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Income elasticity of demand for tourism at Fulufjället National Park

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Abstract

National Parks are significant markers in the tourism attraction system and represent an important supply of recreation opportunities for the clients of the nature-based tourism industry. In this study, we analyze income elasticities among visitors from two major nationalities at Fulufjället National Park (FNP)—a cross-boundary park between Sweden and Norway—to see if this tourism product is a luxury or not. Modeling demand with a Tobit model, we find that visiting this National Park is close to a luxury, but results also show that elasticities differ across both income and nationality: FNP is more likely to be a luxury good among low-income Germans and high-income Swedes. The article concludes with a discussion on policy and management implications from these results.

Keywords

expenditure, income elasticity, national park, tourism

Introduction

Recreation in the outdoors is a significant pull factor for the tourism industry. In this context protected areas, such as National Parks, represent an important supply of recreation opportunities in many countries (Balmford et al., 2015; Hall and Boyd, 2005). Studies on park tourism have also shown that National Parks in particular, are significant markers in the tourism attraction system (Leiper, 1990; Wall Reinius and Fredman, 2007; Weiler and Seidl, 2004). While previous research

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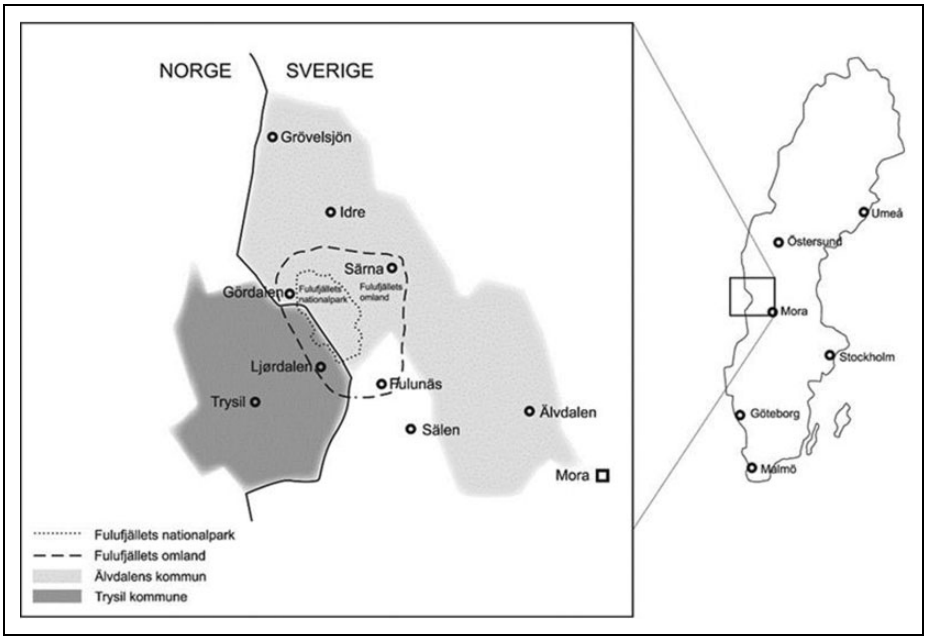

Figure 1. Fulufjället National Park. Map: Hanna Liljendahl.

has shown that recreation in the outdoors often is classified as a luxury (Boman et al., 2013; Pawlowski and Breuer, 2012; Ghalwash, 2008; Melenberg and Van Soest, 1996; Ödner et al., 2009; Pawlowski and Santeramo, 2015) and that income elasticities for foreign visitors are larger compared with domestic visitor (e.g., Garín-Muñoz, 2009; Santeramo, 2015; van Loon and Rouwendal, 2013), there is still a lack of knowledge on elasticities of demand for nature-based tourism in protected areas.

A luxury good is a product or service not necessary for living, but deemed as highly desired within a society or culture. The ability to purchase a luxury good is proportional to ones' income, and as people move into higher income brackets, they are more capable and likely to purchase luxury goods. If a good is considered a luxury or not depends on the income elasticity of demand, defined as the relative change in quantity demanded that occurs in response to a relative change in income (Pindyck and Rubinfeld, 1998). Luxury goods and services have an income elasticity of demand above one, that is, demand rises more than proportionate to a change in income. This can be compared with normal goods that have elasticities between zero and one, and inferior goods that have negative elasticities (Pindyck and Rubinfeld, 1998). However, the income elasticity of demand also has important distributional implications as it determines which income groups are likely to benefit more or less from a policy designed to influence the supply of a particular good or service. This is one good reason to study the income elasticities of different groups of visitors at tourist destinations, and where nature-based destinations, such as protected areas, may be of particular concern given the "public good" characteristics that natural resources (and outdoor recreation opportunities) feature in many societies (Boman et al., 2013; Hall and Boyd, 2005).

Hence, the aim of this study is to analyze the income elasticity of demand for nature-based tourism in Fulufjället National Park (FNP; Figure 1)—a cross-boundary protected area between

Sweden and Norway at 61° North. The park was established in 2002 and received a 40% increase in visitation following the inauguration (Fredman et al., 2007). At this time, between 30% and 40% of the visitors came from other countries than Sweden and because of the large international demand for this type of tourism (Eagles, 2014a; Garms et al., 2016), it is of special interest to study if there are differences in income elasticities based on nationality. For this purpose, we employ a Tobit model to estimate Engel curves that allows for differences due to geographic origin and income level. This is a standard selection of model when the number of responses with zero expenditure is large, which is common for nature-based tourism data (e.g., Barquet et al., 2011; Downward et al., 2009; Hailu and Gao, 2012; Kim et al., 2011; Santeramo, 2015). Data were collected during the summer season 2014 through on-site surveys based on visitor monitoring guidelines for the Nordic region (Kajala et al., 2007).

In the following sections, we review previous research on the demand for protected area tourism, followed by a description of the study area and data collection. We then explain the estimation of elasticities and show how visitation changes with expenditure and income. The article concludes with a discussion on policy and business implications of the results.

Demand for protected areas tourism

The number of parks and protected areas worldwide has increased significantly over the last decades. Hammer et al. (2016), based on UICN and EEA statistics, report over 210,000 protected areas globally which occupy about one-fifth of the surface of earth. Europe alone has almost 100,000 areas protected, and with this boom in parks follows many expectations from politics, businesses, the civil society, and the general population (Hammer et al., 2016). While parks and protected areas may represent a hope for shaping a more sustainable future at the regional level, they are in most cases very attractive for recreation and popular tourism destinations (Eagles, 2014a; Wall Reinius and Fredman, 2007). At a global scale, Balmford et al. (2015) estimate eight billion visits to protected areas per year, most of which take place in Europe and North America. According to Eagles et al. (2000), parks and protected areas of Canada and the United States received over 2.6 billion visitor days in 1996, while for Europe, this type of information is less available (Sievänen et al., 2008). In Sweden, however, the Environmental Protection Agency report an estimate of 2.27 million visitors to 28 National Parks in 2013 (Naturvårdsverket, 2015).

But park visitors not only collect memorable experiences and relaxing moments, in many cases they also represent significant sources of income to regional economies. As such, these areas are also associated with the multifaceted arrangements of tourism services including business locations, transportation, lodging, food, attractions, and recreation facilities (Haukeland et al., 2010; Neuvonen et al., 2010). A study from the Bavarian Forest National Park in Germany shows that the park acts as a tool for economic development at the regional level, generating net monetary gains for surrounding counties with benefit-cost ratios exceeding one under all scenarios studied (Mayer, 2014). In this case, tourism contributes to over 60% of the benefits in half of the scenarios. The abovementioned study by Balmford et al. (2015) estimate approximately US $600 billion per year in direct expenditure and US $250 billion per year in consumer surplus from visitation at a global level, and in North America, Eagles et al. (2000) estimated the associated economic impact in the range of US$236–$370 billion for the 1996 visitation figures. In Sweden, visitor surveys done in the National Parks in 2014 indicate a total expenditure of 1750 million SEK (approximately €200 million).

The economic impact of visitor activities depends on both primary (direct money spent) and secondary (indirect impacts, induced impacts, leakage) effects. Looking at parks from a tourism perspective, visitation is a critical, but not supreme, factor for positive impacts. Research has shown that the size of economic impact changes primarily due to variation in expenditure rather than changes in economic multipliers as secondary impacts are based on structural interchanges of related industries that usually remain more stable over time in rural areas (Bergstrom et al., 1990). Several studies have also shown a positive relationship between visitation (number of visitors, visitor days, etc.) and expenditure (e.g., Fredman and Yuan, 2011; Huhtala, 2007; Mayer et al., 2010; Sandbrook, 2010). A study from the Provincial Parks in Ontario, Canada, showed, however, that tourism-based income increased with 257% (from $18.1 million to $64.9 million) from 1995 to 2010, while visitation increased with only 10% in the same period (Eagles, 2014b). In this case, the tourism income amplified through increased fee levels, diversity of pricing, and diversity in product supply. Hence, this study illustrates that economic impacts from tourism in protected areas goes beyond mere visitor figures and call for more in-depth knowledge on associated behavioral measures.

Fulufjället National Park

Located in the southern part of the Swedish mountain region at latitude 62° north, FNP was established in 2002 with the main purpose to preserve an alpine area of low impact from human activities. This is one of the few mountain areas in Sweden not utilized for reindeer grazing and large parts of FNP has a ground vegetation unique for the region. The area is also known for rich wildlife populations, including bear, moose, and nesting birds of prey. FNP exhibits extensive outdoor recreation opportunities, with 140 km of marked trails, and several cabins for overnight stay. There is a small fishing camp in the northern part of the park, and the nearby Njupeskär waterfall, the highest in Sweden, is a popular tourist attraction during the summer season. The main visitors' entrance is located on the northeast boundary of the park, and from there, a 1.5-km walking trail leads to Njupeskär. Among the facilities near the entrance are a parking area, a café, and a visitor center. In 2012, the Norwegian side of Fulufjället also achieved National Park status, making the first Swedish-Norwegian cross-boundary National Park with a total area of 470 km^2. While only a small share of Fulufjället is located in Norway, there is a downhill ski area with second home development close to the park entrance on the Norwegian side. In 2016, a process was launched to develop a common management regime for Fulufjället based on the Swedish management plan, which is highly influenced by a Recreation Opportunity Spectrum planning principle (Driver et al., 1987; Wallsten, 2003) dividing the park into four management zones with different regulations. Hence, tourism within the park, and investments in the adjacent gateway areas, was an important trait for local communities during the process to establish the Swedish part of FNP (Zachrisson et al., 2006).

Data collection

On-site visitor monitoring is an important mean to collect information about visitors to parks and protected areas (Eagles, 2014a; Kajala, 2007). In Fulufjället, visitor surveys were done in the summer seasons of 2001, 2003, and 2014 by means of automatic trail counters, self-registration cards, and follow-up visitor surveys (Fredman and Wikström, 2015). For the purpose of this study, we have used survey data from 2014 given the emphasis on economic measures in this survey. This

Table 1. Visitor expenditures (SEK) at FNP, Fulufjället Gateway Area, Älvdalen Municipality and Trysil Municipality (1 EUR ≈ 9 SEK).

	FNP	**Gateway area**	**Älvdalen**	**Trysil**
Lodging	145.5	289.6	362.0	25.8
Transport	170.2	212.1	232.4	41.9
Food, restaurant	127.2	207.1	244.4	29.8
Shopping	64.0	119.2	133.0	12.9
Activities	14.9	43.0	62.5	5.3
"Other"	58.4	36.7	59.2	7.1
Average expenditure	*580*	*908*	*1093*	*122*

FNP: Fulufjället National Park.

year visitor information came from 3419 returned contact cards collected through eight self-registration boxes at seven locations in Sweden and one in Norway (Fredman and Wikström, 2015). The card included a few questions about the visit, personal background and an e-mail address for a follow-up survey distributed after the visit to the park. The follow-up online electronic questionnaire was sent to 2605 visitors, which resulted in 1425 valid responses (54.7% response rate).

The survey included 41 questions on 8 different themes, one of which focused on economic expenditure. Respondents were asked to remember the amount of expenditure associated with their visit at FNP, the gateway area, and the municipalities where Fulufjället is located in Sweden and Norway, respectively. If people had expenditure for others (e.g., family members), they were also included in the report. Expenditure collective by two or more people were divided so that the individual share was reported. The income variable was measured in an open-ended question format and included the total disposable household income per month (after tax, including subsidies). The questionnaire was available in Swedish, English, and German.

The survey data show that 65.3% of the respondents are from Sweden, 17.7% are from Germany, 7.4% from Nordic countries (except Sweden), and 4.5% from the Netherlands. Given the location of Fulufjället, it is somewhat surprising that only 2.9% of all respondents are from Norway. Reasons for this could possibly be limited possibilities for access to the national park on the Norwegian side (only one major gateway, where the registration box was placed), as well as less marketing of the area in Norway compared with Sweden (the highest waterfall in Sweden is rather modest measured in Norwegian standards). The difference is, however, bigger than one would expect and yet another reason could of course be a higher rate of non-compliance among Norwegians compared with other nationalities given that the on-site card featured Swedish, English, and German (not Norwegian language, which is very similar to Swedish).

Earlier studies have shown that park visitors do have significant economic expenditures beyond the national park and nearby gateway communities, and the probability of expenditures, and the magnitude of those expenditures, increases with a wider geographical scale of analysis (Fredman and Yuan, 2011). Hence, looking at visitor expenditure across different spatial measurements of FNP, Table 1 provides some insights. First, only 71% of all respondents reported any type of expenditure. Among those that did spend money in the region, most expenditure is allocated to lodging, transport, and food. On average, Älvdalen Municipality receives the highest expenditures

followed by Fulufjället gateway region, the national park, and Trysil Municipality in Norway. Only a minor share of all expenditure is allocated to recreation activities. It is also notable how little expenditure is spent in Trysil Community. A reason for this could perhaps be the relatively large number of second homes on the Norwegian side of Fulufjället, which will reduce the reported amounts.

For the purpose of this study (and due to data limitations), we have merged the data from the four areas in Table 1, but kept nationality as one of our explanatory variables. Our analysis of visitor expenditure then targets the two main nationalities visiting FNP—Swedes and Germans—leaving a final sample size of 667 respondents reporting expenditure ($e \geq 0$).

Modeling visitor expenditure

The income elasticity describes the relative change in demand to a relative change in income for utility maximizing individuals. The elasticity can be derived from the Marshallian demand function, but also from the expenditure function, or from budget shares. When expenditure data is available but not quantity data, estimation is based on models with expenditures or expenditure shares as dependent variable. A straightforward parametric specification for estimating income shares when prices are assumed fixed is then

$$\log e_{ij} = \log x_{ij}\beta + \gamma_1 \log I_{ij} + \gamma_2 (\log I_{ij})^2 + \sum_{g=2}^{G} \left[\gamma_{1g} \log I_{ij} + \gamma_{2g} (\log I_{ij})^2\right] Dg_{ij} + u_{ij} \qquad (1)$$

where e_{ij} in this case is expenditure in the Fulufjället Park, I_{ij} is total household income, x_{ij} is a vector of other characteristics of the visitor and the visit, such as age and the number of days the visit lasted. The random error u_{ij} is assumed to be unrelated to income and to x_{ij}. Index i denotes individual and j nationality of individual i. Log-income is modeled as a polynomial of degree two. Banks et al. (1997) conclude that Engle curves often require quadratic terms. The quadratic polynomial pattern is also allowed to change with nationality, by the inclusion of the dummy variables Dg_{ij}, defined as equal to 1 when a visitor has nationality g and 0 otherwise. The income elasticity for individual i of nationality j, is then

$$\frac{\partial e_{ij}}{\partial I_{ij}} \frac{I_{ij}}{e_{ij}} = \frac{\partial \log e_{ij}}{\partial \log I_{ij}} = (\gamma_1 + \gamma_{1j}) + 2(\gamma_2 + \gamma_{2j}) \log I_{ij} \qquad (2)$$

which is interpreted as the relative change in demand (when prices are fixed) given a relative change in income for individual i. In this case, nationality $j = 1$ is the "reference level" and for this cohort, the elasticity is simply: $\gamma_1 + 2\gamma_2 \log I_{ij}$.

If the elasticity is positive, it is a "normal" good (or service) and if it larger than one, it is also a luxury good. Thus, if the relative increase in consumption is greater than the relative increase in income, it is a luxury good. If the elasticity is negative, it is an inferior good; a relative increase of income leads to a relative decrease in demand. However, in the cases when a substantial part of the sample consists of individuals without any spending, it is common to use an estimator that uses all information in the sample, that is, also those with zero expenditure.

The Tobit model is frequently employed in estimating Engel curves and income elasticities (e.g., Barquet et al., 2011; Brida et al., 2012; Downward et al., 2009; Kim et al., 2011). An Engel curve describes how household expenditure on a particular good or service varies with household income. One important feature of the Tobit model is the capability to deal with a dependent

variable that has "corner solution" outcomes, that is, a dependent variable that to some degree is continuous but in a "corner" piles up (Wooldridge, 2010). For expenditure data, the corner is at zero. In our case, the Tobit model is defined in a latent variable form:

$$e_{ij}^{*} = \log x_{ij}\beta + \gamma_1 \log I_{ij} + \gamma_2 (\log I_{ij})^2 + \sum_{g=2}^{G} \left[\gamma_{1g} \log I_{ij} + \gamma_{2g} (\log I_{ij})^2\right] Dg_{ij} + u_{ij} \tag{3}$$

$$e_{ij} = \max(0, e_{ij}^{*}) \tag{4}$$

where e_{ij}^{*} is a latent variable (not observed) and e_{ij} is the observed expenditure for individual i of nationality j and the random error is assumed to be normally distributed: $u \sim \text{Normal}(0, \sigma^2)$.

We have two conditional expectations of interest for this type of model (two Engel curves), first, the expected expenditures for all visitors $E(e_{ij}|x_{ij}, I_{ij})$ and second, for the visitors with positive spending $E(e_{ij}|x_{ij}, I_{ij}, e_{ij} > 0)$. Given the Tobit model, it is possible to write these expected values as follows:

$$E(e_{ij}|x_{ij}, I_{ij}) = \left(\frac{f(x_{ij}, I_{ij})}{\sigma}\right)\left[f(x_{ij}, I_{ij}) + \sigma\lambda\left(\frac{f(x_{ij}, I_{ij})}{\sigma}\right)\right] \tag{5}$$

$$E(e_{ij}|x_{ij}, I_{ij}, e_{ij}\rangle 0) = f(x_{ij}, I_{ij}) + \sigma\lambda\left(\frac{f(x_{ij}, I_{ij})}{\sigma}\right) \tag{6}$$

where

$$f(x_{ij}, I_{ij}) = \log x_{ij}\beta + \gamma_1 \log I_{ij} + \gamma_2 (\log I_{ij})^2 + \sum_{g=2}^{G} \left[\gamma_{1g} \log I_{ij} + \gamma_{2g} (\log I_{ij})^2\right] Dg_{ij},$$

$$\lambda(c) = \phi(c) \Big/ (c),$$

and $\phi(\cdot)$ and $(\cdot)$ are the standard normal density function and the standard normal cdf. The marginal effects with respect to income for these two expected values are as follows:

$$\frac{\partial E(e_{ij}|x_{ij}, I_{ij})}{\partial I_{ij}} = \left(\frac{f(x_{ij}, I_{ij})}{\sigma}\right)\frac{\partial f(x_{ij}, I_{ij})}{\partial I_{ij}} \tag{7}$$

$$\frac{\partial E\left(e_{ij}|x_{ij}, I_{ij},\ e_{ij}\rangle 0\right)}{\partial I_{ij}} = \left\{1 - \lambda\left(\frac{f(x_{ij}, I_{ij})}{\sigma}\right)\left[\frac{f(x_{ij}, I_{ij})}{\sigma} + \lambda\left(\frac{f(x_{ij}, I_{ij})}{\sigma}\right)\right]\right\}\frac{\partial f(x_{ij}, I_{ij})}{\partial I_{ij}} \tag{8}$$

Given these two marginal effects, the income elasticities are defined as follows:

$$\frac{\partial E(e_{ij}|x_{ij}, I_{ij})}{\partial I_{ij}}\frac{I_{ij}}{E(e_{ij}|x_{ij}, I_{ij})} \tag{9}$$

$$\frac{\partial E(e_{ij}|x_{ij}, I_{ij},\ e_{ij}\rangle 0)}{\partial I_{ij}}\frac{I_{ij}}{E(e_{ij}|x_{ij}, I_{ij},\ e_{ij}\rangle 0)} \tag{10}$$

The latter elasticity is for the subpopulation of individuals with positive expenditures during the visit at FNP. It is common to use expenditure shares instead of expenditures as dependent variable

when estimating Engel curves and elasticities (e.g., the Working-Lesser model). In this case, we define the shares as $Sh_{ij} = E(e_{ij}|x_{ij}, I_{ij}, \ldots)/I$ and the income elasticities can be obtained as follows:

$$\frac{\partial E(Sh_{ij}|x_{ij}, I_{ij}, \ldots)}{\partial I_{ij}} \frac{I_{ij}}{E(Sh_{ij}|x_{ij}, I_{ij}, \ldots)} + 1 \tag{11}$$

In statistical terms, we will gain efficiency by employing the Tobit compare to only making OLS estimations on the visitors with positive expenditures. In the case of FNP, these gains can be quite substantial since about 30% of the sample consists of visitors with no expenditures. Because of this, the analysis in this study is based on the Tobit model and the parameters of the Tobit model is estimated trough the Maximum Likelihood Method.

Results

Using the Tobit model with expenditure shares as dependent variable, the optimization of the likelihood function converged in only a few steps while attempts to use expenditures as dependent variable did not result in any convergence at all. The elasticities are allowed to vary by nationality, which in this case is categorized as Sweden and Germany, respectively. In addition, we include in the model, a number of "control" variables, we think might determine demand for nature tourism. It is, however, important to stress that there might be differences between the German and the Swedish population only because the Germans are traveling from further away and to a foreign country. For example, German visitors may have different demographics or behave differently while visiting Fulufjället compared with the Swedish visitors. With the control variables, the aim is to capture differences between the Swedish and German visitors that have to do with the character of the trip and not directly with the nationality.

We first observe that the number of days in Fulufjället has a positive significant effect on expenditures, which is, of course, expected (Table 2). Also age is significant, while the remaining control variables are insignificant. Log-income is, however, significant both for the linear term and the quadratic term. The latter term implies that different income groups have different elasticities. We also observe that visitors from Germany have a significantly different income pattern compared to those from Sweden (the reference level). The coefficients on both Germany*Log(I) and Germany*Log(I)^2 are significant.

We think the number of days spend in Fulufjället is more important than how far the visitor has traveled, but as an extra robustness check, we include dummies that captures if visitor lives nearby the national park, within a daytrip from it or further away than a daytrip. These results are presented in the Online Appendix to this article along with estimations where the insignificant control variables have been removed. The robustness check shows that the results presented in this section are not altered by any of these changes.

In Table 3, the estimated average elasticities are shown for visitors from Sweden and Germany. The table includes elasticities for all respondents as well as for those with positive expenditure only ($e > 0$). In Figure 2, we have plotted the elasticities for the two groups against income.

The average elasticities indicate normal goods, relatively close to luxury, for both nationalities. It is, however, interesting to observe the different patterns among Germans and Swedes in Figure 2. For Germans, higher incomes imply lower elasticities, while for Swedes, the pattern is reversed, the higher the income, the larger the elasticity is. Hence, for Germans with lower incomes, the visit to Fulufjället is a luxury good, while for the Swedes, the visit to Fulufjället is a luxury for those with high income.

Table 2. Tobit model estimates.

Variable	Coeff.	Sd. Err.
Constant	2.991**	1.079
Germany[a]	–6.467*	2.649
Germany*Log(I)	1.259*	0.522
Germany*Log(I)^2	–0.061*	0.026
Log(I)[b]	–0.580**	0.211
Log(I)^2 [c]	0.027**	0.010
University[d]	–0.002	0.008
Log(children)[e]	0.014	0.008
Cabin Fulu[f]	0.002	0.010
Log(age)[g]	0.027*	0.012
Log(days in Fulu)[h]	0.013***	0.003
logSigma	–2.402***	0.034
n	667	

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.
[a]Equals 1 if visitor is from Germany, 0 otherwise.
[b]The natural logarithm of household income.
[c]Square of the natural logarithm of household income.
[d]Equals 1 if universty education, 0 otherwise.
[f]Equals 1 if access to cabin or permanent living in the Fulufjäll region, 0 otherwise.
[g]The natural logarithm of the age of the respondent.
[h]The natural logarithm of days and fractions of days spent in the Fulufjäll park.

Table 3. Average income elasticities.

	Sweden	Germany
Whole population	0.853	0.828
	[0.828, 0.879][a]	[0.755, 0.926]
Subpopulation (e > 0)	0.938	0.921
	[0.927, 0.949]	[0.884, 0.952]
n	555	112

[a]95% confidence interval.

To summarize, results from our analyses show that nature-based tourism at Fulufjället on average is close to be a luxury service, but there are significant differences in elasticity between low- and high-income groups. We find that Germans and Swedes have opposite elasticity patterns—among Germans, higher incomes imply lower elasticities, while among Swedes, higher income implies larger elasticity.

Discussion

This study analyses the demand for nature-based tourism in FNP—a cross-boundary protected area between Sweden and Norway. The primary focus was to analyze income elasticities across different nationalities to study if this tourism product is a luxury or not. Similar to the previous studies

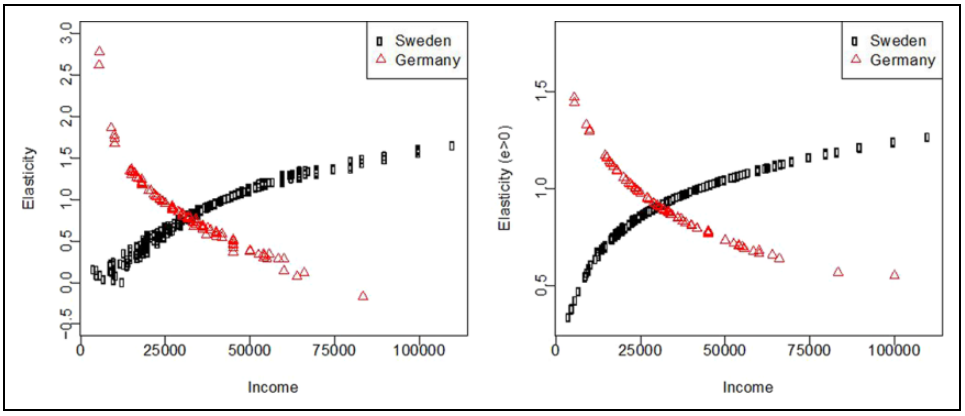

Figure 2. Elasticities plotted against income for all respondents and for those with positive expenditure ($e > 0$).

of tourism and recreation in the outdoors (e.g., Boman et al., 2013; Ghalwash, 2008; Melenberg and Van Soest, 1996; Ödner et al., 2009; Pawlowski and Breuer, 2012; Santeramo, 2015), we find average elasticities being close to luxury. We also find that elasticities differ across incomes and nationalities, in this case, between German and Swedish visitors. Among German visitors in FNP, *lower* incomes imply larger income elasticity of demand, while among Swedish visitors, *higher* income implies larger income elasticity of demand. Put differently, FNP is more likely to be a luxury good among low-income Germans and high-income Swedes.

Luxury goods are often conceptualized based on functional, experiential, and interactional symbolic dimensions (Vickers and Renand, 2003). Luxury is typically associated with exclusivity, status, and quality. One can therefore argue that such products or services are "positional goods" which signal that the owner has achieved a certain position or status within society. Hence, it could be that a visit to the Scandinavian wilderness addresses such a status among low-income Germans, while more wealthy Germans will substitute Scandinavia with more exotic (and expensive) destinations elsewhere in the world. While FNP is perceived as a wilderness destination by many Germans (Garms et al., 2016), it doesn't offer the kind of exclusive services in the gateway areas (hotels, restaurants, etc.) as is sometimes the case for other, more famous and iconic National Parks. Wealthy Swedes, on the other hand, may have chosen to travel to Fulufjället, considering a range of optional destinations, and are more likely to view the visit to Sweden's highest waterfall a positional good. On the contrary, low-income Swedes do not have such a wide range of options, and they may consider Fulufjället an affordable trip to a National Park with a "low-budget" profile to be substituted with some other destination if relative income increases.

FNP is a "wilderness like" area with only a few small local communities and relatively little infrastructures compared with many other parts of the Swedish mountain region where hiking-, ski- and snowmobile trails, hut-system, and downhill ski facilities are more developed. Among German visitors, main motivations to visit Fulufjället is the remoteness and natural impressions of the landscape (Garms et al., 2016), while for Swedish visitors, a main attraction is to come and see the highest waterfall in the country (Fredman and Wikström, 2015). These motivational domains are typically expressed through quite different visitation patterns where German visitors spend more time in the park, while many Swedes don't go beyond the 2-h return hike to the waterfall.

Hence, as many German visitors embark a backpack tour into the "wilderness" as part of a more extensive trip, most Swedish visitors consume Fulufjället as a day trip from their permanent home, second home, or other holiday facility in the region.

In this context, we want to stress that the surveyed populations covered by this study are quite different from the general German and Swedish populations. They all have in common that they traveled to FNP, which is typically not the kind of place you just happen to visit "accidentally" or "on route" for some other destination. Low-income Germans have shown a strong devotion, despite weak financial resources, to make the trip. Thus, they are likely not representative for low-income Germans in general. Paradoxically, also rich Swedes have shown a similar dedication to the destination. They have made the trip although many other interesting destinations are affordable. Thus, high-income Swedes that traveled to FNP are likely to go there for a specific reason—such as to see the highest waterfall. From a marketing point of view, these two groups are the most interesting ones—they are devoted. To target these two groups is, however, not an easy task. Given their choice to visit the area, on-site promotion should be considered, but to reach out for these special interest groups, advertising in media with a strong nature-based tourism niche is recommended. We also believe that "word-of-mouth" and social media will play a significant role in future marketing of a place such as FNP.

Our results also indicate that in times of strong economic activity, with increasing incomes, Swedes are likely to increase their expenditures more rapidly while in times of weak economic activity, Germans will increase their relative spending on the goods and services offered. This information is useful for strategies on pricing of products and services to target different market segments at FNP in a similar vein as in the Canadian Provincial Park, example described above (Eagles, 2014b). While entrance fees are not used in the Swedish (nor Norwegian) National Park system, one can think of closer cooperation between park authorities and the growing nature-based tourism sector at a local level, where support for commercial use of parks in Sweden is higher than for the population in general (Fredman and Sandell, 2009).

While this study has produced some useful insights on the demand for tourism at FNP, it is not without several limitations, most of which are rather common challenges in comparable studies. Data collection thought on-site registration with follow-up surveys typically suffers from some degree of non-compliance. More detailed analyses on this topic in the 2003 study showed that one-third of the on-site card questions, and 12% of the survey questions, had statistically significant differences between on-site compliant and non-compliant Swedish visitors (Fredman et al., 2009). We also observe that non-response to the follow-up surveys has increased from around 20% in the 2003 survey to 45% in the 2014 survey, which is yet another increasing challenge in surveys-based research. However, as policy-makers want to promote tourism growth in Fulufjället, but at the same time, not exploit the unique natural values in the National Park, it is of extra importance to know what the most dedicated visitors' demands. One track of future research would therefore be to further investigate the recreation activities and associated behavior among high-income Swedes and low-income Germans visiting the region using mixed method approaches, including also qualitative analyses of tourists' behavior. Such studies should provide valuable information to support the desired combination of economic growth, sustainable tourism, and preservation of natural values in a protected area context.

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Supplemental material

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