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RESEARCH NOTE

SOCIAL VALUATION AND REPEAT VISITATION OF GREY NOMADS IN REGIONAL QUEENSLAND OF AUSTRALIA

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This is the first attempt at measuring the social valuation of self-drive elderly tourists based on a case study of those visiting regional Queensland of Australia in their caravans. Using the negative binomial model incorporating travel cost, and data from a pilot survey of 90 respondents, it was found that the grey nomads' valuation of their visit to the Beaudesert region was A$833 per trip and their demand for travel was price insensitive. This reflects the huge sustainable revenue potential of the grey nomad market for tourism. The study also highlights factors that affect the visit frequency of grey nomads who are often repeat tourists. The findings of this study are an important policy tool for the management and understanding of elderly caravanning tourism.

Key words: Social valuation; Consumer surplus; Repeat visitation; Grey nomads

Introduction

Grey nomads are older travelers often 55 years and older, retired or semiretired, who have taken to a road travel lifestyle. Grey nomads differ from other tourists in that they tend to take longer trips but do not stay at a single destination for long periods and instead travel through many locations. This study focuses on grey nomads for the following reasons. First, the literature has identified the senior travel market to be growing significantly given the rise in the aging population in developed countries (Hsu & Lee, 2002; Reece, 2004). In fact, the proportion of older people (aged 60 years and older) has been steadily rising over time to 11% in 2009, and is expected to reach 22% in 2050 (United Nations, 2009). Second, research interest in grey nomad tourism is relatively recent, having begun in the 1990s, and there exist a limited number of studies in this area. For instance, there are some studies on grey nomad tourism in Australia (Glover & Prideaux, 2009; Higgs & Quirk, 2007; Horneman, Carter, Wei, & Ruys, 2002; Mings, 1997; Onyx & Leonard, 2007; Patterson, Pegg, & Lister, 2011; Prideaux & McClymont, 2006), in the US (McHugh & Mings, 1991, 1992; Mings & McHugh, 1995; Onyx & Leonard, 2005), and in France (Viallon, 2012).

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Third, these studies are mainly descriptive and qualitative in nature. There has been little robust empirical analysis on any aspect of grey nomad tourism apart from Cridland (2008), who used standard nonparametric tests to look into factors influencing the length of stay and distance traveled by grey nomads in Australia.

This article not only fills the gap in empirical analysis but further contributes in four ways. First, it incorporates travel cost (TC) in a negative binomial model to understand the behavior of senior caravan travelers. Second, the perceived valuation of the site by the grey nomads is estimated to provide an indication of the recreation potential as a tool for silver market. Several authors (Oh, 2000; Parasuraman, 1997; Petrick, 2004) have highlighted the importance of the perceived value for future purchase but none of these studies has quantified this value for analyzing any particular group of tourists. Third, the findings of this study add to the literature on repeat visitation by focusing on a very different type of tourists. Fourth, the study estimates how price sensitive, in terms of travel cost, is the grey nomads' demand for travel. According to Vieregge, Phetkaew, Beldona, Lumsden, and DiMicco (2007), "mature travelers are value conscious, price sensitive and like discounts" (p. 167). This means that demand is expected to decline significantly when prices rise such that revenue from mature travelers will decrease (Pindyk & Rubenfeld, 2012). This is an important issue to consider as revenue generation is a key concern in tourism management.

Background and Survey

The case study for the above exercise was based on a survey on Australian grey nomads. In Australia, the largest growth in domestic caravanning and camping visitors in Australia has been identified to be from the over 60 age group, increasing at an average annual rate of 6% since 2000 (Economic Development Committee [EDC], 2011). More specially, the survey was undertaken in regional Queensland given its popularity as a destination, with grey nomads making up 28% of all domestic visitors to Queensland in 2009 and 75.6% of them traveled in caravans (Department of Employment, Economic Development and Innovation [DEEDI], 2011).

Second, this survey is motivated by several key findings in the 2010 Queensland government inquiry (EDC, 2011) into grey nomad travel. One was that grey nomads found it hard to access caravan park accommodation, caused, on the one hand, by the increasing demand from more grey nomads taking to the road and, on the other hand, by the closure of caravan parks around the coastal areas of Queensland. Also, the inquiry found that there has been a notable decrease in powered and unpowered sites, which makes finding appropriate overnight stay rather uncertain. Lastly, the need for more grey water dump[1] sites was also an identified concern. The inquiry acknowledged that federal and local governments are responsible for providing much of the infrastructure given that grey nomads travel by road most of the time.

Thus, a pilot survey was undertaken to identify the value of grey nomad activity that may be at risk if the above identified infrastructure in Queensland was insufficient. The concerns with infrastructure are modeled for the first time to test for their impact on the valuation that grey nomads place on their travel. The grey nomads in this survey belong to one of the 26 affiliated clubs of the Queensland Caravan Club and they often attend the annual State Rally of this Queensland Club held in various parts of regional Queensland. This survey was undertaken at the week-long 2012 State Rally held in Beaudesert, which is situated in the central part of the Scenic Rim Region.

Information from the grey nomads was elicited using a paper-based survey provided to them in their Rally bag when they registered at the site and it was administered in a drop-off format after they had completed it. The response rate was 50%, and 90 completed usable surveys were returned for analysis. The survey collected data on a range of recreational and attitudinal issues of the grey nomads, their sociodemographic characteristics, the number of trips they made to the Beaudesert region in the past 5 years,[2] as well as the TC incurred in their trip. Summary statistics based on the survey data are provided in Table 1.

The TC was assessed by a round trip, as 96% of the respondents indicated that attending the Beaudesert Rally was the main reason for the trip. Hence, multipurpose or multidestination journeys were not a problem of concern. The travel expenditure consisted

Table 1
Survey Statistics on Grey Nomads Visiting Beaudesert

	Mean (SD)
Average age of respondents (years)	67.23 (6.47)
Average length of stay in Beaudesert (days)	7.23 (1.83)
Average length of total trip (days)	10.52 (7.35)
Number of visits in the past 5 years	6.02 (7.36)
Travel cost (A$)	638.62 (495.35)
Believe that caravan accommodation is sufficient in the region[a]	3.58 (0.94)
Importance of rural atmosphere[a]	3.89 (1.05)
Importance of national parks[a]	3.77 (1.12)
Importance of local tourist attractions[a]	3.04 (0.90)
	Percentage of Respondents
Need more power and water hook-ups	62.81
Need better provision of grey water dump sites	51.72
Retired	92.48
Type of retirement fund	
Self-funded	37.35
Full pension	26.51
Part pension	36.14
Education level	
Did not finish school	19.82
High school certificate	37.50
Technical college/institute	26.14
University	16.54

[a]Based on a Likert scale of 1 (*strongly disagree*) to 5 (*strongly agree*).

of fuel cost, expenditure on food in the travel journey to the site, and accommodation costs along the way as well as at the Rally site. Often opportunity costs in terms of travel time are also included in TC models but in our context, 92% of the travelers are retired, implying that opportunity costs are insignificant and can thus be excluded. The mean TC was found to be A$638.62 per caravan with a standard deviation of A$495.35 as seen in Table 1.

Empirical Model

This article uses TC incorporated in a negative binomial model. The TC method has been used to value several outdoor recreational activities (Beal, 1995; Knapman & Stanley, 1991; Wang, Li, Little, & Yang, 2009; Whitten & Bennet, 2002). It is well grounded in consumer theory and has the ability to represent consumer choice and preferences (Haab & McConnell, 2002). In this study, this framework is used to explain the frequency of visit rate in terms of expenditure of traveling to a site revealed by grey nomads' preferences and their sociodemographic characteristics. This enables the estimation of a demand function of recreational use for the purpose of obtaining the consumer surplus for social valuation based on consumer theory.

The demand function is first estimated from a count data model using TC data obtained from the survey (see Haab & McConnell, 1996; Hellerstein, 1991; Shrestha, Seidl, & Moraes, 2002). Here, we consider the Poisson model, which is a count data model commonly applied to recreation data (Haab & McConnell, 2002). In this model, the probability that a recreational user will make n trips to a specific site is modeled as an exponential function where the coefficient λ represents both the mean and variance of the distribution (Dyack, Rolfe, Harvey, Connell, & Abel, 2007):

$$\text{Prob}\,(y_i = n) = \exp(-\lambda_i)*\lambda_i^n/n! \quad (1)$$

where $n! = n*(n-1)*(n-2)* \ldots 2*1$ and the Poisson parameter λ is conditioned on some observed explanatory variables, X, such that $\ln\lambda_i = \beta' X_i$. The disadvantage of the Poisson model, however, is the restrictive assumption of equality between the mean and variance of the trip distribution. To relax this assumption, the negative binomial model which nests the Poisson model as a special case is adopted by extending the Poisson model with the introduction of individual effect, u_i. The model may then be written as

$$\ln\lambda_i + \ln u_i = \beta' X_i + \in_i \quad (2)$$

A likelihood ratio test was used to test the validity of the use of the negative binomial model. The chi-squared value of 157.29 with 1 degree of freedom rejects the equality of the mean and variance of the trip distribution. Hence, the negative binomial model is more appropriate than the Poisson model. The negative binomial demand function is estimated by modeling the trip frequency, δ, as the dependent variable on the left-hand side of the equation

$$\delta = \beta_0 + \beta_1\,\text{TC} + \ldots + \beta_n X_n \quad (3)$$

and this is specified as a function of the constant given by β_0, the TC, and a host of explanatory

variables, *X*, which consist of activities undertaken, respondent characteristics, and their various interests. The estimation based on the maximum likelihood was undertaken using the STATA econometric software. Habb and McConnell (2002) explain that an attractive feature of the above model is that the coefficient on TC is representative of cost tradeoffs and thus consumer surplus which measures social valuation per trip is estimated as the negative of $1/(\beta_1)$.

Results and Analysis

The estimated results in Table 2 shed light on the factors that affect the number of visits to the Beaudesert region by grey nomads. The model shows sufficient explanatory power (compared to TC models used in other studies) given by the McFadden R^2 statistic of 0.482. Key model parameters have the expected signs, with expected number of trips declining with increases in TC and when there is a strong perception that caravan accommodation is insufficient in the region. The importance of more power and water hookups and better provision of grey water dump sites are seen to affect trip frequency, the latter albeit at a higher level of significance.

Table 2
Estimates from Negative Binomial Travel Cost Model

	Coefficient (SD)
Constant	1.107 (1.104)
Average length of total trip	0.058 (0.038)
Travel cost	−0.0012 (0.0006)**
Believe that there is sufficient caravan accommodation in the region	0.236 (0.151)**
Need more power and water hook-ups	0.025 (0.0126)**
Better provision of grey water dump sitest	0.690 (0.238)***
Importance of national parks	0.304 (0.115)***
Importance of local tourist attractions	0.097 (0.203)
Importance of rural atmosphere	0.129 (0.064)*
Education level	0.310 (0.115)***
Full pension	−0.521 (0.301)*
Part pension	0.213 (0.285)
Log likelihood	−192.906
McFadden R^2	0.482

Note: ***, **, and * indicate significance at 1%, 5%, and 10% level.

Visit rates are likely to be higher with national parks in the vicinity and this is seen in the significance of the importance of the national parks variable. The rural atmosphere variable is also positive and significant but local tourist attractions have no significant impact. The latter is potentially due to the fact the grey nomads had, in their past visits, covered most of the local attractions and these will not be motivation for them to revisit the region. In terms of demographics, those with a higher level of education are more inclined to visit the area again and this possibly reflects higher income earned in the past and potentially more spending power. However, those with a full pension are less likely to travel more, relative to the self-funded who are financially more secure and may not have the same budgetary constraints. Being on part pension compared to being self-funded, however, has no impact on the likelihood of travel in our sample.

The negative coefficient of TC shows that grey nomad's recreation demand is inversely related to the price variable of the trip. Using this coefficient, consumer surplus is computed as $-1/(-0.0012)$. This gives a value of A$833.33 per caravan and 95% confidence intervals of A$628.17 and A$971.62 are obtained. Apportioned over the mean of 10.52 days, the consumer surplus or social valuation per caravan per day is A$79.21. To investigate the price sensitivity of grey nomad travel, following Pindyk and Rubenfeld (2012), the elasticity of travel demand was computed by $\beta_1 \times$ (mean of TC) which is -0.0012×638.62 and this gives a value of −0.766. The interpretation of this value is that for every 1% increase in TC, there is a fall in visit trip of 0.766%. Thus, the responsiveness of grey nomad travel demand to a price increase is less than 1,and this means that demand is price inelastic. The policy implication of this finding is that, even if TC increases due to an increase in fuel price, accommodation, or inflation for that matter, the decline in travel will be less than the price increase. Thus, total revenue from the grey nomad travel will in fact increase when TC increases, making it a reliable and sustainable travel market in the face of increasing prices.

The finding of price inelastic grey nomad demand is in line with the well-established literature on the influence of behavioral factors in evaluating perception of price (see Kim & Crompton,

2002). While "loyal" participants are more likely to be supporters of price increases because they received valued benefits from their participation, past experience may reinforce visitors' positive belief towards an attraction and hence result in less resistance to price increases (see Bovaird, Tricker, & Stoakes, 1984; Reiling & Kotchen, 1996; Vogt & Watson, 1998).

However, readers are cautioned that the results discussed in this study are suggestive and not definitive in nature as several limitations need to be acknowledged. First, the sample size of 90 is small but this is a pilot survey from which some preliminary results are being reported. It is envisaged that a more comprehensive survey will be undertaken on the grey nomads in time to come. Second, this study only surveyed those who belong to the Queensland Caravan Club as it offered a good starting point as a sample for the pilot survey. A broader sample of grey nomads (i.e., non-club members) will serve as a good comparison to this study. Third, a more refined model needs to be estimated as the TC model is known to suffer from omitted variable bias (Englin & Cameron, 1996). This means that all factors that affect TC and the visit demand have to be included in the model. For instance, prices and qualities of substitute and complementary sites to the Beaudesert region should be included but it was difficult to obtain data on this as the characteristics/features and attractions of the Beaudesert region need to be appropriately matched with other sites.

Conclusion

Grey nomad tourism is not just significant in Australia but also in other developed countries such as the US and France due to the combined effects of improved health, longevity, declining birth rates, and the spending power of the baby boomer generation. But little is known about how this group values a particular location and the social economic welfare they derive from visiting an area. The case study in this article found that grey nomads' recreational valuation of their visit to Beaudesert in Australia's regional Queensland was worth A$833 per trip and their inelastic travel demand makes this market a gold mine for tourism authorities to tap into.

There was also a need for more investment in the infrastructural support for grey nomad travel on the part of the federal or state government to help the grey nomad community with their lifestyle. This would attract more grey nomads and, in part, would increase the well-being of the grey nomads and keep them healthy—this lifestyle has been purported to be a good model for aged tourists (Higgs & Quirk, 2007; Sedgley, Pritchard, & Morgan, 2011). In addition, the high social valuation indicates that the grey nomads would be willing to pay more to get access to better facilities for their accommodation and other travel needs.

The results of the study also showed that grey nomads would revisit locations that offer more than just the local tourist attractions. Rural atmosphere is a drawcard for this group and thus the preservation of such an atmosphere is crucial to attract this growing group of tourists. While an area close to national and state parks may be considered a worthwhile visit by the grey nomads, this alone will not be sufficient. The recreational value of grey nomads is an indirect valuation of their experience; the totality of this valuation needs further scrutiny for tourism policy, with respect to not only this particular group of elderly tourists but also other tourist types.

Notes

[1]A dump point is a properly designed facility that receives the discharge of waste from any holding tank or similar device and then disposes of the contents in an acceptable manner.

[2]A 5 year period was chosen as the grey nomads travel quite extensively to different parts of Australia and this time frame was considered reasonable for them to have undertaken repeat trips to the Beaudesert region.

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