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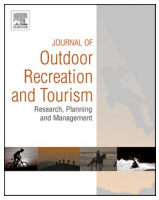

Tourists' perceptions of economic instruments as sustainable policies in protected areas: The case of Geiranger fjord in Norway

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ABSTRACT

Tourism in protected areas boosts local economies while adversely affecting the environment, local communities, and tourists. To tackle the negative effects of increasing tourism demand while retaining economic benefits, sustainable tourism policies should be properly implemented. In this study, Geiranger Fjord in Norway, a protected area included in the UNESCO World Heritage Sites, was taken as a case study. Data from an in situ questionnaire to tourists in the area, following the contingent valuation method, were further analysed with an ordinary least square model, price elasticities, and a mixed logit model. This research contributes to the existing literature on empirical evidence of the factors influencing tourists' perceptions of the use of economic instruments, as management policies, price sensitivities and destination substitution to surrounding areas, accounting for differences among socioeconomic characteristics, particularly age, gender, and education; in addition to trip features, namely, travel party, length of stay, and intra-destination activities; and destination motivations.

Management implications: Successful sustainable tourism policies, such as economic instruments, should consider the different perceptions of tourists in terms of the implementation of these policies to achieve a greater acceptance and commitment towards conservation. This research provides empirical evidence that young, highly educated tourists and those hiking had a higher willingness to pay for an entrance fee; while females, families with children and tourists overnighting more than one night had a greater probability to go to a different destination with higher entrance fees. These findings could be used within the development of an adaptative and cooperative framework for sustainable tourism policies.

1. Introduction

Tourism is frequently considered a "green" industry (Font & McCabe, 2017); hence, it could benefit economic growth (Comerio & Strozzi, 2019) and facilitate the sustainable maintenance of destinations (Silva & Henriques, 2021). Nonetheless, some areas are being sustainably compromised as a consequence of growing tourism (Cheung & Li, 2019). Tourism negatively impacts noise (de Leaniz & del Bosque, 2015), greenhouse gas emissions (Saenz-de-Miera & Rosselló, 2014), congestion (Fennell, 2003; León et al., 2015), habitat degradation (Hall, 2001), wildlife (Honey, 2008; Sorupia, 2005), road accidents (Petridou et al., 1999), and waste generation (Caponi, 2022). The impact of tourism is perceived by management authorities, residents, and tourists (Su et al., 2020), and thus inappropriate tourism management might directly affect the tourism demand for certain destinations. As an example, traffic congestion at destinations might directly impact tourist satisfaction (Chi & Qu, 2008; Riganti & Nijkamp, 2008), which influences the destination choice (Dickinson & Robbins, 2008), trip timing (Shailes et al., 2001), expenditure, and potential recommendation of the visited places (Yoon & Uysal, 2005).

Sustainable tourism policies might be described as management actions aiming at the development of the tourism industry that take full account of environmental, sociocultural, and economic impacts, which fulfils the requirements of tourists, industry, environment, and local communities (UNWTO, 2021). Sustainable certification programs have been introduced to promote social, cultural, and environmental tourism (Honey, 2002). Some areas have unique natural, geographical, cultural, or historical properties whose extreme value should be preserved for future generations (Hosseini et al., 2021; Reinius & Fredman, 2007). Currently, some recognition labels are used within protected areas, such as national parks, protected landscapes, natural reserves, habitat management areas, marine protected areas (NEA, 2022), and World Heritage

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Sites (WHS). UNESCO is designating sites with the label of WHS for its natural, cultural or mixed value; more than 1.100 sites have already acquired this special label (UNESCO, 2022). However, international guidelines do not sufficiently prevent degradation (Pisani et al., 2021), and sustainable tourism policies have shown failures due to the inability to conform to technical and operational requirements by the tourism business or due to inadequate implementation by the authorities (Gkoumas, 2019). Therefore, there is a growing interest in many European countries in managing these areas through governance (Hidle, 2019) and a tendency to change the financial source to conservation from government budgets to tourism-based fees (Eagles et al., 2013).

Some sustainable tourism policies aiming at reducing the number of tourists without compromising the revenue in protected areas include economic instruments, such as entrance fees (Alpízar, 2006), which have been historically used in the United States (Sharpley & Sharpley, 1997), although still not common in the Nordic countries (Reynisdottir et al., 2008). Entrance fees have been shown to be preferred over royalties, donations or taxes (Shoji et al., 2021). Arguments in favour of imposing an entrance fee to be paid by visitors are related to reducing the number of visitors (Becker, 2009) or overcoming potential shortfalls of financial support (Balmford et al., 2015). Using revenues for tourism promotion or investments could compensate for negative effects, such as traffic congestion or environmental externalities (Palmer-Tous et al., 2007). On the other hand, arguments against entrance fees stand on equality for the use of public goods (Becker, 2009), as tourists with lower income might be the affected parties (Chase et al., 1998). Other options could be flexible tourism taxation depending on the length of stay (Caponi, 2022) or imposing price discrimination depending on the type of visitor (Alpízar, 2006).

Successful management actions require exhaustive policy preparation (Hudson et al., 2019). Knowing the characteristics of the destinations and identifying the perception of each tourist group towards them is a first step in finding sustainable tourism policies (Truong et al., 2016). Tourism behaviour is an important aspect to consider (Pásková et al., 2021); despite the vast literature in relation to willingness to pay (WTP) and socioeconomic characteristics, few studies account for the heterogeneity of preferences (Zabala et al., 2022). Moreover, to the authors' knowledge, there is scarce literature linking WTP to destination activities. Implementing entrance fees might trigger substitutional effects, as another potential factor influencing tourism demand is prices on other substitutive destinations (Song & Witt, 2012). Despite the importance of determining this effect as part of sustainable tourism policies (Loomis & Keske, 2009), there is little focus on this in the literature. In this study, Geiranger Fjord in Norway, a protected area included in the UNESCO WHS (UNESCO WHC, 2022), serves as a case study to provide empirical evidence from an in situ questionnaire to address RQ1. What are the factors affecting the WTP for an entrance fee in a protected area? RQ2. How does an entrance fee in a protected area affect the destination attraction for surrounding areas?

The article is structured as follows. A more thorough literature review is included in Section 2. Section 3 describes the case study, and the methods used for data collection and data analyses are presented in Section 4. The results are presented in Section 5, followed by a discussion in Section 6, including the research questions and a general reflection on the use of economic instruments as a sustainable tourism policy. A summary and conclusions are outlined in Section 7.

2. Literature review

In recent years, tourism demand in Norway has increased, especially for natural attractions (SSB, 2019). Despite the outbreak of COVID-19, the tourism industry is expected to recover in the upcoming years (Zhang et al., 2021). This revival provides an opportunity for sustainable transformation of the tourism industry (Sharma et al., 2021). More than 17% of the Norwegian mainland has a protected status (NNP, 2022). Nevertheless, several protected areas were not equipped to receive such a great number of visitors and then suffered from negative effects, such as pollution, littering, or congestion (Øian et al., 2018). Therefore, there is a need to manage the tourism pressure on certain protected areas. The conservation of nature in large areas is still disputed in Norway and a source of conflicts among local and national stakeholders (Hovik & Hongslo, 2017; Overvåg et al., 2016), as management is a decentralised level (Hongslo et al., 2016). For WHS, international guidelines and stakeholders should also be included in the process (Mandić & Kennell, 2021). Norway is developing new management models being appointed to the local level, with the establishment of management bodies with representatives from all the relevant municipalities (NEA, 2022) and increasing local participation to reduce conservation conflicts (Fedreheim & Blanco, 2017). Conservation management of Norwegian protected areas integrates nature-based tourism development, including recreational and outdoor activities (Hidle, 2019; Øian et al., 2018).

There are three main management actions found in the literature: economic instruments, resource-based approaches, and soft management techniques. The former might include entrance fees or indirect fees related to parking facilities, other taxes and value added tax (VAT) (Øian et al., 2018). Resource-based approaches focus on policies to spatio-temporally spread tourism to avoid crowding certain destinations during rush hours. These policies could regulate the number of visitors per time period or increase the attraction to other areas, for example. Soft management techniques refer to enhancing sustainability awareness through education programs, information, and guide tours, among others (Breiby et al., 2022); marketing to promote ecotourism, or similar concepts, would also fit within this classification. The implementation of these management actions in an adaptative and cooperative framework among all stakeholders provides a more flexible and inclusive approach (Islam et al., 2018), which might increase acceptance and successful policy performance.

This research focuses on tourists' perceptions of the economic instruments given the tendency of reducing government funds to conserve protected areas (Zhang et al., 2021), which puts more pressure to collect external revenue. Local business or residents could partially contribute as these actors also benefit from the tourism industry; however, a debate has arisen regarding whether tourists should also be included in the economic contribution towards maintenance and conservation. Implementing entrance fees in Norway might face some legal challenges, as the Outdoor Recreation Act in 1957 states that the public right of access does not allow entrance fees to enter an area (Øian et al., 2018). Nevertheless, based on the principle that people are willing to economically contribute according to the costs they avoid and the benefits they receive (Rode et al., 2016), the perceptions of the entrance fee observed in this research could be generalised to other economic management instruments.

Entrance fees affect the price of the destination, which is considered one of the key determinant factors for tourist destination choice (Lim, 1997; Nicolau, 2011), leading to a reduction in tourism demand (Schwartz & Lin, 2006). Entrance fees should be based on empirical evidence and be in line with the WTP for local and foreign tourists (Shahabuddin, 2009), although several studies reflect that the WTP is higher than the entrance fee (Riley et al., 2006; Szell, 2012; Vincent et al., 2014). Some research suggests that tourists are willing to pay for the non-consumptive benefits offered by a protected area (Balmford et al., 2015). The WTP for entering a protected area reflects the personal economic valuation of the good (Hanley et al., 1997) and could be affected by different tourist segments (Reynisdottir et al., 2008), by the attitude towards sustainability (Carlsson & Johansson-Stenman, 2010), and by the trustworthiness of the government (Soo-Hee Lee & Oh, 2021).

The WTP might vary depending on the method used to capture it, whether it is from stated responses or based on observed behaviour (O'riordan, 2014). Contingent valuation (CV) is a common method for estimating the WTP; it is a stated preference approach that acquires that term in the context of environmental amenities (Magesa & Mkasanga,

2021; O'Connor, 2021). Choice experiments are another technique that could deal with multidimensional product attributes and provide more information to respondents (Lusk & Schroeder, 2004); however, for estimating the WTP for an entrance fee, there is no need for such complexity. A strength of the CV method is that it can be applied to several situations, as it does not rely on actual or observed behaviour (Emerton & Bos, 2004). CV has been used in over 10,000 studies in a great number of contexts (Haab et al., 2020). It estimates the value of a good or service by directly eliciting individuals' response contingent within certain conditions (Carson, 2000). Although several studies have suggested that intended behaviour is an indicator of real behaviour (Louviere et al., 2000), in most CV studies, the WTP is overestimated compared to the actual or real value due to the hypothetical nature of the scenario (Cummings et al., 1995; Hasler et al., 2005), as respondents are not accustomed to thinking in terms of monetary value for goods (Arrow et al., 1993). In addition to the hypothetical bias, the results might underline strategic behaviour, which is raised when people deliberately try to influence a future payment (Mitchell & Carson, 1989). Venkatachalam (2004) reviewed several potential biases linked to the method, addressing the criticism of the validity and reliability of the results, and concluded that even with the limitation of the method, carefully designed studies could provide useful results.

The CV method has been previously used to estimate WTP and reactions to entrance fees (Adams et al., 2008; Asafu-Adiave & Tapsuwan, 2008; Chen & Jim, 2012; Lal et al., 2017; Lee & Han, 2002; Loomis & Keske, 2009; Mmopelwa et al., 2007; Reynisdottir et al., 2008; Turpic, 2003; Walpole et al., 2001; Wang & Jia, 2012). Some of these studies related the WTP to socioeconomic features, motivations, attitudes, or tourist satisfaction; however, few of them related the WTP to the intra-destination activities. Both tangible physical attributes of a destination design, such as facilities, location and accessibility, and less tangible attributes, such as service and experience, can affect the number of tourists towards a destination (Tigu, 2012). Moreover, previous research suggests that the spatial intra-destination behaviour of tourists affects their expenditure (Domènech et al., 2020). Thus, relating WTP to the intra-destination activities could improve the management of tourist areas.

In addition to the WTP, price elasticities are an interesting value for policy-makers, as they reflect the tourist's demand response to changes in the entrance fee (Song & Li, 2008). The concept of price elasticity is widely used in the microeconomic analysis of consumer demand, which represents the percentage change in demand due to a 1% change in price. The relationship should be negative (Lim, 1997); however, Crouch (1996) observed several price elasticity studies, whose values ranged from 0.11 to −4.3. This wide variation may be explained by the fact that price elasticities are generally based on revealed preference data; however, these might be biased, as data over time or across boundaries may be altered by other factors (Ortúzar & Willumsen, 2011). Other reasons might yield into the inconsistent use of the price variables (Kim & Lee, 2017) or in the disregard of cross-sectional dependency (Fuleky et al., 2014). In addition, tourist background features may influence price elasticities (Seetaram et al., 2016), although few studies include this in their analysis.

This research contributes to the existing literature on empirical evidence of the factors influencing tourists' perceptions of the use of economic instruments, price sensitivities and destination substitution to surrounding areas; and it accounts for differences, including heterogeneity, among socioeconomic characteristics, particularly age, gender, and education; trip features, namely, travel party, length of stay, and intra-destination activities; and destination motivations.

3. Site description

Geiranger, which is located at the end of Geiranger fjord, is a tourist village in the western part of Norway with 250 inhabitants. The area is considered among the top 10 destinations in Norway (Visit Norway, 2019) and it is within the World Heritage Site since 2005 (UNESCO WHC, 2022). Almost 20% of international tourists considered this label to be very important when deciding to visit the area (Dybedal & Haukeland, 2017). Fig. 1 shows the location of the Geiranger centre, Geiranger area (referred to as Geiranger) and the surrounding area defined in this study. The Geiranger centre can be visited by land through one of three accesses. The north access includes the car ferry Linge-Eidsdal, which is in operation all year round with 4 or 2 departures per hour depending on the season, peak season (June–August) or off-peak season, respectively. The duration is 12 min, and the ticket fee for a car including a driver is approximately 10€. The west access includes the car ferry Hellesylt-Geiranger, which operates between April and October with 8 or 4 departures per day in the peak or off-peak season, respectively. The onboard time is approximately 60 min with a ticket fee for a car, including a driver is approximately 60€. The south road access is open only between May and October due to winter weather conditions. In addition, tourists can reach the Geiranger centre by sea through Geiranger fjord. Geiranger Port is the second most important tourist port in the country (Stranda Port Authority, n.d.) and it receives several cruises and express ferries (Hurtigruten), especially in the peak season.

Table 1 describes the features of the most popular intra-destinations in the Geiranger area, and these are shown in Fig. 2, in terms of distance to the Geiranger centre and type of destination. The Geiranger village centre (A) provides shopping, restaurants, cafés, and outdoor activities, such as fjord sightseeing or kayaking. The village itself is a cultural attraction, and some of the restaurants serve local food. Ørnesvingen viewpoint (B), is next to one of eleven hairpin bends road. The place offers a panoramic view of the fjord and the famous 'Seven Sisters' waterfall. It is on the side of the road, with limited parking available, and tourist buses usually stop there in their way to or from the village. The Dalnibba viewpoint (C) is Europe's highest fjord view from a road. It is situated at the top of several hairpin bends. The access road, with a cost starting at 17€ per private vehicle, is only open from approximately mid-May to mid-September depending on climate conditions. Tourist buses often have this destination included in their routes. The flydalsjuvet viewpoint (D) offers a spectacular view of the village and Geiranger fjord. Some of Norway's most popular travel photos are taken at this place, where tourist buses often stop. Fossevandring waterfall walk (E) is a walk along the waterfall with several picturesque viewpoints, which can be seen following several hundred steps, up or down, on a metallic stair. The Norwegian fjord centre is an adventure centre and museum (F) that provides experiences for all ages as it describes the formation, biodiversity, culture, and nature of the world heritage site. There are interactive exhibitions, photographs, and films. The ticket fee per person is approximately 13€. Westerås gård (G), located 4 km from Geiranger centre, is a farm with picturesque old houses and spectacular views of the fjord and a restaurant serving local food. Nevertheless, this place is more known and visited because it is a starting point of several hiking paths, with differing levels of difficulty.

The total number of tourists visiting the Geiranger centre in 2018 was almost 1 million visitors (Yttredal et al., 2019). Fig. 3 shows the distribution of these tourists within the land and sea accesses. The most popular accesses are through the local road (north and south) and by cruises. Similar to other cold-climate destinations, this area suffers from seasonality problems (Baum & Hagen, 1999), as tourists in the peak season represent more than 80% of the total (Yttredal et al., 2019).

This area has received previous attention due to the increase in tourism demand and its unique features. Halpern (2007) observed the tourism demand for the area based on available registered data, including the number of visitors, length of stay, accommodation type, and country of residence, further estimate of visitors' expenditures, as well as their accessibility to the area. A survey along the Geiranger/-Trollstigen road was conducted to relate the tourists' motivations and satisfaction of this scenic road with their socioeconomic characteristics (Denstadli & Jacobsen, 2011). An in situ questionnaire by Dybedal and Haukeland (2017) observed the tourist accommodation type and length

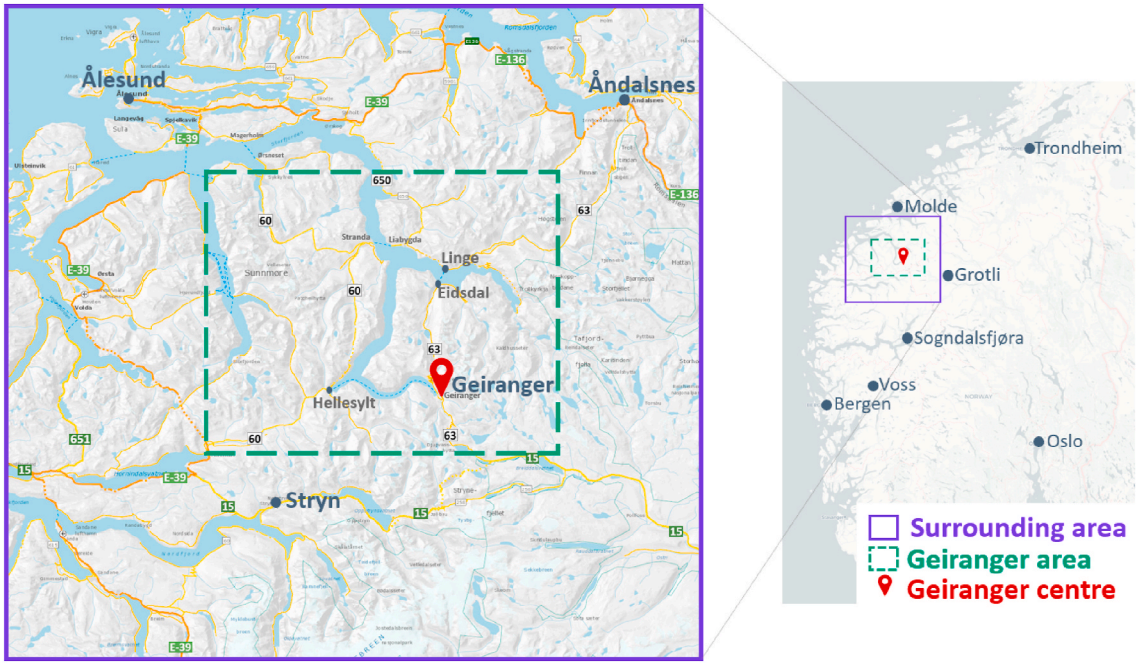

Fig. 1. Location.

Table 1
Intra-destination places (✔ main activity offered; ✓ other activities offered).

	Intra-destination	Distance to Geiranger centre (km)	Viewpoint	Hiking	Water activities	Village	Museum	Local food
A	Geiranger centre	0			✓	✔		✓
B	Ørnesvingen	7	✔					
C	Dalsnibba	21	✔					
D	Flydalsjuvet	4	✔					
E	Fossevandring	0.5		✔				
F	Norwegian fjord centre	1.5					✔	
G	Westerås gård	4	✓	✔				✓

of stay and intra-destinations attractions. The responses were complemented with an online survey to also address expenditure and tourism satisfaction in the area. Traffic video recordings were used to complement traffic counts from the Norwegian Road Administration, obtaining better estimates of daily and hourly traffic in the Geiranger area (Dahl & Meland, 2018). Expert judgement made by the local port authorities, cruise lines, cruise handling agencies, bus operators, and local tour agencies was followed to provide estimates of potential cruise traffic volumes for future scenarios (Aspen et al., 2020). Jacobsen et al. (2019) carried out a survey at the Geiranger centre to identify tourists' perceptions of crowding, which challenges sustainable tourism development. Another in situ questionnaire conducted by Yttredal and Homlong (2019) focused on understanding the socioeconomic and trip features of the tourists to assess their relationship with the expenditure. An in situ questionnaire by Babri and Díez-Gutiérrez (2019) observed socioeconomic and trip features, motivations, intra-destination activities, and route preferences. Part of the data collected in this later study is used in this research to improve the understanding of the perceptions of economic management instruments in protected areas.

4. Methodology

In this research, Geiranger, as a single case study, was used to address the differences in perceptions of a hypothetical entrance fee for tourists in a protected area. The overall methodology selected was a case study, as this method is adequate to address descriptive or explanatory research questions (Shavelson & Towne, 2002). It may be described as an intensive analysis of a single individual, group, community or some other unit to make generalisations about a larger sample (Gustafsson, 2017). Data were collected through an in situ questionnaire following the CV method, a common method for estimating the WTP (Magesa & Mkasanga, 2021; O'Connor, 2021). Data were analysed following three methods: ordinary least square (OLS) model, price elasticities, and a mixed logit (ML) model. The use of multiple analysis methods, denoted as triangulation, can overcome the potential bias resulting from using a single method; thus, the validity and reliability of the research are improved (Heath, 2001).

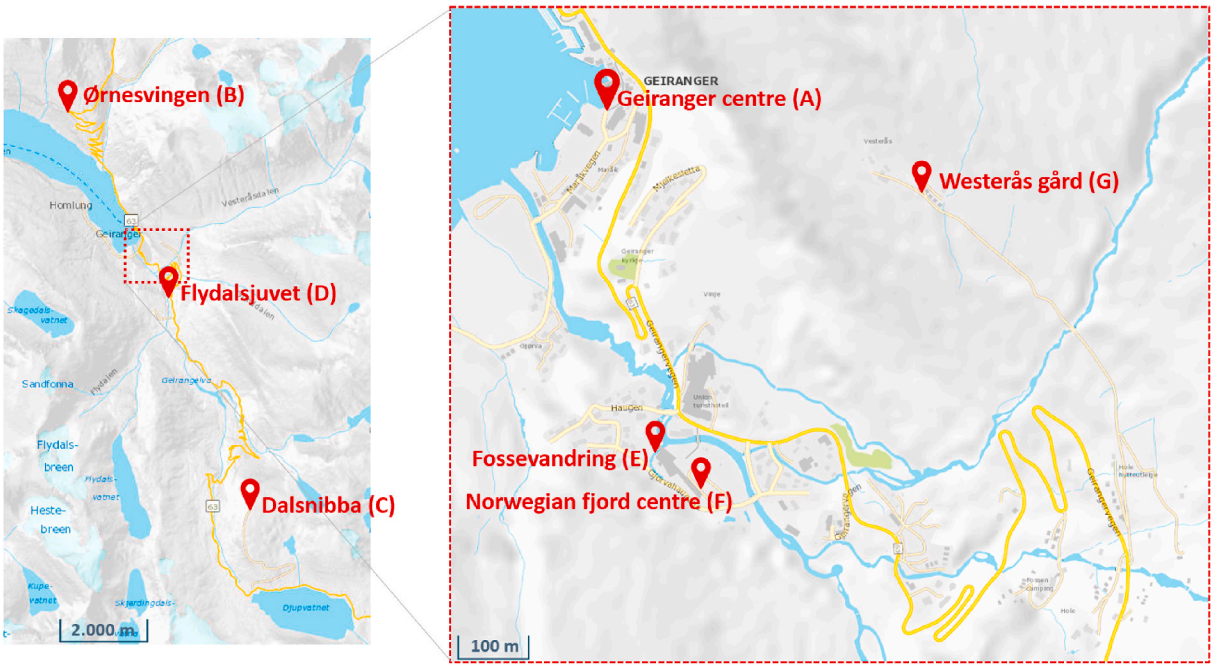

Fig. 2. Location of intra-destinations (background map source (Statens vegvesen, 2020)).

Fig. 3. Total number of tourists visiting the Geiranger centre in 2018 and the share during the peak season (data source (Yttredal et al., 2019)/background map source (Statens vegvesen, 2020).

4.1. Data collection - survey design

Data for this study were collected using a tourist survey over a period of 20 weekdays in the summer of 2018, due to administrative issues weekends were not included. The survey was conducted at seven locations in Geiranger: Eidsdal, Linge, and Hellesylt ferry quays; Geiranger centre; and Ørnesvingen, Dalsnibba, and Flydalsjuvet viewpoints. The spatiotemporal distribution of the data collection aimed to cover different types of tourists. A potential underrepresentation of tourists to/from south might have been covered by tourists at the centre and underrepresentation of weekend tourists by those answering the surveys Fridays or Mondays. From the tourists interviewed on Mondays in their way out of Geiranger, 90% had overnighted in the village at least one night; and from the tourists interviewed on Friday in or in their way to Geiranger, 77% planned to overnight in the village. Additionally, data from previous studies in the area were observed to validate the sample distribution. Data were analysed with Excel and Python software.

The survey was designed as a questionnaire for self-completion in several languages, coded in QuenchTec (QuenchTec, 2018). Two interviewers were present at the locations to assist respondents and encourage participation, as no reward was offered. They lent tablets to the respondents given the dynamic behind the questionnaire, as a paper version was not an option. This dynamic allowed respondents to answer only relevant questions based on their previous answers. The

interviewers approached different types of tourists aiming to randomly cover the diverse demographic characteristics of them. Although people unwilling to participate were not reported, the interviewers noticed that tourists at the ferry quays or resting in the centre were more willing to participate.

The questionnaire was divided into three main parts: (1) socioeconomic information; (2) trip to/from Geiranger; and (3) mobility within Geiranger centre, such as transport mode, length of stay, visited attraction points, and destination motivation. To reduce the completion time of the survey, tourists were answering different sets of questions depending on whether they were on their way to Geiranger, in the centre, or in their way out. In addition, tourists travelling to/from Geiranger using their own vehicle had questions related to route choice and contingent valuation. In total, the survey was answered by 915 tourists (Babri & Díez-Gutiérrez, 2019), 411 of those had questions related to the potential entrance fee and thus were further analysed in this paper with more advanced methods.

4.1.1. Contingent valuation - discrete choice experiment method

In this research, the CV method was followed to estimate the factors affecting the WTP for an entrance fee in a UNESCO world heritage site and its effect on the surrounding areas. There are different elicitation techniques (Cook et al., 2018), open questions, payment cards, dichotomous choices with single- or double-bound formulations, bidding games, referendums or multiple bounded discrete choices (MBDCs). In the latter approach, unlike the double bound formulation, the choice set remains equal, which leads respondents to behave consistently with economic theory (Voosler, 2003). Some empirical evidence showed a greater accuracy of the WTP following the MBDC than with dichotomous choice or open-ended elicitation techniques (Dieng et al., 2020).

In this study, a similar approach to MBDC was followed. Tourists were asked if they would visit Geiranger area for five different entrance fees (10€, 20€, 40€, 60€ or 80€). Instead of providing answers in relation to the probability of visiting the area, as is common in this approach (Welsh & Poe, 1998), to assess the relation between the protected area and the surrounding areas, the discrete choice alternatives were 1) "I would visit Geiranger", 2) "I would visit the surrounding area of Geiranger", and 3) "I would not visit Geiranger or the surrounding area".

Respondents were familiar with the environment as they were already in the area; moreover, a map showing the referred areas was shown in the questionnaire, and interviewers assisted the respondents in clarifying any doubt that they encountered. This reduces biases related to the description of the hypothetical scenarios (Carson, 2000). The entrance fees were fixed values to depict a more concrete and realistic scenario; providing respondents fee values induces them to give reliable responses (Hasler et al., 2005). To analyse the reliability of the CV, two hypotheses were tested, following Carson (2000) recommendations. First, basic statistics (mean, standard deviation, skewness, and kurtosis) were used to test that the higher the entrance fee, the lower the demand; and second, price elasticities were used to test that the WTP increased in a plausible manner.

4.2. Data analyses

The influential factors of the WTP were estimated following a multiple regression analysis. In this method, several variables that affect the dependent variable can be explicitly controlled, which is relevant for evaluating policy effects (Wooldridge, 2016). The OLS method was followed. The principle of this method, described in Equation (1), is to obtain the parameters that minimise the sum of squares residuals.

$$Y = \beta_0 + \beta_1 X_1 + \ \ldots \ + \beta_n X_n + \varepsilon \tag{1}$$

where Y is the dependent variable, in this case the maximum entrance fee that tourists were willing to pay for entering the Geiranger area; X_i (i = 1, …n) are the independent variables, with β_i (i = 1, …n) as the regression parameters (measures the change in Y with respect to X_i, holding the rest of the factors fixed); β_0 is the intercept; and ε is the residual.

The price elasticity of tourism demand could be defined as the percentage change in the demand (D) corresponding to a 1% change in the entrance fee. Price elasticity can be estimated using several methods. In this study, linear elasticity is defined in Equation (2).

$$E_d^{linear} = \frac{\frac{D_1 - D_2}{D_1 + D_2/2}}{\frac{P_1 - P_2}{P_1 + P_2/2}} \tag{2}$$

where D is the demand and P is the entrance fee for two different situations, 1 and 2.

A discrete choice model was estimated to observe in more detail how the different socioeconomic and trip features affected the price sensitivity for visiting Geiranger or the surrounding areas. For this analysis, a total of 2205 observations were considered, five per respondent corresponding to the different entrance fees on the stated preference questions. The ML model is a flexible and powerful model that can approximate any discrete choice model based on random utility theory (McFadden & Train, 2000). It states that an individual (n) associates an index of preference, utility (U_{jn}), with each alternative (j) and chooses the alternative that maximises its utility, according to the utility maximisation rule. ML models account for correlation among alternatives, correlation among parameters (taste variation), autocorrelation of the same parameter over choice scenarios (panel data), and heterogeneity of random parameters and error components (Greene & Hensher, 2007).

Equation (3) represents the utility.

$$U_{jn} = V_{jn} + \eta_{jq} + \varepsilon_{jn} \tag{3}$$

where V_{jn} is the deterministic part of the utility function (equation (4)), and η_{in} and ε_{in} are the stochastic portion; η_{in} is a random term with zero mean and distribution over individuals and alternatives depending on underlying parameters or observed data (could follow different distribution types); ε_{in} is the error term with zero mean and distribution over alternatives not depending on observable data (Gumbel distributed).

$$V_{jn} = \beta_j + \sum_k (\beta_k + \mu_{nk} + \beta_{kS} S_n) X_{jnk} \tag{4}$$

where β_j is the mean of the alternative specific constant (ASC); β_k is the mean of the parameter (k); μ_{nk} is the distribution over individuals (n) of the parameter (k), assumed to be normally distributed (0,1); β_{kS} is the mean of the parameter (k) for a specific socioeconomic variable (S_n); and X_{jnk} are the rest of the variables.

The probability of each alternative is given by Equation (5).

$$P_{jn} = \frac{\exp(V_{jn})}{\sum_{i \in A(n)} \exp(V_{in})} \tag{5}$$

where i represents the set of available alternatives (A) per each individual (n).

In this study, all respondents had all three alternatives available (visiting Geiranger; visiting surrounding areas; or visiting none of the areas). All categorical variables were coded as dummies. To avoid the dummy variable trap, which implies that the independent variables are multicollinear, i.e., one variable can be predicted from others, one of the levels was set as the basis. This means that the parameters estimated by the models were related to the basis. The models were estimated using Python-Biogeme (Bierlaire, 2020).

The correlation between variables was observed beforehand to reduce the number of variable combinations within the model. First time and place of residence were correlated at the 5% significance level. Age was correlated with employment, and place of residence was significant at the 1% and 5% levels, respectively. Employment was correlated with place of residence at the 10% significance level.

Table 2
Socioeconomic characteristics.

	N	%
	Sample (N = 411)	
Gender		
Male	169	41%
Female	242	59%
Age		
Under 34	152	37%
35-54	172	42%
Over 55	83	20%
No answer	4	1%
Maximum education level		
Primary	25	6%
Secondary	102	25%
Bachelor or higher	270	66%
No answer	14	3%
Employment		
Full time	306	74%
Part time	22	5%
Student	36	9%
Unemployment	10	2%
Retired	30	7%
No answer	7	3%
Place of residence		
Europe (excl. Norway)	214	52%
Norway	161	39%
Asia	21	5%
North America	13	3%
Other	2	1%

Table 3
Trip characteristics.

	N	%
	Sample (N = 411)	
Travel party		
Family/friends without children	262	64%
Family/friends with children	89	22%
Alone	19	5%
No answer	41	9%
Transport mode to/from Geiranger		
Car	343	83%
Caravan	68	17%
Transport mode in Geiranger – different than the transport mode to/from Geiranger – (N = 79, 19% of the total sample)		
Fjord safari	9	11%
Fjord sightseeing	55	70%
Kayak tour	8	10%
Bus tour	1	1%
Rental bike	3	4%
Rental electric car	3	4%
Number of nights in Geiranger		
no overnighting	109	27%
1 night	121	29%
2 nights	100	24%
Up to 1 week	68	17%
More than 1 week	13	3%
Main attraction		
Yes	293	71%
No	118	29%
First time		
Yes	261	64%
No	150	36%

5. Results

5.1. Data sample

Table 2 shows the socioeconomic characteristics of the sample. Tourists completing the survey were 59% female. Regarding the age distribution, 37% were less than 34 years old, and 42% were between 35 and 54 years old. 66% of the tourists had at least a bachelor's degree, which could indicate that their purchasing power was high (Stryzhak, 2020), as there were no questions related to income. Compared to a previous survey in the area by Yttredal and Homlong (2019), age distribution and education presented almost the same percentages, although in this study, the share of females was overrepresented in 14 percentage points. 74% were working full time, while 9% were students, and 7% were retired people. Tourists living in Europe represented 91%, of whom 39% had Norwegian residence; a similar distribution of country of residence was found in Dybedal and Haukeland (2017).

Table 3 represents the tourist trip's features of the sample. Most of the tourists were travelling with friends or family, 22% with children and 64% without them. In contrast, only 5% were travelling alone. Tourists from the sample were travelling using their own vehicle, 83% by car and 17% by caravan. 19% of the sample used a different transport mode to move around in the area. The most popular tour was fjord sightseeing, 70%, followed by fjord safari and kayak tour, 11% and 10%, respectively. Regarding the number of nights overnighting in Geiranger, 29% of respondents spent one night, while 27% did not overnight in the Geiranger area; the average stay was 1.46 nights, similar to previous studies by Halpern (2007). Geiranger was the main attraction of the trip for 71% of the sample, and 36% had previously been in the area.

Fig. 4 depicts the relevance tourists put on different drivers for selecting a tourist destination. These motivations are within the decision process for the main tourist destination. Nature was the most important driver, followed by relaxation, safety, and accommodation. For short trips within the main destination (intra-destinations), the significant factors were those related to potential activities, such as outdoor activities, cultural attractions, local food, or extreme sports, in this corresponding order. In this study, extreme sports were left out as, on the one hand, tourists expressed quite low interest in this type of activity, and on the other hand, the offer from the considered intra-destinations was poor. Regarding local food, none of the intra-destinations represented solely this type of attraction; thus, it was not further observed.

In relation to the intra-destinations, all the tourists visited Geiranger village centre (A). The viewpoints Ørnesvingen viewpoint (B), Dalsnibba viewpoint (C), and Flydalsjuvet viewpoint (D) were visited by 54%, 42% and 18%, respectively. A total of 24% of the tourists went to the Fossevandring waterfall walk (E). The Norwegian fjord centre (F) was visited by 29%, and Westerås gård (G) was visited by 26% of the interviewed tourists. Previous studies reported the percentage of tourists visiting Dalsnibba (c) and Norwegian Fjord centre (F) were 55% and 32%, respectively (Dybedal & Haukeland, 2017). The slightly lower percentage in this study could be due to some tourists being unfamiliar with the names of some of these intra-destinations; hence, underreporting them. Tourists knew the intra-destinations either from the internet (41%), friends (37%), tour operators (5%), tourist information offices (6%), local people (8%), or travel guides (3%).

Fig. 5 represents the percentage over respondents that would still

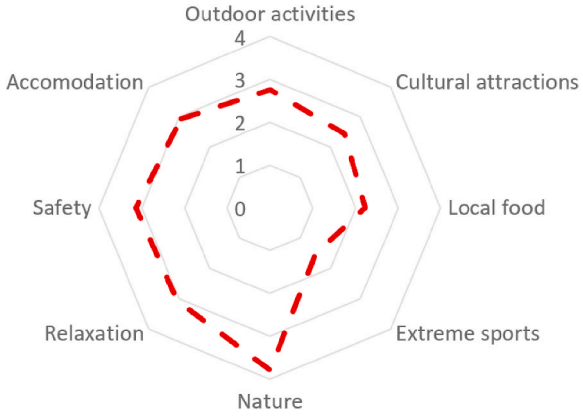

Fig. 4. Motivation for choosing a destination.

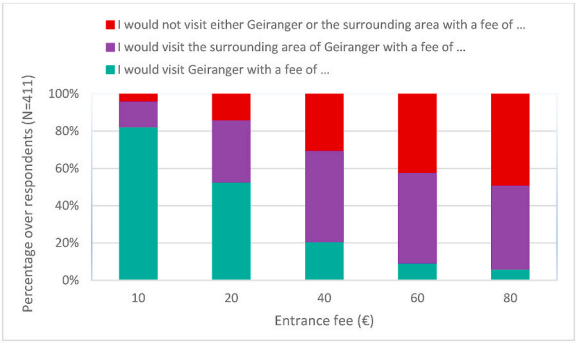

Fig. 5. Respondents who would visit Geiranger, the surrounding area, or none of these for different entrance fees to Geiranger.

Table 4
WTP statistics.

(N = 411)	value
Min	0
Max	80
Mean	21
Standard deviation	20.4
Skewness	1.6
Kurtosis	2.1

Table 5
Results from the OLS model.

	value	*t*-test
Constant ***	13.586	3.49
Age (under_35 years old) *	3.737	1.81
Female	−1.883	−0.95
Education (bachelor or more) **	4.835	2.33
Geiranger area as main attraction ***	8.971	4.10
Number of places visited in Geiranger area	−1.236	−1.59
Overnighting one night in the area *	3.992	1.85
Hiking as intra-destination attraction **	5.603	2.20
Activities in the fjord as intra-destination attraction ***	7.760	2.69
Nature as motivation for destination	−1.279	−1.25
Rho square	0.096	

*significant at 90%/**significant at 95%/***significant at 99%.

visit Geiranger, only visit the surrounding area of Geiranger, or not visit either Geiranger or the surrounding area (see Fig. 1) for an entrance fee to Geiranger of 10€, 20€, 40€, 60€ or 80€. More than 80% of those respondents would visit Geiranger with a fee of 10€, while for an entrance fee of 40€ only 20% would still visit it, and only 6% in case of a fee of 80€. More than 40% of the respondents would visit surrounding areas for an entrance fee of 40€ or more. However, for entrance fees of 60€ or more, more than 40% of respondents would not visit Geiranger or surrounding areas.

5.2. Model results

The statistics of the WTP are presented in Table 4. The mean was 21€ with a standard variation of 20.4€. The positive skewness value indicated a long right tail, and the positive kurtosis value corresponded to a leptokurtic curve, i.e., narrower than the normal distribution. These statistical values corroborated that the WTP shape was a demand curve, in which more people would pay low entrance fees, and only a few would pay high entrance fees. In Table 5, the results of the estimated OLS model are described.

The results from the OLS model showed some interesting relationships; however, the low rho square indicated that other variables could have also been important for a better understanding of the WTP. Regarding socioeconomic features, tourists under 35 years old and with high education were more willing to pay for an entrance fee, with a confidence level larger than 90% and 95%, respectively. Gender did not play a significant role.

Tourists who considered Geiranger the main attraction on their trip were, as expected, more willing to pay for the entrance fee at a 99% significance level. The number of visited places inside the area was significant at the 88% confidence level, which indicated that the larger the number, the lower the WTP. Tourists overnighting one night were more willing to pay than those not staying or those spending more nights at more than 90% significance.

In relation to intra-destination activities and motivation, tourists who performed hiking or activities in the fjord had higher acceptance for a potential entrance fee with a confidence level larger than 95% and 99%, respectively. Nevertheless, tourists whose motivation for travelling was nature had a lower WTP, although this parameter was only significant at the 76% confidence level.

The price elasticities divided into segments between the different entrance fees are shown in Fig. 6. The demand was elastic when the entrance fee was lower than 40€. This means that relative changes in demand are larger than the relative changes in price, which is the case for products that have substitutes. In this case, if the entrance fee rises to

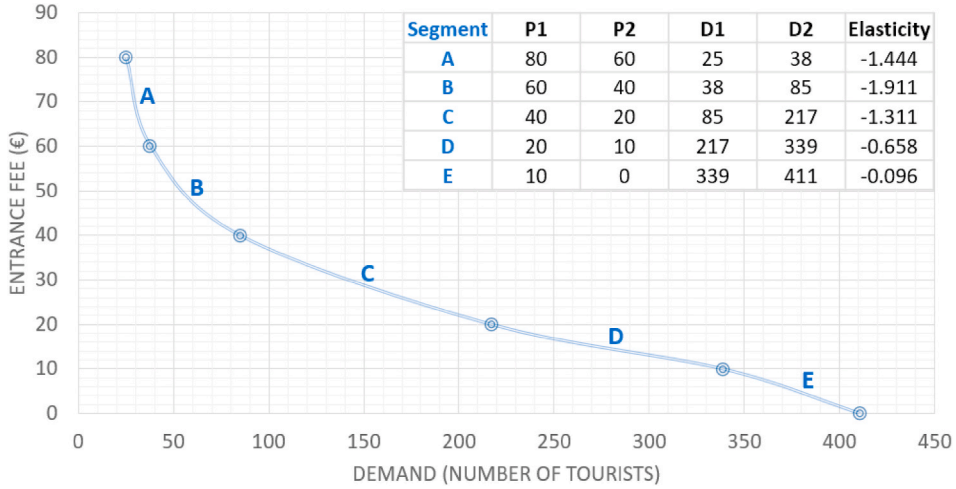

Fig. 6. Price elasticities (P-entrance fee; D-number of tourists) (total sample (N = 411).

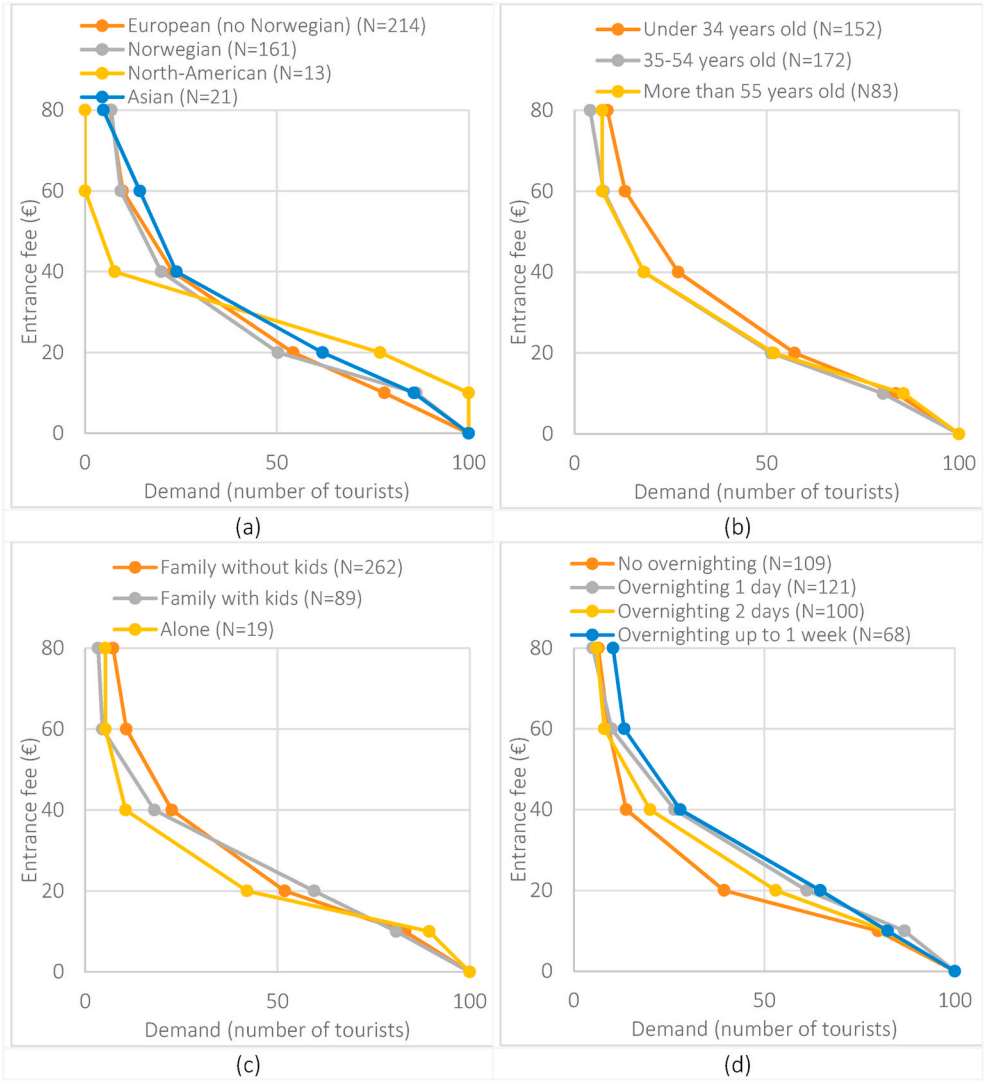

Fig. 7. Price elasticities depending on (a) country of residence, (b) age, (c) travel party, and (d) overnighting status.

a level, tourists decide to go to a substitute destination. In contrast, the demand was inelastic when the entrance fee was greater than 40€. This indicates that the relative changes in demand are lower than the relative changes in price. Tourists who are willing to pay a greater entrance fee might be more interested in Geiranger, disregarding other potential destinations.

Nevertheless, within the total sample, there might be differences due to personal and trip features worthy of further observation. Fig. 7 represents these differences in the price elasticity of demand depending on the country of residence, age, travel party, and length of stay in Geiranger area. To compare the results, a price index of 100 was set for the maximum number of tourists per category.

Regarding country of residence, the price elasticity of demand for those living in Norway or in the rest of Europe had no significant differences. North Americans were less willing to pay larger fees than 40€; however, the sample of these tourists was limited to draw any conclusions. Likewise, Asians were also little represented in the sample, although the answers reveal that they were slightly more willing to pay greater fees.

The price elasticity of demand varied for respondents under 34 years old or older. Although in both cases the demand was inelastic for entrance fees larger than 40€, younger respondents were more willing to pay for an entrance fee. Regarding travel parties, for tourists travelling alone, the price elasticity was inelastic for entrance fees greater than 20€, unlike other parties who set the limit to 40€. When the entrance fee was 20€ or lower, tourists travelling alone presented a higher relative demand change.

The length of stay in Geiranger area was divided between tourist not overnighting, those overnighting 1 night, 2 nights, or up to 1 week. Those not overnighting presented a higher relative demand change up to a fee of 20€, i.e., for the change in entrance fee, the demand of these tourists dropped more. Tourists staying 1 night or up to 1 week in the area were willing to pay a higher entrance fee in general. Those staying for 2 nights presented similar results, although they were slightly more inelastic.

An entrance fee might affect the number of tourists visiting the protected area as well as the surrounding areas. Based on the price elasticity findings, the entrance fee was divided into two price levels: under or over 40€, according to Equation (6). In Table 6, the results of the estimated ML model are presented.

$$\text{Price}\ (€) = \begin{cases} Price_{\text{under}} = \begin{cases} entrance\ fee & \rightarrow if\ entrance\ fee \leq 40€ \\ 40 & \rightarrow if\ entrance\ fee > 40€ \end{cases} \\ . \\ Price_{\text{over}} = \begin{cases} 0 & \rightarrow if\ entrance\ fee \leq 40€ \\ (\text{entrance fee} - 40) & \rightarrow if\ entrance\ fee > 40\ € \end{cases} \end{cases} \tag{6}$$

Table 6
Results from the ML model.

	value	*t*-test
Entrance fee		
Price_under (mean) [V1] ***	−0.517	−7.95
Price_under (st.dev) [V1] ***	−0.148	−6.72
Price_under [V2] ***	−0.190	−5.18
Price_over (mean) [V1] ***	−0.400	−6.12
Price_over (st.dev) [V1] ***	−0.158	−4.25
Price_over [V2] ***	−0.090	−5.01
Socioeconomic features		
Age_under 34 x Price [V1] *	0.046	1.77
Age_under 34 x Price [V2]	0.014	0.98
Age_35-54 x Price [V1, V2]	ref.	ref.
Age_over 55 x Price [V1]	0.019	0.59
Age_over 55 x Price [V2]	−0.005	−0.30
Female x Price [V2] ***	0.024	2.49
High_education x Price [V1] ***	0.049	2.50
Trip features		
Alone x Price [V2]	−0.011	−0.45
Family_nokids x Price [V2] *	−0.018	−1.71
Familiy_kids x Price [V2]	ref.	ref.
No_overnighting x Price_under [V1] ***	−0.063	−2.46
No_overnighting x Price_over [V1] ***	0.113	2.51
Overnighting x Price [V1]	ref.	ref.
Intra destination activities		
Geiranger as main destination [V1] ***	1.500	2.83
Hiking activities x Price [V1] *	0.036	1.88
Fjord activities x Price [V1]	0.006	0.16
Number of places visited in Geiranger area [V1]	−0.158	−1.04
Destination motivation		
Nature (mean) [V1]	−0.325	−0.18
Nature (st.dev) [V1] ***	2.460	3.11
Constants (ASC)		
ASC_2 (mean) [V2] ***	−6.200	−2.98
ASC_2 (st.dev) [V2]	0.047	0.20
ASC_3 (mean) [V3] ***	−17.100	−6.44
ASC_3 (st.dev) [V3] ***	−6.480	−7.20
Final log likelihood	−1244.152	
Rho square	0.449	
Number of individuals	441	
Number of observations	2205	

*significant at 90%/**significant at 95%/***significant at 99%.
Number of draws: 500.
V1: visiting Geiranger/V2: visiting surrounding areas/V3: visiting none of the areas.

For the observed sample, unobserved preference heterogeneity was found in the alternative of not visiting any of the areas. The entrance fee affected the choice for which areas tourists would visit, as all the parameters related to this variable were significant at the 99% confidence level. Nevertheless, the influence differed significantly between the tourists who wanted to visit Geiranger and those who just wanted to visit surrounding areas at a confidence level larger than 99%. As the entrance fee was only applicable to Geiranger, visitors to surrounding areas were less affected by it. For those visiting Geiranger, unlike the others, there was heterogeneity in the influence of the price under and over 40€, represented by the mean and the standard variation. In both cases, prices over 40€ reduced the attraction to visit the areas more than entrance fees below 40€.

For the socioeconomic variables, the substitution effect, i.e., considering visiting surrounding areas instead of the protected area, was lower for tourists under 34 years old compared to tourists between 35 and 54 years old. Older tourists were not considerably affected by the price, as the parameters were not significant at the 95% confidence level. The parameter of the interaction effect between gender and price was only significant for the second alternative, visiting surrounding areas, with a confidence level larger than 99%. Thus, there were substitution effects for female tourists, as these were more attracted to surrounding areas for larger entrance fees. Tourists with high education (bachelor's degree or more), as a proxy for high income, were more willing to pay higher entrance fees to access the protected area at the 99% significance level.

Regarding trip features, for the travel party, the hypothesis that the parameters of the first and second alternative were equal could be rejected at the 95% confidence level, being only significant for the alternative of visiting surrounding areas. Families without kids presented a higher substitution effect, as these were less attracted to visit the areas for larger prices compared to families with kids, as the corresponding parameter was significant at 90%. The parameters of the interaction effect between the overnighting status and the entrance fee were significant at the 99% confidence level for the alternative of visiting Geiranger. The hypothesis that the parameters for prices under and over 40€ were equal could be rejected at the 99% confidence level. Thus, there was a lower substitution effect for tourists not overnighting compared to those who overnighted in the area for fees over 40€.

Concerning intra-destination activities, the parameter of Geiranger as the main destination was significant at the 99% confidence level for the alternative visiting Geiranger. This parameter was tested in relation to the entrance fee, showing no significance. Thus, tourists considering Geiranger as their main destination were more attracted to still visiting this area independent of the entrance fee. Tourists who performed hiking activities also showed a greater preference for visiting Geiranger area even with entrance fees at a 90% significant level; however, those involved in fjord activities did not show a significant relation between the entrance fee and the willing to visit Geiranger. This result is the main difference between the OLS and the ML model, which could indicate certain heterogeneity or that other factors had a mayor weight in the modelled behaviour.

In relation to the motivations to select a destination, tourists who valued nature as an important factor presented a taste variation for the alternative of visiting Geiranger, as the standard deviation of the parameter was significant at the 99% confidence level. Furthermore, the hypothesis that it was equal to the mean could also be rejected at 99%. This results in heterogeneity substitution effects for nature tourists.

6. Discussion

Tourists might react differently when implementing economic instruments as a measure for balancing the negative effects of growing tourism demand. This research contributes empirical evidence of the differences in tourists' perceptions, price sensitivities and destination substitution to surrounding areas to the implementation of an economic instrument, in the form of entrance fees, in a protected area in relation to socioeconomic characteristics, trip features, intra-destination activities, and destination motivations.

The sample was limited to tourists travelling to/from Geiranger using their own vehicle, and the use of a single case study could reduce the potential transferability. In relation to the CV method, transferability is shown to be successful in some contexts but not in others (Bateman and Great Britain, 2002), primarily due to socioeconomic differences of the respondents. Moreover, the attraction to protected areas might differ depending on the area type (Reinius & Fredman, 2007), which should be considered when comparing the findings to other areas. Previous research concluded that the WTP is higher when users perceive the fee as fair (Chung et al., 2011; Schrörder & Mieg, 2008). In this respect, an improvement in the scenario description would be to better justify the motivation for the entrance fees and explain the investment of the collected fees. In addition, further studies should focus on analysing the tourists' reactions to entrance fees for other transport modes, especially cruise passengers. Nevertheless, the triangulation in the data analysis by the three methods provided complementary findings as well as some similarities, which could be shown as a validation and reliability of the research.

Some of the tourists did not consider other potential destinations, and they would still pay larger entrance fees to enter the protected area. Previous studies found that several locations have a significant

monopoly for tourist destinations (Forsyth & Dwyer, 2002), also showing an inelastic demand for national parks (Miller et al., 2018) and low substitutional effects for certain tourist destinations (Loomis & Keske, 2009).

Nevertheless, economic instruments might affect the different tourist groups in different manners. In relation to socioeconomic characteristics, young and highly educated tourists were more willing to pay for an entrance fee, unlike female tourists. In the literature, age does not present a clear influence as a significant variable for expenditure in destinations, including entrance fees (Mayer & Vogt, 2016). Some studies found that low-income tourists are more price sensitive (More & Stevens, 2000; Reiling et al., 1992), while others argue that income does not affect the destination criteria because tourists in natural sites tend to have a high income level (Williams et al., 1999). The substitution effects shown for female tourists might be explained as they were more concerned with the expenditure but still wanted to experience the Norwegian nature. Country of residence did not show significant differences in the perception of the entrance fee; however, the literature stated that the monetary valuation had less variability when elicited as income percentages instead of as absolute values (Basu & Srinivasan, 2021); thus, using absolute values could have introduced a potential shortcoming in the research, nevertheless the sample did not present high variations.

In relation to the trip features, tourists considering Geiranger as the main attraction presented a lower substitution effect. Conversely, tourists visiting a greater number of intra-destinations showed a greater potential substitution effect, as these tourists might be interested in several places, not just in the protected area, and hence could find other areas to explore. Tourists overnighting one night were more interested in the Geiranger area, while tourists staying longer might use Geiranger as a hub for several intra-destination trips that could be outside the protected area. Tourists not overnighting presented lower substitution effects, as they might have considered Geiranger within their trip, triggering less flexibility for route changes. However, those overnighting could easily change their destination, or they might consider their expenditure levels already high and thus were less willing to pay for an extra entrance fee. Families travelling with kids were less attracted to visit the protected or surrounded areas with higher entrance fees, reflecting that even if the surrounding areas were free of charge, these were affected by the entrance fee, which is in line with Jensen et al. (2017).

Regarding the intra-destination activities, tourists who performed hiking activities in the fjord and those whose destination motivation was nature had lower substitution effects, although there was certain heterogeneity. Hikers might have different preferences, as the hiking activity also involves photographing or watching wildlife (Haukeland et al., 2010) and remoteness (Scolozzi et al., 2015). Therefore, the uniqueness of the protected area highlighted the lack of places with similar characteristics nearby. First-time and repeated visitors might present different behaviours in the decision to select a destination (McKercher & Wong, 2004); however, this variable was not significant in the sample.

The tendency of a reduction of government funds to conserve protected areas (Zhang et al., 2021) leads to a debate on the use of economic instruments as management policies in protected areas. Local stakeholders who benefit from the tourism industry could also economically contribute to conservation; however, most of the revenue goes to the maintenance of tourism facilities and not to infrastructures (Øian et al., 2018), which raises discrepancies. The Norwegian Outdoor Recreation Act (1957) does not allow us to charge entrance fees to protected areas, like other Nordic countries, although Iceland has approved the use of entrance fees in national parks (Øian et al., 2018). Therefore, regulations are not static and should be revised if the limitations outperform the potential benefits. Nevertheless, the equity discourse is strong in Norway, and the implementation of an entrance fee could be quite controversial. In addition, tourists tend to cluster in the areas where entrance fees are collected (Gundersen et al., 2015), which might be a disadvantage, as instead of spreading the influx of visitors, some areas would be even more crowded. Another practical drawback of the entrance fees is the associated costs of establishment and maintenance of the access points.

In this research, the perception differences in relation to an economic instrument for sustainable tourism management were observed. Those tourists willing to pay higher entrance fees or with a more inelastic behaviour could have higher acceptance of other management actions as well. Taxes could be an alternative solution. To avoid economic instruments segmenting the tourist types travelling to the area, discounts could be offered to families with children, retired people, or depending on the length of stay. Moreover, to strengthen the willingness of people to support conservation through economic instruments (Mehnen et al., 2013) and to avoid local discontent, especially in the fee distribution (Mach et al., 2020), governance should reflect equity and transparency.

Another possibility would be to target certain intra-destination activities rather than the whole area, which could reduce the number of tourists at certain places and could improve the management of crowded areas. Some of the viewpoints in the Geiranger area already have a ticket fee in the access road, which is perceived as a toll. As hikers presented a lower sensitivity to entrance fees, hiking trails could be potential candidates, and a sign with information on the protected area encouraging tourists to donate could generate some revenue. An aspect to consider for sustainable tourism policies is that even if they are intended for a specific area, the influential area is larger, as shown by the findings of this research. Increasing the attractiveness of the activities in the outskirts of the protected area could also alleviate the environmental pressure on some parts of the protected areas.

The tourist satisfaction level is known to impact tourist expenditure at the destination (Cárdenas-García et al., 2016). Some studies specifically emphasise the role of facilities as a satisfaction dimension on the level of tourist expenditure at a destination (Smolčić Jurdana and Soldić Frleta, 2017). Moreover, the expenditure level of different tourist groups is different at a given destination. Studies in Geiranger and other similar destinations show that cruise passengers spend almost double the amount of money as other day visitors, while land tourists who overnight in the area have the highest expenditure level (Yttredal & Homlong, 2020). The same study shows that nationality is a determinant factor, as Norwegians on average spend less than other European tourists in Geiranger, although other background factors, such as age, do not play an important role in the expenditure level. Sustainable tourism policies could combine the findings from this research with the differences in expenditure by different tourist segments to reduce the environmental consequences of tourism without minimising the economic benefits generated from the tourist's expenditure.

7. Conclusion

Sustainable tourism policies, such as economic instruments, should consider the different tourists' perception of the implementation of these policies to achieve a greater acceptance and commitment towards conservation. Taking the case of the Geiranger fjord world heritage site in Norway, data collected from an in situ questionnaire following the contingent valuation method were further analysed with an OLS model, price elasticities, and an ML model. This research provides empirical evidence that young, highly educated tourists and those hiking had a higher willingness to pay for an entrance fee, while females, families with children and tourists overnighting more than one night had a greater probability to go to a different destination with higher entrance fees. These findings could be used within the development of an adaptative and cooperative framework for sustainable tourism policies for protected areas and their surroundings.

The sample was limited to tourists travelling to/from Geiranger using their own vehicle. Further analyses of tourists travelling with different transport modes, especially by cruise, as well as tourists to other protected areas would enhance the findings. Moreover, the

elicitation values could be presented in relation to the country of residence or the income levels to reduce the potential variability.

CRediT authorship contribution statement

María Díez-Gutiérrez: Conceptualization, Methodology, Investigation, Software, Formal analysis, Validation, Writing – original draft, Writing – review & editing. **Sahar Babri:** Conceptualization, Methodology, Investigation, Writing – original draft, Project administration.

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