

Travel Distance of Senior Tourists: An Application of the GIS Techniques

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Abstract

Travel as a leisure activity for seniors has been widely studied in the field of tourism and senior travelers have become an important travel market segment. The purpose of this study is to investigate the possible different travel distances involved in travels taken by the seniors, and younger age groups, by using the techniques of the Geographic Information System (GIS). This study found that there was no significant difference between the seniors and other age groups regarding the distance they traveled to their destinations. Therefore, this study concludes that seniors may travel as far as other individuals. Tourism promoters should consider older people as active travel groups. Older people enjoy traveling as much as younger groups regardless travel distance in the U.S.

Key words: Senior travel, GIS, Distance

Introduction

Travel is considered as one of leisure activities for seniors, but there is an erroneous perception that seniors are fragile and that they can't travel due to their age. Many seniors successfully travel for years into their retirement and remain active. Without significant time constraints, seniors often stay in a chosen destination as long as they like. Moreover, retired seniors are able to afford their leisure travel if they saved money for the retirement. In the United States, the 55-plus age group is growing steadily and may have "a significant disposable income and an expectation of increased mobility reflected in greater international travel habits" (Page, Page 1999:142). Seniors account for 80% of luxury travel, 70% of coach tours, 65% of cruises, 32% of overnight stays in hotels and 28% of foreign travel; moreover, they control 50% of discretionary income, and 44% of passports (Smith & Jenner 1997). The senior travel market has exhibited many growth characteristics (Viant 1993). The senior travel market is gradually demonstrating its significance in the United States and contributes tremendously to both domestic and international tourism demand (Page 1999). Many tourism researchers studied senior travel from different perspective. However, this study particularly is to explore relationships between age and travel distance.

Literature Review

Travel distance has been used as a segmentation variable to study the travel market. For example, Cai and Li (2009) use travel distance to segment rural tourists to a destination in Midwest of the United States. This study identifies a distance decay pattern with more than half of the respondents originating from a location within 200 miles of the destination. After

their investigation of the socio-demographic profile of these travelers, trip-related characteristics, and participation in destination activities, authors conclude that travelers within a 50-mile radius participated in most of the activities offered at the destination. Travel distance is proven to be a viable segmentation variable particularly for rural destinations to understand travelers. Warnick, Bojanic, Mathur, and Ninan (2011) apply a cluster segmentation technique by using travel distance, purchase decision involvement and frequency of attendance among event attendees. Differences are found across four identified clusters on distance from the event, along with other variables, such as individual involvement, number of times attended, and likelihood to return, etc..

Researchers are always intrigued to explore the relationship between age and travel distance. Age is one of the frequently cited variables that are related to travel distance. Zhang and colleagues (1999) collect data from several national parks in China. The results reveal that the travel distance of these visitors to national parks is related to visitors' demographic data such as age. Wynen (2013) identifies distance travelled as a recurrent determinant of same-day travelers' decision on expenditure and destination choice. Results show that the likelihood of going on a same-day visit increases until the age of 75; however, distance travelled starts to decrease after the age of 45. Age is one of the significant predictors for distance travelled during same-day visits. Nicolau (2008) proposes a nonlinear relationship between response to travel distance and age; however, his study did not support any linear or nonlinear relationship among the two variables. The non-significance of age indicates that other personal factors, such as purposes, may motivate travelers to go on holiday.

Researchers have also studied travel distance as a valid and key factor in explaining travelers' purchase decision and destination choice (Bojanic & Warnick 2012; Nicolau 2008; Nicolau & Mas 2008; Wynen 2013), especially in the international tourism settings (Becken & Schiff 2011; McKercher, Chan, & Lam 2008; McKercher & Lew 2003). Based on the results of a telephone survey, McKercher and Lew examine and describe the decaying effect of distance decay on destination choice of outbound tourists by air. They also find that absolute demand for air-based tourism declines with distance, with a pattern different from the one described in standard distance decay models. The new model recognizes the superior pulling power of some attractive distant destinations. McKercher, Chan, and Lam argue that distance is a "valid proxy variable that reflects the culmination of a number of factors" (2008: 223) that may influence how far people are willing to travel for leisure purpose.

Because it is often thought that seniors do not travel far, this study intends to focus on the possible interrelationship between age and leisure travel distance. This study focuses on US domestic travels, which are more affordable, compared to international trips and fewer financial constraints may be involved in domestic travel. The general hypothesis for this study is that there is no significant difference in leisure travel distance between seniors and other age groups.

Method

Geographic Information System (GIS) techniques were employed to analyze the spatial relationship of a proposed distance model. Besides exploring the relationship between travel distance and age, an application of GIS techniques to senior travel is another focus of this study. An onsite survey was used in this study as the attribute data. The survey is constructed based on the principle of push and pull factors, which includes 30 questions. The survey data included 757 records. Permanent home zip codes were used as a primary key to join attribute data with spatial data. Three records with blank zip codes and another six with

4-digit invalid zip codes were dropped. 748 records were used for this study.

The necessary spatial data were imported from GIS ArcView. These files, states, counties, and zip codes of the United States, were converted from ShapeFile to InfoFile for the use of ArcInfo. After joining the spatial data of zip codes with the attribute table used for this report, it was possible to use the permanent zip codes of these visitors to analyze the spatial relationship between their home and resorts. The major limitation of this joining-table method was that each zip code was only counted once, which could not reflect the real number of visitors. Although this problem was ameliorated by breaking the attribute data into four smaller tables according to age groups, the problem could not be solved perfectly. The following table (table 1) shows the number of visitors and counted zip codes:

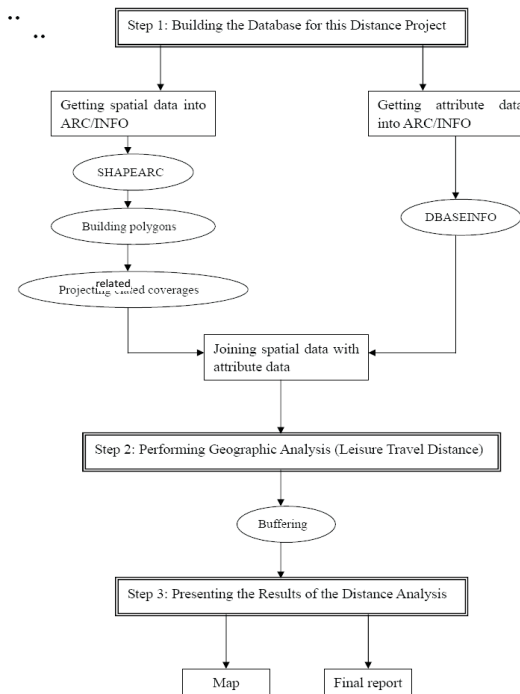
Table 1. An illustration of the Actual Number of Visitors*

Age Groups	Number of Records	Number of Visitors Counted
Younger than 35	184	156
35-49	329	242
50-64	173	152
65 and above	68	59

*The Total Number of Records Includes Six Invalid Records with 4-Digit Zip Codes

One of the GIS spatial analysis techniques, buffering, is of great importance. Buffering the Destination region at ranges of 50 and 100 miles is the main GIS technique used for this report. A list of numbers of visitors was generated as a result of accounting the number of points (zip codes) within a certain buffered area. Figure 1 shows the procedure for the methods used in this study.

Figure 1. An Illustrative Flow Chart of the Procedure



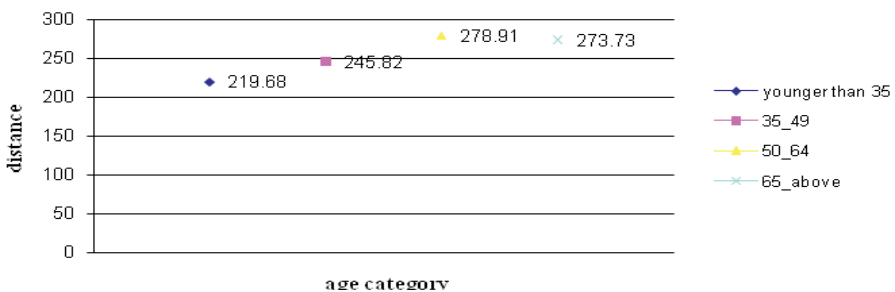
Results and Discussions

ArcMap was used to select the zip codes of visitors that fell into a certain distance (i.e., buffered area). The results are shown in Table 2. Four issues, at least, deserve a discussion. First of all, there is no significant difference among all of the four age groups (mean = 254.535, standard deviation = 27.4069, $P = .08 > \alpha = .05$), which proves the general hypothesis of this study (see the following Figure 2 as a reference). It shows that the seniors, same as other age groups, are still active and are willing to travel. Seniors should be treated as important travel customers just as any other age groups. There is no evidence for the stereotypes that seniors have less ability to travel. Therefore, there is no reason that the senior travel market should be neglected and paid less attention.

Table 2. Number of Visitors within Specific Distances, and Number of Visitors Traveling

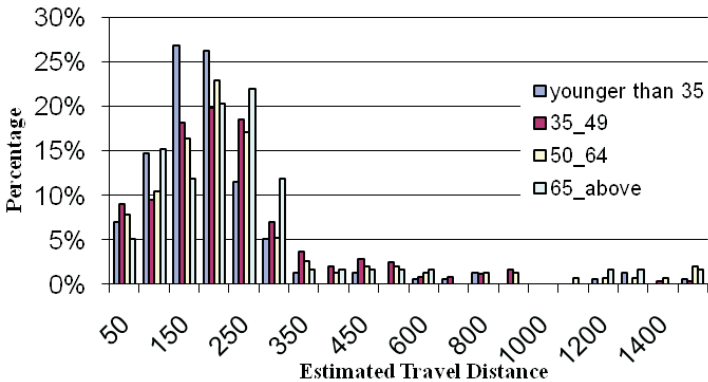
Buffer distance (miles)	The total # of visitors within a certain distance for each age group				The # of visitors excluding the # covered by previous distance for each age group			
	65above	50-64	35-49	35under	65above	50-64	35-49	35under
50	3	12	22	11	3	12	22	11
100	12	28	45	34	9	16	23	23
150	19	53	89	76	7	25	44	42
200	31	88	137	117	12	35	48	41
250	44	114	182	135	13	26	45	18
300	51	122	199	143	7	8	17	8
350	52	126	208	145	1	4	9	2
400	53	128	213	145	1	2	5	0
450	54	131	220	147	1	3	7	2
500	55	134	226	147	1	3	6	0
600	56	136	228	148	1	2	2	1
700	56	136	230	149	0	0	2	1
800	56	138	233	151	0	2	3	2
900	56	140	237	151	0	2	4	0
1000	56	140	237	151	0	0	0	0
1100	56	141	237	151	0	1	0	0
1200	57	142	237	152	1	1	0	1
1300	58	143	237	154	1	1	0	2
1400	58	144	238	154	0	1	1	0
1500	59	147	239	155	1	3	1	1

Figure 2. The Average Travel Distance for All the Age Groups



This study also found that 22.03% of that the senior travelers, were from more than 200 miles but less than 250 miles away, while 20.34% were from 150 to 200 miles away. The highest percentage of group 2 and 3 (for 35-49, 19.83%; for 50-64, 23.03%) were from a range of 150 to 200 miles away. Most of the younger group (younger than 35) were from a distance range of 100 to 150 miles (26.92%). Figure 3 is a general illustration of these comparisons. It was noted that seniors were able to visit a place that was further away. Tourism developers and promoters should focus on main attractions and service quality rather than travel distance. A nearby attraction does not necessarily transfer into an advantage over other faraway destinations for seniors.

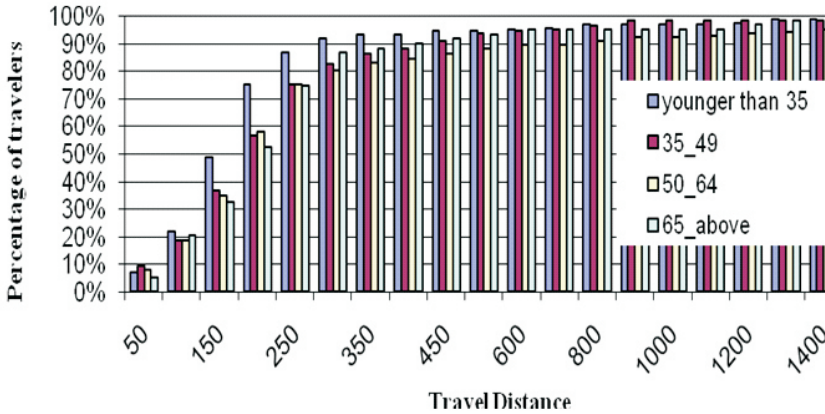
Figure 3. The Percentage of Travelers within Specific Distances for Various Age Groups



In addition, we found more than 80% of all the travelers to the destination lived within a distance of 300 miles, which seems to be a reasonable distance that travelers are willing to accept. It might also suggest that tourism promoters should pay more attention to the potential travelers around a target resort within a distance of 300 miles. Figure 4 projects a clear view of this general leisure travel distance.

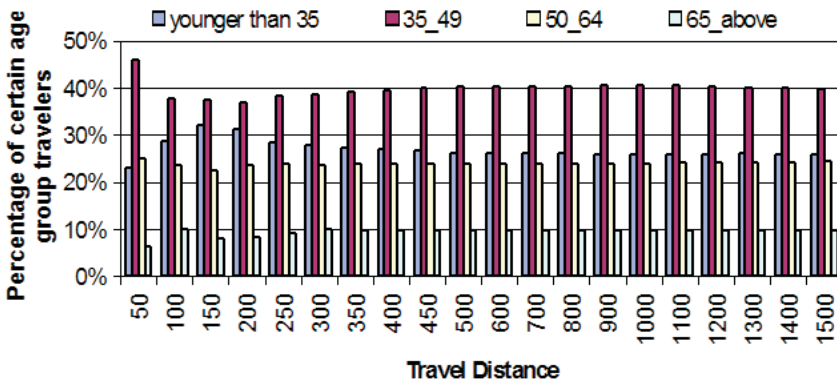
Interestingly, we found the age distribution for each travel distance is similar (Figure 5). For all the visitors who traveled a similar distance, the seniors composed approximately 10 percent, which is in accordance with the demographic statistics that indicate that seniors are 11% of the population of the United States. Approximately 50 million seniors were over age sixty-five. This number will increase as health care and increasing life spans keep improving (Coltman 1989). Studies show that those most likely to travel are between age twenty-five and fifty-five, which implies that the seniors with time and money, do not contribute greatly to tourism. There is still much room to increase the percentage of seniors and to tap the senior markets. The senior travel market is full of potential and challenge.

Figure 4. Within Specific Travel Distances, the Number of Different Age Group Visitors (Total Number)



Results show that there were more young and middle-aged people than seniors who chose to travel somewhere close to their home. It was likely that young and middle-aged people have work and family obligations; therefore, they chose to travel to a nearby destination. Without these time constraints seniors have the advantage of flexibility and therefore the ability to take longer trips. Finally, the senior travel market is expanding quickly. As the population ages the demand for travel among the senior segment will be higher than it has ever been before.

Figure 5. Within Specific Distances, the Percentage Components of each Age Group



Conclusion

This study indicates that travel distance has no impact on senior travel. Older people enjoy traveling as much as younger groups regardless travel distance in the U.S. The finding of this study significantly contributes to travel industry to attract more senior travelers. In the U.S., baby boomer who was born between 1946 and 1964 has more than 81

million people which accounts for 26.4% of total the population in 2010 (US Census Bureau 2010). Tourism promoters should not only consider the baby boomers as retired groups but also consider them as active travel groups. The destination marketing organizations (DMO) can consider working with associations like American Association of Retired Persons (AARP) to promote tourism products. Travel promoters can “bear the special interests of older adults in their minds and design tours specifically targeting older visitors” (Dong, Wang, Morias & Brook 2013: 190).

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