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Willingness to Pay Entrance Fees to Natural Attractions:

An Icelandic Case Study

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Abstract

Introducing entrance fees to natural attractions may help counteract the threat of inadequate public funds for site maintenance and management. The primary objective of this study is to measure visitors' willingness to pay such fees in Iceland, where no such measurement has previously been undertaken. A questionnaire survey based on the contingent valuation method was carried out at two major natural attractions in Iceland: Gullfoss waterfall and Skaftafell National Park. Over 92% of the 252 respondents were willing to pay an entrance fee. Mean amounts and population consumer surplus estimates per season were Isk[*] 333 and Isk 41 million at Gullfoss and Isk 508 and Isk 34 million at Skaftafell, respectively. Modest fees would not significantly decrease the demand for these attractions. Slight differences were found in willingness to pay according to income, attitude towards environmental protection, number of previous visits, history of fee paying, country of residence, age and education. Implications of the empirical study for policy makers and site managers are provided.

Keywords: Willingness to pay; contingent valuation; nature-based tourism; Iceland

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[*] Exchange rates at the time of the survey: 1 €= 87 Isk, $1= 72 Isk, £1= 131 Isk

1. Introduction

Many tourism destinations are experiencing limited or decreasing public funds for the maintenance and management of natural attractions (Eagles, McCool and Haynes, 2002). In the long run, this trend, coupled with rising tourist numbers and increasing environmental impacts such as trampling, littering and disturbance to wildlife, may threaten the very foundation of nature-based tourism.

How to aquaire additional funds to protect and enhance natrual attractions has always been a concern in managing sustainable tourism in some destinations where nature-based tourism is a key product. Charging visitors for entering the natural site is one of the possible options. Some countries, such as the United States and Canada, have a long tradition of fee-paying in national parks and other protected areas (Sharpley and Sharpley, 1997). On the other hand, this practice is not common in the Nordic countries. Bearing in mind the above mentioned trends, however, this may change.

Iceland is a volcanic island in the North-Atlantic Ocean with a population of 290,000. Although fishery is by far its largest export, tourism is one of the fastest growing sectors of the Icelandic economy. International arrivals have grown on average by approximately 9% per year over the past decade, from 142,600 in 1992 to the record 320,000 in 2003 and this trend is expected to continue into the future (Icelandic Tourist Board, 2003, 2004). Nature-based tourism is an extremely important element in Iceland's overall tourism product portfolio. Protecting and enhancing these resources is vital, especially as Iceland's sub-artic nature can be very vulnerable to environmental impacts.

In Iceland, the maintenance, management and development of natural attractions are currently financed by tax-payers. However, the financial need for natural attractions is much greater than that currently supplied by the government tax revenues. Costs are expected to rise if tourist numbers continue to increase as many areas will receive more visitors. Many attraction managers and related government

agencies have proposed to acquire additional resources through charging entrance fees to visitors with an objective to collect revenue to cover, at least partially, the running costs of the natural attractions, and to improve visitor experience at the natural sites.

The idea of introducing entrance fees to natural attractions has been controversial and much debated. It is not the purpose of this study to explore this debate in detail, but to answer some fundamental questions - whether should the tourists who visit the natural attractions in Iceland be charged; whether are the visitors themselves actually willing to pay for access; and what are the factors that influence visitors' willingness to pay (WTP)? These questions must be answered before embarking upon any fee-paying policy for Iceland's natural attractions. A review of the literature resulted in no previous studies on WTP to natural attractions has been carried out in Iceland.

The results of this study can help policy makers and site managers in Iceland to determine whether a fee policy for natural attractions is a viable option from the visitor's point of view. The results can also help decision-makers in other countries reliant on nature-based tourism, to tackle the financial issue of natural attractions. In a wider sense, the findings of this study should make a good contribution to the tourism literature related to WTP for natural attractions.

The rest of the paper is organised as follows. Section 2 discusses the controversies related to the public finance of natural attractions. Section 3 presents the concept of WTP followed by section 4 in which the research methodology on estimating WTP is introduced. Section 5 presents the empirical results of WTP analysis and section 6 concludes the paper.

2. Who Should Pay for Natural Attractions?

This section aims to present different views on fee options for natural attractions. Understanding the different views on fee options and the problems associated with them is of critical importance, as entrance fees to natural attractions have significant equity, economic, administrative and political implications (Clawson

and Knetsch, 1966). Many opposing and supporting arguments have been presented in the literature. These arguments come under two opposing views; the 'public good' view and the 'user pays' view. Both views have their merits. The arguments of these two views are mainly centered around such issues as use value vs. non-use value, and efficiency vs equity.

In particular, the 'public good' view considers the tax revenue to be the sole valid source of funding for natural attractions. The main argument of the 'public good' view is that areas of natural beauty are part of the national heritage that belongs to the public and should therefore be free for all. Furthermore, outdoor recreation benefits, directly or indirectly, all members of society. This view also believes that a well-balanced life for citizens in the society is essential. Crandall and Driver (1984) stated that the 'pride' for being able to use the public goods freely is another benefit to the users of these public goods. The argument is that these benefits enhance the welfare of the whole nation and therefore all citizens should share in the costs of running the natural attractions through their contributions to the government tax revenue.

The main argument of the 'user pays' view, however, is that of equity. Benefits accrue to those who use the recreation services (and incurring the costs) and therefore it is only fair and appropriate for them to bear the costs. Participation in outdoor recreation varies widely across the population. A substantial proportion of the population actually never visits natural attractions and only a very few visit these recreation areas frequently. In fact, it can be argued that, without charging entrance fees to the natural attractions, non-users are actually 'subsidising' the users who use these attractions. Furthermore, charging entrance fees is also a good way of requiring those users who live and pay taxes elsewhere (international tourists) to contribute to the maintaining and management costs of the recreation areas in the destination where they visit. Interestingly, occupational groups with lower income participate less in passive activities and more in 'performance' activities, where admission fees are usually much higher. This restricts the participation of lower social groups in outdoor recreation activities (Curry, 1985, cited in Curry 1994). In any case, potential discriminatory effects on socio-economically disadvantaged visitors could be minimised through differential pricing.

People who hold the 'public goods' view believe that charging for access would ration the demand for natural attractions by ability to pay, which is seen as unethical and unfair. More and Stevens (2000) stressed that low-income groups may become excluded from recreational opportunities if user fees are applied, and this defeats the purpose of public recreation areas. Free provision can even be a form of income redistribution, with those with higher incomes paying more through the tax system and in that way contributing more towards the protection of these areas.

Another argument held by the 'public goods' view relates non-use values of natural attractions (More, 1999). Citizens of a destination may still value the existence of a site for the protection of heritage, or as an option for future use (this value being expressed through their willingness to be taxed). These values represent benefits to non-users and may constitute a substantial portion of the total economic value of an area, although probably small relative to the value of an area to actual users. The 'public good' view also argues that the level of visitation to a natural area would be reduced if the user charges were implemented, and this would further reduce the positive economic benefits that tourism brings to the area. However, the opposite view is that the reduction in the number of visitors as a result of introducing the entrance fees will reduce congestion in natural attractions hence enhance the experience for visitors, who would be willing to pay more for this enhanced benefit.

In terms of 'practicality', the 'public goods' view suggests that the administration of entrance fees can be expensive and impractical. Many areas have no gate with many entrance points. If the level of visiting natural attraction is low, the costs of collecting fees would likely exceed the amount collected, hence making fee-paying option unjustified. Furthermore, visitor experiences would become more structured and commercialised as a result of the introduction of fees (Lindberg, 1998).

Going back to the issue of equity, the 'public goods' view believes that charging the resident user an entrance fee, would result in 'double charging' those residents who have already paid through their taxes by way of a national taxation system. However, the 'users pay view' argues that charging entrance fees to natural attractions are implemented precisely because tax revenue is insufficient to achieve

recreation and conservation management objectives (Lindberg 1998). In the long run, without user fees, taxes would most probably have to be increased. In light of the increased demand for public outdoor recreation areas in the future, user fees may be the only way to raise sufficient revenue to provide adequate services.

The issue of user fees is a controversial one without any definite conclusions. Indeed, it is not the purpose of this study to 'solve' this policy issue or advocate a line of policy on outdoor recreation. In any case, it is important to note that there need not be an 'either-or' solution. Introducing entrance fees is but one possible option and all the costs of providing, maintaining and operating public recreation areas need not be met from only one source. A combination of public funds and user fees may be more equitable, more effective and more realistic than the use of a single funding source for natural attractions.

Hitherto, decisions regarding the funding for natural attractions in Iceland have been based more upon popular appeals, ideological reasoning and political pressures than on rational economic analysis. The latter is what this study aims to provide, in the hope that it may contribute to sounder policy decisions.

3. Willingness to Pay

There exists a considerable body of literature on WTP for various types of outdoor recreation facilities. Most research on and experience of entrance fees comes from the United States, where federal recreation fees have been applied since the early twentieth century (Sharpley and Sharpley, 1997). It should be noted that studies on WTP vary greatly in their context and the comparability is therefore limited in many cases. Many studies on outdoor recreation mentioned 'user fees' in a general sense, (i.e., they may include fees for facilities as well as services). In addition, some studies explored the implementation of new fees and others increased levels of existing fees; these may evoke different responses. However, for the sake of simplicity, the economical mechanisms behind these different types of fee programmes are regarded as being roughly the same.

3.1. Non-Market Valuation

A natural attraction with free access is a non-market good. However, it is possible to assess the value of it to consumers in monetary terms (Bull 1995). One way of doing this is to measure the consumers' WTP for the good, should a market exist for that good. In the same context as in a market situation, WTP for a non-market good is based on the assumptions of rational choice and utility maximisation. If a change occurs in a non-market good (for example environmental improvement) by which the person believes he or she is better off in some way, that person may wish to pay some money in order to secure this change, the WTP reflects a person's economic valuation of the good in question (Hanley, Shogren and White, 1997).

According to Tisdell (2006), WTP for a particular natural attraction has been the most frequently used indicator for the economic value of the attraction. The estimation of the WTP for the attraction has been the basis of social cost and benefit analysis (SCBA), which relies on the Kaldor-Hick criterion that is if the total net value (social benefit less social costs) of the natural attraction increases, the total welfare will also rise because gainers could in principle compensate the losers for any losses involved in the society.

3.2. The Effect of Fees on Visitation

Traditional economic theory predicts that the higher the price of a good, the fewer the number of people who would be willing to pay it. If fewer people visit an attraction after an entrance fee being introduced, this contravenes the purpose of most national parks and protected areas to promote public access and, ironically, this may reduce potential revenue as fewer people will pay the entrance fees. It is, therefore, of prime importance to consider the likely effect of an entrance fee on visitor numbers.

Some studies have found that demand is relatively responsive to price (Stevens, More and Allen, 1989; Richer and Christensen, 1999). However, the most common finding when it comes to outdoor recreation is that the introduction of modest fees or modest increases in user fees does not cause a dramatic reduction in demand (Fedler and Miles, 1989; Krannich et al., 1999; Schroeder and Louviere, 1999; Eagles, McCool and Haynes, 2002).

3.3. Factors Affecting WTP

Differences in people's WTP may be influenced by certain demographic and psychographic factors. Therefore, it is important to consider these factors when implementing a potential fee policy, as entrance fees may have significant equity consequences.

The most prominent equity argument lies around whether fees discriminate against low-income visitors. It is logical to assume that WTP is, at least to some extent, affected by visitors' ability to pay. A problem arises when those with low ability to pay may still value a visit highly. Although the effect of income on WTP has been widely debated, the answer to this issue is still unclear. A number of studies on outdoor recreation activities have found that low-income users are more sensitive to price changes than high-income users (Reiling, Cheng and Trott, 1992; More and Stevens, 2000). Williams, Vogt and Vittersø (1999) found charging entrance fees has little distributional impact on different income groups in the natural resource context, as the income levels tend to be high among those who visit the natural sites.

According to the Fishbein and Ajzen model (1975, cited in Mitchell and Carson, 1989), behavioural intentions like WTP are a function of attitudes, which are again influenced by behavioural experiences. Membership of environmental organisations and attitude towards environment protection have been found to be closely related to WTP (Carlsson and Johansson-Stenman, 2000; Clinch and Murphy 2001). Laarman and Gregersen (1996) state that what consumers expect to pay is related to what they have paid before. The findings of Kerr and Manfredo (1991) from a study of backcountry hut users in New Zealand's parks suggest that previous fee paying behaviour affects paying intentions. Studies on the effects of previous visitation to a particular site or to a number of sites on WTP have, however, shown a mixed result (Adams et al. 1989; Williams, Vogt and Vittersø, 1999).

It is reasonable to assume that people from different countries may be willing to pay different amounts as a result of different attitudes towards and experiences of paying entrance fees to natural attractions and having travelled different distances to an area. Few studies have explored differences in WTP between nationalities. However, nationality was found to have a significant effect on WTP for the whale -

watching experience in an Australian marine park (Davis and Tisdell, 1998). It has also been found that people are likely to be willing to pay more for entering a site if they have travelled a long distance to the site (Schroeder and Louviere 1999). Visitors from Nordic countries might thus be expected to be less willing to pay for access to attractions than visitors from North America. However, since a few nationalities are included in the sample, it is difficult to test for this difference given the small sample sizes.

As for other socioeconomic variables, differences in WTP according to gender have been reported by a few studies, but the results have been inconclusive (Carlsson and Johansson-Stenman 2000; More and Stevens 2000). Evidence also shows that highly educated individuals and younger people have been found to be more likely to support the fee-paying policy for natural attractions whilst age seems to be negatively related to WTP (Bowker, Cordell and Johnson, 1999).

As for attraction attributes, in their classic writings on the economics of outdoor recreation, Clawson and Knetsch (1966) stated that demand for unique areas with long travel distance and outstanding scenic or recreational opportunities tend to be price inelastic. A more elastic demand curve can be expected for smaller or modest types of attractions which are closer to the population centres.

Based on the above discussion, the hypothesis that visitors to natural attractions in Iceland are willing to pay for access is formulated. The demand curves for natural attractions are assumed to be negatively sloped yet rather inelastic at least up to a certain point. The variables, such as income, attitude towards environmental protection, history of fee paying and education are predicted to have a positive effect on WTP, while age is assumed to have a negative effect on WTP. The directions of the effect in relation to gender, country of residence and previous visits to the sites and to natural attractions in general, could either be positive or negative, which need to be tested. WTP for access to Skaftafell is predicted to be higher than that of Gullfoss.

4. Methodology

4.1. The Contingent Valuation Method

One of the most widely used techniques for environmental valuation has been the contingent valuation method (CVM). As described by Mitchell and Carson (1989), it involves asking people directly what value they would place on an amenity if a market existed for it. The elicited WTP values are contingent upon a hypothetical market situation, or scenario, which is described to the respondent prior to asking for the amount he or she is willing to pay. The scenario is intended to influence the WTP values by describing the conditions of the market and what is to be valued, in this case retaining an environmental asset for recreational use. There is ample evidence that informing visitors of why money is needed and where it will go to is likely to affect their support for the fee-paying option and their WTP positively (Clawson and Knetsch, 1966; Leuschner et al., 1987; Reiling, Criner and Oltmanns, 1988; Laarman and Gregersen, 1996; Vogt and Williams, 1999; Williams, Vogt and Vittersø, 1999; Eagles, McCool and Haynes 2002). According to Ajzen and Driver (1992), the ability to assign a monetary value to a public good depends crucially on the available information relevant for that judgement. The objective information-based contingency is vital in order to obtain informed and realistic estimates. The values elicited can then be aggregated to form a demand curve and develop an estimate of consumer surplus (CS), which is measured by the area under the demand curve but above the entrance fee charged (see Figure 1).

(Insert Figure 1 about here)

The CVM gives rise to challenges and is not without its critics. The main criticisms of the CVM are the danger of hypothetical bias and strategic behaviour. Hypothetical bias refers to whether respondents' answers can be taken as an accurate representation of how they would behave if confronted with an actual market for the good. Strategic behaviour refers to when people deliberately attempt to influence either the future payment or provision of the good, by under- or overstating their WTP (Mitchell and Carson 1989).

4.2. Sample and Sample Setting

Two popular natural attractions were chosen as sample settings. Gullfoss is an impressive two-tiered waterfall in South-Central Iceland, a two hours drive from the capital. The site has a car park, souvenir shop, restaurant, visitor centre and toilets where visitors can view the waterfall either from a viewing plateau or by following a trail down to the edge. The site is not very large. The estimated number of visitors per year is approximately 350,000. Skaftafell National Park is situated in South-East Iceland, a five hours drive from the capital. It presents an impressive contrast between a glacier, green mountains and black sandy plains. Popular activities include walking onto the glacier or to the unusual Svartifoss waterfall. The park has a car park, camping area, toilets and shower facilities, visitor centre, shop, paths and signage. Visitor numbers are an estimated 150,000 per year. There are plans to extend the park and apply for World Heritage Site status, following which the Skaftafell National Park can expect its visitor numbers to increase significantly.

The population for the study was defined as international and domestic summer visitors to the sites, over 18 years of age. The majority of visitors to Iceland's countryside fall within the summer period. Therefore annual visitor number estimates were considered to be roughly the same as summer visitor estimates.

4.3. The Survey

After pre-testing the survey on 30 visitors at Þingvellir National Park, the survey in the form of a structured questionnaire was carried out on-site at Skaftafell National Park on 18-19 June 2004 and at Gullfoss waterfall on 20-21 June 2004 (one weekday and one weekend day at each site) at various times between 10am and 5pm. Respondents were approached outside the visitor centres by the researcher and a research assistant. Approximately every fifth visitor encountered was chosen as a subject. The questionnaires were made available in English, Icelandic and German and contained ten questions. Respondents were asked about the maximum amount they were willing to pay for a day's visit to the site, after being presented with the following scenario:

> *The full cost of managing Gullfoss/Skaftafell National Park is currently*
> *not covered by government funds. More money is needed to maintain and*

improve the quality of the environment, e.g. repair paths, remove litter, care for plants, improve signage etc.

There is no entrance fee for visitors to access Gullfoss/Skaftafell National Park. An entrance fee would help to fund management and maintenance and therefore prevent environmental damage. If there were an entrance fee to Gullfoss/Skaftafell and the money would go directly back to the maintenance of the area, what would be the maximum amount you as an individual would be willing to pay for a day's access, in Icelandic Kronur, before you would feel you are paying more than the visit is really worth to you?

The chosen format for the WTP question was the 'payment card', which provides respondents with an array of potential WTP amounts ranging from zero to some large amount, from which respondents choose a single amount. Using this format, starting point bias is avoided yet a context is provided for the valuation (Mitchell and Carson, 1989). A 'don't know' option and spaces to write any reasons for not being willing to pay were also provided.

Respondents were also asked to state their gender, age, country of residence, level of education, household income before taxes, the number of previous visits they had made to the site, the number of visits they make on average per year to natural attractions, their attitude towards environmental protection and how often they had paid entrance fees to natural attractions in the past.

5. Empirical Results

5.1. Sample Characteristics

Sample non-response rate was near-zero and item non-response was minimal. In total, 132 responses were obtained from Skaftafell and 123 from Gullfoss. Two responses at Skaftafell and one at Gullfoss were excluded from the analysis on the basis of being 'protesters' and who did not wish to participate in the study. These

were defined as respondents who clearly did not report their genuine individual WTP based on their open comments.

A larger percentage of the respondents at Skaftafell than at Gullfoss were domestic visitors (45% vs. 16%) and a slightly larger percentage of the respondents at Gullfoss than at Skaftafell were male (59% vs. 50%). Apart from these differences, the characteristics of the sample respondents at the two sites were strikingly similar. In general, the respondents were in their early forties (mean age was around 43 years at both sites), highly educated (over 50% had University degrees) and earning a high income (mean annual income was around £35,500, yet the income range was quite wide). Most visitors were visiting the site for the first time, over 50% claimed they visit natural attractions 1-4 times a year on average, over 80% said they were rather or very concerned about environmental protection and around 70% had paid entrance fees to natural attractions before.

5.2. WTP

Tables 1 and 2 show the summary statistics of the WTP responses at Gullfoss and Skaftafell. Ninety four percent of the Gullfoss sample and 93% of the Skaftafell sample were willing to pay entrance fees at different levels. The data in both cases were close to being normally distributed. The mean WTP for a visit to Gullfoss was Isk 333 and to Skaftafell Isk 508. The difference between the mean amounts was shown to be significant through an independent-samples t-test (p = .000). Considering the similarity of the sample characteristics, this indicates that the difference is due to site attributes.

(Insert Tables 1-2 here)

5.3. Consumer Surplus and Total Economic Welfare

Consumer surplus and the effect of the entrance fees on the demand for the sites were analysed through simple regression analyses. Figure 2 shows the demand curve and regression line for Gullfoss (n = 113). The demand curve was produced by plotting the aggregate number of respondents WTP each amount. As was expected, the demand curve slopes downwards. The adjusted R^2 of the regression line is 0.95. The curve is inelastic when the price increases up to Isk 350. This implies that if an

entrance fee were introduced (and subsequently increased up to Isk 350), this would not result in a less than proportional decrease in visitor numbers. Hence, the total revenue would increase. The CS for the sample at Gullfoss amounts to Isk 129 million per year when there is no entrance fee while this value decreases with the increase in entrance fees. Figure 3 shows the demand curve and regression line for Skaftafell (n = 127). It is also downward sloping with the adjusted R^2 to be 0.88. The curve is inelastic up to Isk 600. The CS for Skaftafell decreases from Isk 89 million per year when there is no entrance fee to zero when the entrance fee increases to Isk 1300.

(Insert Figures 3 and 4 about here)

(Insert Tables 3 and 4 about here)

Currently, the total CSs for Gullfoss and Skaftafell are Isk 129 million and Isk 89 million, respectively. If the entrance fees are introduced, say, at Isk 333 for Gullfoss and Isk 508 for Skaftafell, a total of Isk 105.3 million (Isk 62.9 million + Isk 42.4million) could be generated. This income could be further invested in improving or maintaining the infrastructures of the two sites. One potential use of the CS calculation is to assess the total economic welfare as a result of the introduction of entrance fees if the total social costs including both use and non-use costs could be estimated. This suggests a possible area for further studies.

5.4. WTP and Its Influencing Factors

The directions of the relationships between WTP and some of the influencing factors were found to statistically significant with expected signs. Best-fit multiple regression models for both sites are shown in Tables 5 and 6. In summary, WTP was positively affected by income, attitude towards environmental protection, history of paying an entrance fee and education, while being negatively affected by age and number of previous visits to the site. Differences were also found between certain countries of residence. Gender and number of previous visits to natural attractions in general did not affect WTP at either site.

(Insert Tables 5-6 about here)

6. Conclusions

6.1. Discussions and Implications

The results of this study provide some evidence that a successful entrance fee programme can be designed to provide additional revenue to alleviate financial shortage faced by natural attractions in Iceland. The majority of the respondents in this study were willing to pay an entrance fee, provided that the money would go towards protecting and improving the sites. Modest fees would not have a large impact on demand for the two sites under investigation. This may be explained by these attractions being quite unique and the fee being only a small part of the total trip cost. However, given the change in elasticity on either side of the 'critical point', the trade-off between funds acquired through entrance fees and the reduced number of visitors has to be taken into serious consideration when deciding on a fee-paying policy in order not to undermine the objective of promoting access. If tourist numbers in Iceland continue to grow, the size of these potential additional funds is likely to increase. This also has implications for other countries that rely on nature-based tourism, as demand for such tourism is likely to grow following increased affluence and urbanisation in these countries.

Visitors are willing to pay a higher price for access to Skaftafell than to Gullfoss. Attraction attributes therefore seem to influence how much visitors are prepared to pay. The difference probably lies in that Skaftafell covers a larger area, is further away from the capital and offers greater recreational opportunities than Gullfoss. Therefore, it is important to appropriately assess the levels of entrance fees for all natural site based on their attributes.

According to the regression analysis of WTP it appears that visitors with lower incomes may be deterred from visiting an attraction if a fee is implemented. There is also an indication that the attitude towards environmental protection may positively affect WTP, perhaps, because the visitors who are care about the environment are more understanding of the rationale for fee-paying policy or are simply willing to pay more for something they regard highly. The number of previous visits made by visitors to the site has a negative impact on WTP and this may imply that experienced

users feel a sense of ownership towards the site which is not compatible with fees. In addition, frequent users would bear higher financials cost as a result of a fee-paying policy. This may also imply that the sites that people visit more frequently may have to charge less than other sites that people tend to visit less frequently. The results also show that WTP is affected positively by visitors' fee-paying history. Those who are accustom to paying an entrance fee at other sites, are more willing to pay a fee at a new site. This may be especially true for more developed sites such as those in this study. Also, this may suggest that, if a fee-paying programme were implemented for a natural site, people would gradually grow accustomed to entrance fees and at later stages they may even be willing to pay more for gaining access to the site. The reason why WTP is negatively affected by age may be that younger people are more accustom to the idea of having to pay entrance fees to natural sites.

As the contingency suggested in the survey, it is important that the sites keep at least part of the funds generated. It is equally important to communicate to potential visitors the reason why entrance fees are charged and what purposes the funds will be used for, in order to gain optimal acceptance for a fee-paying policy. People should then be more likely to connect the two - fees and conservation, and understand more about the contribution they are making. Their attitudes towards environmental protection may also be strengthened as a result. The findings of this study provided some evidence that attitudes towards environmental protection affect WTP; consequently, a fee programme may become more successful by taking the aforementioned measures.

It is also of crucial importance to actively discuss the fee policy with the tourism industry and other stakeholders. They need to understand the necessity for fee-paying policy. It is in the tourism industry's self-interest to offer tourists a healthy environment. Without sufficient funding, nature-based tourism may be harmed.

An optimal fee level must be estimated by taking the cost of running and maintaining the natural attraction into consideration. There may be considerable costs linked to establishing and operating a fee collection system (e.g. staff and gates) and if these costs are high, a fee programme may not be administratively feasible, especially

at sites where visitation is low. The collection of the fees may also be technically difficult if the areas are large and have open to access from many directions. There are also aesthetic considerations. However, potential administrative costs can be minimised, e.g. by having coin-operated gates, spot checks of tickets from self-service machines, and indirect fee collection through tour operators. In any case, if an obligatory entrance fee is deemed impractical, the results from this study suggest that there is nonetheless a basis for a donations programme.

Based on these findings, a fee-paying programme could be developed which is acceptable to visitors and helps to ensure continued high-quality recreational opportunities. It seems reasonable for policy makers and site managers to at least consider entrance fee as one of the funding alternatives. There are several reasons for viewing fees as a supplement rather than a replacement to budget allocations. Tourism demand is fickle and revenues from entrance fees might become unstable over time. A combination of public funds and user fees (and even other methods of financing) may therefore be reasonable and more effective. The aim in any case is to achieve increased sustainability in the use of recreational resources. Tourists bring often-cited benefits to a country's economy. It would be ideal if part of these benefits were contributed to the maintenance and management of the often under-funded natural attractions.

6.2. Limitations and Further Research

The results from this study should be treated with some caution. The main limitation of this study is that the sample size is quite small and the sampling period is short. It would be beneficial to replicate this survey with larger samples and run the survey over a longer period of time in order to improve its generalisation and remove small sample bias.

Relationships between WTP and a number of influencing factors were found to be statistically insignificant, and this could be attributed to the mixture of domestic and international visitors in the samples. It would be desirable in the future that these two categories of visitors are investigated separately. As for the multiple regression analysis, a relatively large proportion of the variance in WTP was unexplained by the independent variables. This indicates that some of the important explanatory variables

may have been missed out from the regression model. Other independent variables, such as travel costs or distance, and party size, could be included in future research with a view to improve the goodness of fit of the models. If a fee-paying policy were considered, more areas and types of attractions need be examined for the purpose of generalisation. In addition, the costs of running natural attractions should also be evaluated in order to decide the optimal entrance fees to be charged.

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FIGURE 1

Demand for visiting a park as a function of an entry fee, and the value of a park
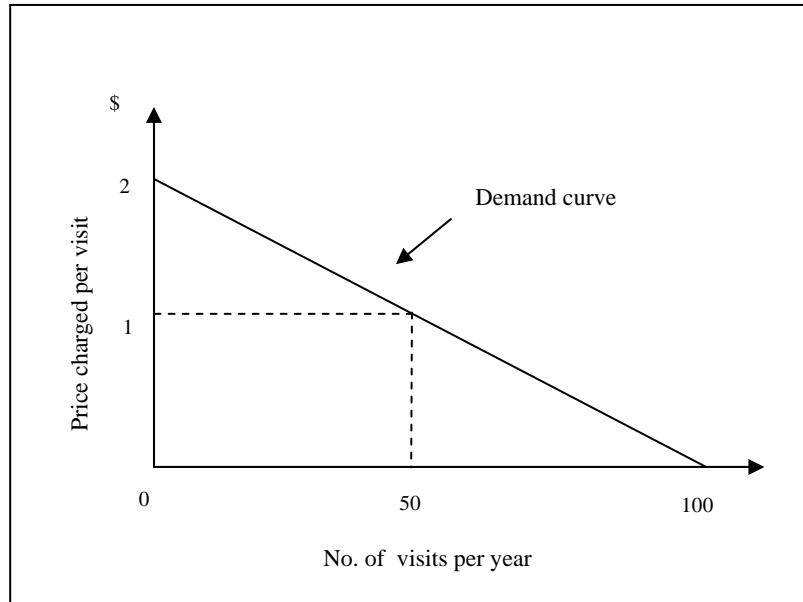
TABLE 1

Willingness to pay statistics at Gullfoss

n = 113	
Mean (ISK)	333
Median (ISK)	300
Standard deviation (ISK)	192
Skewness	.55 (st. error .23)
Kurtosis	.38 (st. error .45)

TABLE 2

Willingness to pay statistics at Skaftafell

n = 127	
Mean (ISK)	508
Median (ISK)	500
Standard deviation (ISK)	318
Skewness	.84 (st. error .22)
Kurtosis	.98 (st. error .43)

FIGURE 2

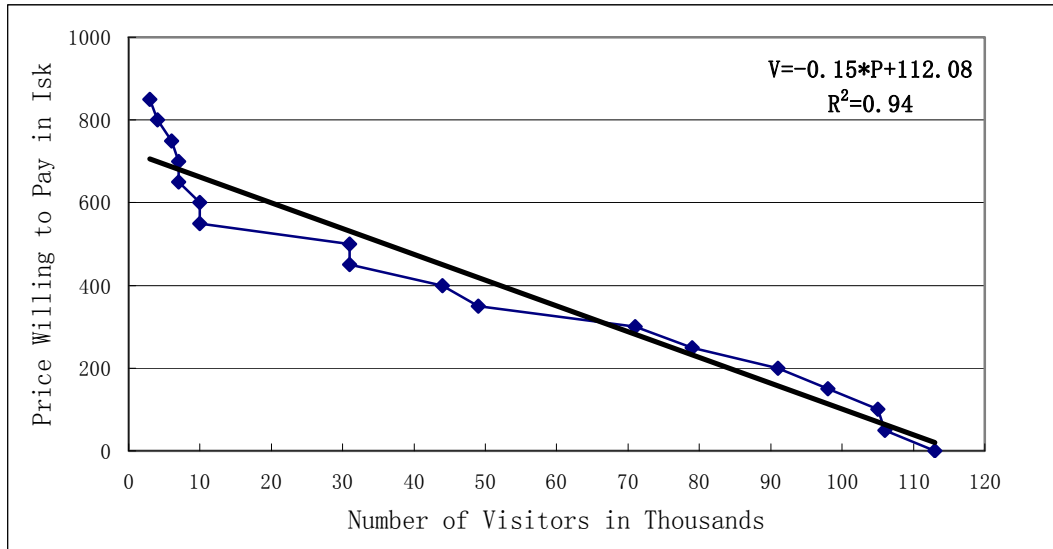Demand curve and regression line with equation for Gullfoss

TABLE 3

Total revenue, consumer surplus and price elasticity for different price levels at
Gullfoss

Price willing to pay (Isk)	Number of respondents	Percentage of respondents	Number of population	Total revenue (Isk)	Consumer surplus (Isk)	Price elasticity
0	113	100%	350,000	0	129,139,950	n.a.
50	106	94%	328,319	16,191,277	112,365,403	0.07
100	105	93%	325,221	30,049,475	96,757,396	0.16
150	98	87%	303,540	41,574,592	82,315,928	0.25
200	91	81%	281,858	50,766,630	69,041,001	0.37
250	79	70%	244,690	57,625,588	56,932,613	0.51
300	71	63%	219,912	62,151,466	45,990,766	0.68
350	49	43%	151,770	64,344,264	36,215,458	0.89
400	44	39%	136,283	64,203,982	27,606,691	1.16
450	31	27%	96,018	61,730,620	20,164,463	1.53
500	31	27%	96,018	56,924,179	13,888,775	2.05
550	10	9%	30,973	49,784,657	8,779,627	2.84
600	10	9%	30,973	40,312,056	4,837,019	4.17
650	7	6%	21,681	28,506,375	2,060,951	6.92
700	7	6%	21,681	14,367,614	451,423	15.91
750	6	5%	18,584	0	n.a.	n.a.
800	4	4%	12,389	0	n.a.	n.a.
850	3	3%	9,292	0	n.a.	n.a.

FIGURE 3

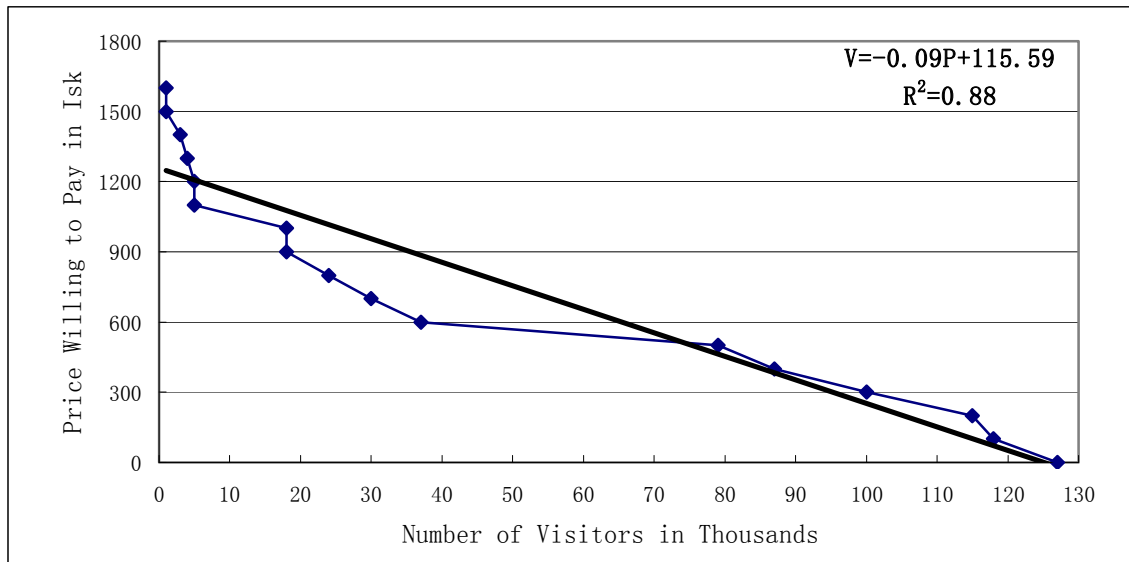Demand curve and regression line with equation for Skaftafell

TABLE 4

Total revenue, consumer surplus and price elasticity for different price levels at
Skaftafell

Price willing to pay (Isk)	Number of respondents	Percentage of respondents	Number of population	Total revenue (Isk)	Consumer surplus (Isk)	Price elasticity
0	127	100%	150,000	0	89,946,300	n.a.
100	118	93%	139,370	12,616,087	76,812,178	0.08
200	115	91%	135,827	23,160,032	64,714,127	0.18
300	100	79%	118,110	31,631,837	53,652,146	0.29
400	87	69%	102,756	38,031,502	43,626,235	0.44
500	79	62%	93,307	42,359,026	34,636,395	0.61
600	37	29%	43,701	44,614,409	26,682,625	0.84
700	30	24%	35,433	44,797,651	19,764,925	1.13
800	24	19%	28,346	42,908,753	13,883,296	1.55
900	18	14%	21,260	38,947,714	9,037,737	2.15
1000	18	14%	21,260	32,914,534	5,228,248	3.15
1100	5	4%	5,906	24,809,214	2,454,830	5.05
1200	5	4%	5,906	14,631,753	717,482	10.20
1300	4	3%	4,724	2,382,151	16,204	73.50
1400	3	2%	3,543	0	n.a.	n.a.
1500	1	1%	1,181	0	n.a.	n.a.
1600	1	1%	1,181	0	n.a.	n.a.

TABLE 5

Best-fit linear multiple regression model for the Gullfoss data

Variable	Beta coefficient	Significance level (p)
Constant	157.42	.144
Household income	22.33	.011
Attitude towards environmental protection	38.58	.057
Previous visits to the site	-38.44	.021
History of fee paying	39.91	.014
Age	-3.16	.007

TABLE 6

Best-fit linear multiple regression model for the Skaftafell data

Variable	Beta coefficient	Significance level (p)
Constant	385.95	.000
Previous visits to the site	-47.72	.024
History of fee paying	71.12	.005