-00556-8>

