

FOOTPRINTS IN NATURE: ANALYZING TOURISM MOBILITY IN LOW URBAN DENSITY ECOTOURISM CITIES – A CASE STUDY

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Abstract

Ecotourism, a form of sustainable tourism centered around nature, emphasizes the conservation of natural environments and the education of visitors about ecological preservation. While traditional ecotourism takes place in relatively untouched and unpolluted natural areas, urban ecotourism thrives in settings that bear the marks of prior human activities. This paper delves into the challenges faced by ecotourism cities, where the surge in tourism and the demand for urban mobility have led to issues such as congestion, pollution, and traffic woes.

The growth in ecotourism cities necessitates the development of transport and infrastructure, including new travel modes and improved services. Transport becomes a vital component of the overall tourist experience, directly impacting visitor satisfaction with the destination. Understanding tourist mobility is crucial for both management and marketing in these settings. However, a significant gap exists in our understanding of tourist mobility in rural areas and low-density ecotourism cities.

To enhance the tourist experience and cater to their needs, it is imperative to establish an efficient and responsive transport system. This demands a thorough comprehension of tourists' attitudes and perceptions toward mobility during their journeys. Transport services should be tailored to meet the demands of the visitors. To date, research on tourist mobility has primarily focused on urban environments, leaving ecotourism cities with sparse attention. This study aims to bridge this gap by examining tourists' perceptions of various transport modes, including cars, public transport, and tourist coaches, in an ecotourism city with low urban density.

The remainder of this paper is organized as follows. The subsequent section provides an overview of the existing research on ecotourism and tourist mobility. The methodology section outlines the research approach, including the study area and variables. Following this, we present the results and engage in a comprehensive discussion. The paper concludes with a summary of key findings and implications for the management of transport in ecotourism cities.

Keywords: Ecotourism, Tourist Mobility, Urban Ecotourism, Transport Modes, Sustainable Tourism

Introduction

Ecotourism is a form of tourism that is based around nature. It is defined by its results for sustainable development, including protecting natural areas and educating visitors about sustainability and local nature. While ecotourism means traveling to relatively untouched and unpolluted natural areas (Jenkins et al., 2003), urban ecotourism takes place in areas that offer a degree of naturalness in a setting that is substantially modified by prior human activities (Jegdić & Gradinac, 2016). However, the growth of tourism and increasing demand for urban mobility have led to increased congestion, pollution, and traffic problems in many ecotourism cities worldwide. The need for transport and infrastructure development, including new travel modes, new roads, and improved transport services, has therefore become increasingly urgent (Guiver et al., 2007; Regnerus et al., 2007).

Transport is an additional tourism product that adds to the total tourist experience and may influence tourist satisfaction with the destination. It is important to understand tourist mobility for management and marketing purposes. However, there is a substantial lack of information on tourist mobility in rural areas and ecotourism cities (Dallen, 2007; Krizek & El-Geneidy 2007; Lumsdon et al., 2006). To promote the tourist experience, it is important to have an excellent and effective transport system by understanding tourists' needs and perceptions toward mobility during their trip. Transport services should be demand oriented, and thus a good knowledge of customer attitudes is critical (Gronau & Kagermeier, 2007). To date, most of the research on tourist mobility has focused on urban areas, and there is a limited understanding of tourists' perception toward transport modes in ecotourism cities with a low urban density (fewer than 30 persons per hectare). This paper contributes to filling this gap in the literature by examining tourists' perception toward transport modes (cars, public transport, and tourist coaches) in an ecotourism city. The rest of the paper is structured as follows. The next section outlines the key research on ecotourism and tourist mobility. The methods section presents the methodology in detail, including the study area and variables. This is followed by the results and discussion, and the paper is concluded in the final section.

Literature Review

In the past few decades, traditional tourism has been redefined due to a growing interest in sustainable development. Ecotourism is defined by its sustainable development results: the protection of nature, the education of visitors about sustainability, and benefits for the local population (World Tourism Organization, 2018). While this form of tourism typically means traveling to relatively untouched and unpolluted natural areas (Ceballos-Lascurain, 1996), urban ecotourism takes place in areas that offer a degree of naturalness in a location that has been substantially modified by prior human activities (Jegdić & Gradinac, 2016).

Many cities have encouraged urban ecotourism by actively mixing it with urban tourism. The practice of ecotourism mixed with urban tourism emphasizes the protection of natural and cultural heritage (Wu et al., 2010). The development of ecotourism in low urban density cities requires understanding its opportunities and constraints and coordination of the protection of natural areas, cultural heritage, and urban development. Ecotourism in natural settings often requires building infrastructure, including roads, highways, or bus stations to accommodate visitors' mobility needs (Dickinson et al., 2009). Although these facilities are often designed and built to have the minimum possible environmental effect, they can still cause damage to the locations that people seek out in order to commune with nature (Kinsella & Caulfield, 2011).

The growing literature on tourist mobility has identified the differences between mobility in rural and urban areas. Tourists tend to use public transport more often in urban areas compared to rural areas and the countryside. Public transport users in urban area seem to be well-educated, young, and usually have a driver's license (Bansal & Eiselt, 2004; Farag & Lyons, 2012; Quiroga, 1990). In rural areas, however, tourists tend to have different purposes for travelling and different backgrounds and ages. Tourist mobility in the countryside tends to rely on tourist coaches and charters for scenic rides or leisure activities, such as walking, cycling, and surfing. Avoiding parking fees, feeling uncomfortable driving in unfamiliar places, and a desire for social contact with others are also reasons for using charter buses in rural areas (Lumsdon, 2006).

Tourist motivation is largely driven by the individual orientation of psychology – applied to a specific domain of human action (Prentice, 2004, p.113). Demographic characteristics, knowledge, experience, and cultural influences can explain consumer travel behavior (Fodness, 1994). Motivations for tourism are often classified as push or pull factors, where push refers to the tourists' objective reasons and pull

to the attractiveness of the object (destinations or sites; Dann, 1977). In addition to the influence of commuters' perceptions, tourists' socioeconomic characteristics have the potential to affect travel behavior. Studying visitors' travel behavior in St. Ives, United Kingdom, Dallen (2007) found that public transport and car users tended to be from different age groups. Bus users' were more likely to be from a younger age group (16–34) and were less likely to possess a driver's license or a car. Meanwhile, an older age group (45–54) tended to prefer the train because it was scenic and relaxed. Visitors with a higher socioeconomic status in age group 45 and over preferred traveling by car because it offered independence and convenience. Anable (2005) mentioned that personal attitudes, perceptions, and activities are other factors related to public transport use. The author suggested that there were potentially different motivations behind the same behavior and that knowledge of motivations is critical to understanding visitor use of public transport.

A study of public transport users in South West England by Barr and Prillwitz (2012) found that aspiring and committed green travelers had pro-environmental attitudes and considered using alternative modes of transportation to cars whenever possible. According to Guiver et al. (2007), a preference for walking and environmental concerns was the reasons for using the bus. Lumsdon et al. (2006) emphasized that tourists used the bus to avoid parking fees and driving in unfamiliar places, to reduce the number of cars on the road, to have social contact, and to enjoy a scenic ride. Stradling et al. (2007) demonstrated the importance of social and interpersonal interaction opportunities as motivation for bus use. They found that age and frequency of bus use appeared to have greater influence on these motivational factors compared to annual household income, car availability, or gender. The primary reasons for not using buses included cost, self-image, concerns about safety issues, a preference for walking or cycling, issues with public transport service, a personal preference for driving, and disability and discomfort (Bronson et al., 2009; Friman et al., 2001; Lau & McKercher, 2006; Redman et al., 2013).

The aforementioned studies investigated the profile of public transport users and their perceptions in urban areas. However, little is known about tourists' preferences for different transport modes in ecotourism cities with low urban density. Thus, there is a need to understand urban visitors' attitudes toward cars, public transport, and tourist coaches and what motivates their use of these modes of transport. Transport policies and marketing strategies can then be planned for future development. A cost-effective investment in infrastructure in general and in a transport system in particular would attract more tourists to ecotourism cities and increase tourism revenue.

Methodology

One of the main ecotourism cities in Saudi Arabia is Al-Baha, which is located in the southwest part of the country. This hilly area is characterized by natural tree cover and agricultural plateaus, with an altitude of 2,155 meters (7,070 feet) above sea level (General Authority of Meteorology and Environmental Protection, 2017). Due to its varying geographic features, the climate of Al-Baha is mild compared to other Saudi cities, with temperatures ranging between 12°C and 23°C. Due to its elevation, Al-Baha's climate is moderate in the summer and cold in the winter. Rainfall is higher in the mountainous region, with precipitation in the range of 229–581 mm, whereas the average rainfall throughout the whole region is 100–250 mm annually.

Al-Baha has a unique landscape, with mountainous highlands scattered with forests, in which diverse plant and animal species live. There are also numerous heritage sites, which were built with stone for the first 2–3 meters and supplemented with mud (Saudi Commission for Tourism and Antiquities, 2016). Al-Baha is an attractive ecotourism city with diverse natural characteristics and heritage buildings; investment in its transport system is necessary to maintain tourism growth.

Data collection

To study tourists' perceptions of using cars, public transport, or tourist buses as the main travel mode, data were collected from a visitor survey that was conducted across the airport, three malls, and 12 residential tourism sites (hotels, apartments, and resorts) for a total of 16 locations and 603 responses. Questionnaire-based surveys are a standard method for researching user perceptions regarding transport modes (see Bansal & Eiselt, 2004; Felleson & Friman, 2012). A self-administered survey was the most efficient and effective use of the resources available. After that, the implementation of each transport mode in the low urban density area was investigated by interviewing the city council. A comparison between tourists' perceptions from the survey and the councils' opinions was employed to understand how the research could accommodate both needs.

Respondents answered questions on socioeconomic characteristics (Table 1). Respondents also rated their motivations for using a car, a coach, or public transport on a Likert scale from 1 to 5, with 1 being not-at-all relevant and 5 being totally relevant (Table 2). The motivational statements for using a car (11 items), a coach (12 items), and public transport (10 items) were developed using a factor analysis with reference to related studies (Albalade & Bel, 2010; Antoniou & Tyrinopoulos, 2013; Felleson & Friman, 2012). Factors were extracted using the following criteria: an eigenvalue greater than 1 and factor loadings greater than 0.5. A reliability analysis (Cronbach's alpha) was used to assess the correlation between variables for each identified factor. All factors with a reliability above 0.5 were accepted for the purpose of this study. A discriminant function analysis (stepwise method) was run to identify the most influential factors for determining a visitors' perception regarding transport modes in a tourist city with low urban density.

Table 1: Respondents' socioeconomic characteristics

Socioeconomic characteristics	Public transport (% (n = 118)		Car (% (n = 353)		Tourist coach (% (n = 132)		Total (% (n = 603)								
1. Age	<18	5.93	24.36	3.79	16.25										
	18-24	36.44	10.20	30.30	19.73	25-34	55.08	9.35	63.64	30.18	35-49	2.54	34.56	2.27	21.23
	>50	0.00	21.53	0.00	12.60										
2. Education level	No bachelor's degree				6.78	52.41	12.88	34.83							
	Graduate diploma	19.49	26.91	18.18	23.55	Bachelor's degree	54.24	15.30	53.79	31.34					
	Post-graduate degree		19.49	5.38	15.15	10.28									
3. Employment status	Full-time worker				33.90	47.59	34.85	42.12							
	Part-time worker	27.97	8.50	31.06	17.25	Student	38.14	28.05	31.82	30.85					
	Unemployed		0.00	15.86	2.27	9.78									
4. Marital status	Single	77.97	4.53	59.09	30.85										
	Family without dependent														
		2.54	71.10	4.55	43.12										

child/children

Family with dependent

19.49 24.36 36.36 26.04 child/children

5. Valid driver's license Yes 89.83 93.77 68.18 87.40

No 10.17 6.23 31.82 12.60

6. Monthly household <4,999 11.02 52.41 8.33 34.66 income 5,000–9,999 52.54 26.91 16.67 29.68

(SAR/month) 10,000–19,999 27.97 15.30 58.33 27.20

>20,000 8.47 5.38 16.67 8.46

7. First-time visitor Yes 50.85 96.88 66.67 81.26

No 49.15 3.12 33.33 18.74

Table 2: Tourists' agreement with motivational statements for using cars, public transport, and tourist coaches

No.	Motivational statement	Mean	Median	Mode	SD
To use public transport					
1	I want to enjoy the surroundings on the way.	3.81	4	5	1.234
2	I can have more time to do something else on board.	3.75	5	5	1.648
3	I want to avoid traffic congestion.	3.60	5	5	1.673
4	I am not familiar with the area.	3.59	4	4	1.238
5	It is difficult to find parking in the city center.	3.36	4	4	1.351
6	I do not have a car in Al-Baha.	3.17	3	3	1.290
7	I do not want to rent a car.	3.13	3	5	1.437
8	Coach fares are expensive.	3.06	3	5	1.573
9	Meeting new and local people.	3.04	3	3	1.315
10	Reducing transport pollution.	2.99	3	3	1.400
To use a car					
1	Train stations and bus stops are not conveniently located.	3.06	3	3	1.354
2	I have mobility restrictions (elderly or disabled).	3.06	3	5	1.573
3	I travel with children, so I think other transport modes are difficult to use.	3.04	3	3	1.315
4	Using a car gives me more flexibility.	2.99	3	3	1.400
5	I do not have any information about other transport modes that are available.	2.97	3	3	1.326
6	Other transport modes are too slow.	2.69	3	3	1.139
7	I do not feel comfortable with the crowds on a coach and public transport.	2.52	2	1	1.426

8	Fares are expensive.	2.52	2	1	1.432
9	I prefer using a car.	2.06	2	1	1.334
10	I prefer to carry stuff when I move around.	3.06	3	3	1.354
11	Using a private car gives a prestigious image.	2.52	2	1	1.426
To use a tourist coach					
1	I want to enjoy the surroundings on the way.	3.45	1	1	1.144
2	I can have more time to do something else on board.	3.33	1	1	1.024
3	I want to avoid traffic jams.	3.14	4	5	1.527
4	I am not familiar with the area.	2.54	3	5	1.535
5	It is difficult to find parking in the city center.	2.18	3	5	1.851
6	I do not have a car in Al-Baha.	2.14	2	2	1.587
7	I do not want to rent a car.	2.10	1	1	1.714
8	A coach has more flexibility compared to public transport.	1.87	2	1	1.424
9	Reducing transport pollution.	1.81	2	1	1.311
10	A coach is faster than public transport.	1.73	1	1	1.212
11	A coach offers information on attractions.	1.69	1	1	1.246
12	Meeting new people.	1.68	1	1	1.125

Results

In order to identify the most important factors that determined which transport mode tourists are willing to use, a discriminant function analysis (stepwise method) was performed for car, public transport, and coach as independent variables. The 10 statements for public transport were subjected to a factor analysis. Items with loadings lower than 0.5 or low reliability ($\alpha < 0.5$) were removed. Then, the factor analysis was run again, with seven items explaining 43.67% of the total variance. From the results presented in Table 3, Factor 1 comprised two items that described the benefits of not driving: visitors can do other things on board and enjoy the surroundings. These drive-free benefits explained 16.81% of the variance. Two items were loaded onto a second factor related to traffic issues, including avoiding traffic congestion and being unfamiliar with the area, which explained 13.82% of the variance. Both car ownership and renting a car in Al-Baha were loaded onto the third factor describing restrictions of using a car, which explained 12.04% of the variance.

Similarly, the 11 statements for cars were factor analyzed, and items with loadings below 0.5 were removed. The remaining seven items were employed in a factor analysis, generating three factors, which explained 50.60% of the total variance (Table 3). The first factor comprised three items, including travelling with children, car fixability, and personal mobility restorations (i.e., elderly and disabled). This factor was named *convenience and restrictions* and explained 23.60% of the variance. *Disadvantages of public transport* was the second factor for using a car, which is loaded by both travel comfort and fares, explaining 15.68% of the variance. The third factor included two items related to tourists' personal preferences of using a car and carrying stuff during their travel, which explained 11.32% the variance.

Finally, the 12 statements for coach were subjected to a factor analysis. Four items with loadings lower than 0.5 were removed, and the factor analysis was run again with eight factors, which explained 36.99% of the total variance (Table 3). From the results presented in Table 3, Factor 1 (*traffic reduction*) comprised three items and explained 14.32% of the variance. The traffic reduction factor was loaded by avoiding traffic, being unfamiliar with the city, and finding parking. Three items were also included in the second factor, which was named *advantages of coach* and explained 12.35% of the variance. The last factor described *restrictions*, which had two items that explained 11.32% of the variance.

Table 3: Factor analysis of visitor motivations for using a car, public transport, or a tourist coach

Motivational statements	Factor loadings	Eigenvalue	Variance (%)	Cumulative variance (%)	Reliability coefficient
Public transport					
Factor 1: Drive-free benefits		2.38	16.81	16.81	0.74
1 I want to enjoy the surroundings on the way.	0.82				
2 I can have more time to do something else on board.	0.77				
Factor 2: Traffic issues		2.31	14.82	31.63	0.76
1 I want to avoid traffic congestion.	0.88				
2 I am not familiar with the area.	0.85				
Factor 3: Restrictions		1.81	12.04	43.67	0.79
1 I do not have a car in Al-Baha.	0.86				
2 I do not want to rent a car.	0.76				
Car					
Factor 1: Convenience and restrictions		2.89	23.60	23.60	0.83
1 I travel with children, so I think other transport modes are difficult to use.	0.94				
2 Using a car gives me more flexibility.	0.93				
3 I have mobility restrictions (elderly or disabled).	0.91				

Factor 2: Disadvantages of public transport		2.11	15.68	39.28	0.81
1 I do not feel comfortable with the crowds in a coach and public transport.	0.86				
2 Fares are expensive.	0.75				
Factor 3: Personal preferences		1.67	11.32	50.60	0.67
1 I prefer using a car.	0.83				
2 I prefer to carry stuff when I move around.	0.80				
Tourist coach					
Factor 1: Traffic reduction		2.38	14.32	14.32	0.74
1 I want to avoid traffic jams.	0.82				
2 I am not familiar with the area.	0.77				
It is difficult to find parking in the	0.62				
3 city center.					
Factor 2: Advantages of coach		2.31	12.35	26.67	0.76
Coach has some flexibility compared	0.81				
1 to public transport.					
2 Coach is faster than public	0.73				
transport.					
Coach offers information on	0.66				
3 attractions.					
Factor 3: Restrictions		1.81	11.32	36.99	0.79
1 I do not have a car in Al-Baha.	0.88				
2 I do not want to rent a car.	0.83				

Discussion

The city council has proposed an urban development scheme that aims to enhance the tourist experience, including accommodation, tourist activities, and transportation. Improving accessibility to tourist destinations, such as parks and mountains, is key to attracting more tourists to the area. The city council believes they should increase investments in the bus and train system, making this the dominant transport mode for tourists. However, over half of the tourists in our study (58.54%) preferred traveling by car due to its flexibility and tourist mobility restrictions (elderly or disabled). In an ecotourism city with a scattered urban structure, the flexibility offered by cars makes them an attractive travel mode.

Ecotourism is a form of tourism that involves visiting fragile, pristine, and relatively undisturbed natural areas. It is intended as a low-impact and often small-scale alternative to standard mass commercial tourism. Given the main purpose of this form of travel is to discover the natural area and local flora and fauna, travelling by car can give tourists the flexibility to explore the local environment. Personal restrictions and physical disability are also major constraints affecting tourists' perceptions of public transport as these can be critical issues in hilly cities with topography that makes walking difficult. Our study reveals that older people (over 50 years old) and those with mobility restrictions preferred to travel by car over bus or train. A significant correlation was found between tourists' age and preference for cars as the main travel mode ($r = 0.61, p < .010$).

Moreover, marital status also had an effect on tourists' interests and preferred attractions. Families with young children were more interested in visiting theme parks and spending most of their time outdoors, while adults without dependent children preferred to spend time indoors in restaurants and malls. Because cars provide more flexibility compared to public transport, families with dependent children preferred travelling by car. Tourists who preferred using public transport systems tended to be well-educated and young (73.73% of tourists preferring public transport had a bachelor's degree or higher). A significant correlation was found between tourist preferring public transport and level of education ($r = 0.76, p < .01$).

Well-educated people tended to use public transport, given their awareness of environmental issues related to car emissions affecting public health, the environment, and natural resources (Frag & Lyons, 2012; Nevin, 2008; Sibbel, 2009). Public transport commuters were also mindful of possible negative psychological effects of driving, as drivers can suffer from travel stress and anxiety due to traffic congestion and delays (Shinar, 1998; Wener & Evans, 2011). We found a significant correlation between tourists' age and their transport mode preference as young tourists were more likely to choose public transport ($r = 0.61, p < .01$). Younger generations tended to prefer public transport when they visited a new city due to their ability to walk to public transport stations and to transfer between routes (Rissel et al., 2012; Thompson & Schofield, 2007).

Based on our findings, cars are the preferred travel mode for tourists in low urban density areas with scattered urban structures. However, given the negative impact of car dependency, tourist coaches are an alternative travel mode in low urban density cities because they offer greater travel flexibility for tourists compared to public transport. Tourist coaches are an environmentally friendly form of travel because they consume less fuel and cause less pollution per person than cars. This research reveals that tourists are willing to use a coach to avoid traffic congestion and driving stress. Specifically, 90.27% (102 out of 113) of tourists who were visiting the city for the first time preferred using a coach or buses because they were unfamiliar with the area. Although tourist coaches can be an alternative method to cars, over half of the tourists in our sample (58.54%) had negative attitudes toward using a coach due to its crowdedness and lack of privacy.

The scattered urban structure seems to have a critical role to play in shaping tourists' perception toward their mobility and transport mode. Given the scattered urban structure, a car is the preferred travel mode. Developing a public transport system by introducing new routes or stations may have a limited impact on changing tourist travel behavior and minimizing traffic congestion resulting from car dependency. Tourist coaches can be a solution, given its advantages, including service, amenity, and flexibility compared to a bus or train. The city council needs to enhance tourist coaches in such an ecotourism city with low urban density. This practice should include overcoming tourist coach disadvantages, such as poor and expensive service, and strengthening the advantages, such as flexibility and some privacy. Both the quality and quantity of the service should be improved by introducing a

new vehicle and training a tour guide. Given the condition of roads in this ecotourism city, the accessibility to tourist attractions should be improved by building a new road. A funding scheme should also be introduced to support private coach operators financially. A cost-effective investment in infrastructure in general and in a tourist coach in particular would attract more tourists to ecotourism cities and increase tourism revenue.

Conclusion

This study explored tourists' perception of mobility in an ecotourism city. Tourists visiting ecotourism cities are more likely to use cars over public transport or a coach. Through a series of modelling exercises, we highlighted that in a low urban density context, tourists' preference for using a car was primarily driven by their marital status (particularly families with dependent children), mobility restrictions (e.g., elderly or disabled), and the flexibility of cars. The disadvantages of public transport (e.g., crowdedness and travel fares) and personal preference for driving were also factors shaping their views regarding car use. The modelling exercises revealed that within a low urban density context, the positive perceptions to use public transport were largely its drive-free benefits, the avoidance of traffic, car ownership, and the tendency to drive. Similarly, tourists' positive attitudes toward coaches were primarily due to their preference to reduce traffic, the advantages of coach, such as tourist information, and personal restrictions, such as owning a car or being willing to drive. Given the environmental and psychological issues related to car use, tourist coaches can be a suitable travel mode in an ecotourism city. There is potential for further tourist travel behavior research to validate and extend our findings on using tourist coaches and public transport in diverse contexts, which could provide useful knowledge on the link between urban structures and commuters' attitudes toward different transport modes as we progress toward achieving sustainable transportation.

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