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Do tourists value different levels of cycling infrastructure?

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HIGHLIGHTS

- The findings show the value tourist place on inter-urban cycleways.
- The results can be used by practitioners to conduct cost benefit analysis of new cycle infrastructure.
- The findings show tourists are willing to pay for segregated cycleways.

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ABSTRACT

This paper seeks to examine how tourists value different types of cycling infrastructure using the results from intercept stated preference survey that was carried out amongst tourists in Dublin. The attributes used in the stated preference scenarios were: time, facility type, weather, and route gradient. A nested logit model was created to analyse the data.

It was found that a tourist is willing to increase their cycling time by approximately 100% in order to cycle upon a fully segregated from traffic cycling facility rather than along a road without cycling infrastructure, and are willing to increase their time by 40–50% to be able to cycle along a road with a cycle lane rather than a road without cycling facilities. Younger, male tourists, who own one or more bikes are more likely to choose a road without cycling facilities, while older, female tourists, who do not own any bikes, are more likely to choose a road with cycle lanes or a segregated from traffic cycling facility.

Currently, research into cycling and tourism has not been overly developed. In recent years, there has been an increased focus on research into this area. The research that currently exists is aligned more towards large scale events such as the Tour de France, and adventure tourism in general. This paper casts a light onto the area of cycling for tourist purposes and develops a value based system that can be used in the planning of cycling infrastructure in tourist locations and rural areas.

1. Introduction

At the moment cycling in Ireland is undergoing a renaissance. Between 2006 and 2011, cycling in Ireland's capital, Dublin has increased by 45% (Caulfield, 2014; Dublin City Council, 2012). This large scale increase has been replicated nationwide with an increase in cycling of 15% (Central Statistics Office, 2012). This has led to an increased focus on cycling for commuting, leisure and tourist purposes at both local and national levels. In the past, the area of cycle tourism in Ireland received very little attention, however, in recent times the importance of this sector of the tourism market has become apparent. In 2009, it was estimated that cycling tourists spent €97 million while in Ireland (Fáilte Ireland, 2009). The majority of the cyclists that were surveyed were just satisfied with cycling in Ireland, however; 12% of those surveyed were either dissatisfied or very dissatisfied.

In 2009, Ireland's first National Cycling Policy Framework was adopted. The specific objectives were to promote the development of walking and cycling in Ireland. One objective was to "*Provide designated rural signed cycle networks providing especially for visitors and recreational cycling*" (Smarter Travel Office, 2009). From this Framework, the National Cycle Network Scoping study was created (National Roads Authority, Ireland (2011)). The document outlined some 2000 km of corridors along which high quality cycling facilities were to be constructed. One such project is the Great Western Greenway in the north west of Ireland. The first phase of this project, an 18 km route from Newport to Mulranny was opened in April 2010. This phase was a "huge success" (Fáilte Ireland and

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Smarter Travel Office, 2010) and a €3.5 million package was agreed to expand the route to 42 km. The 42 km route is currently the longest off-road cycling and walking trail in the Republic of Ireland. Deenihan, Caulfield, and O'Dwyer (2013) estimated that this section of cycleway has a payback period of six years. The success of this infrastructural facility has led to many other potential facilities being considered for construction. Most of these proposals are along disused railway lines and canal towpaths.

With investments in infrastructure like the National Cycle Network it is hoped to increase the percentage of cycle tourists that are satisfied with cycling in Ireland and in turn increase the tourism numbers visiting the country. This should lead to an increase in expenditure from this category of tourism and also increase sustainable travel patterns within the areas. Lamont (2009) claims there has been a relationship between cycling and tourism since the 1890s, but it is only in recent years that these areas are being researched academically. It is important that research be carried out in these areas, as a lack of knowledge leads to misleading conclusions when categories of tourists are not defined properly. This can cause falsification, exaggeration, and an understatement of facts when it comes to the analysis of certain cycling groups. Burkart and Medlik (1981) also state why it's important that research into tourism be carried out. It is necessary for three specific reasons. These are as follows:

- To evaluate the value and significance of tourism to a particular area
- To use in the design and planning of infrastructure and service for tourists
- To plan and create effective marketing campaigns.

The Irish National Cycle Network, identifies the corridors along which cycling infrastructure should proceed. In many cases, there are several options along which these routes could be constructed. There is an extensive disused rail network in Ireland, along with many disused canals and their towpaths. In the past decade there has also been a relatively large extensive motorway construction programme which has led to many previously wide national roads with hard shoulders reverting to local and regional use. In order for the correct routes to be selected, it is crucial that the attitudes and perceptions of the potential users of these facilities be fully understood. One significant user group is tourists. The research presented in this paper examines the preferences of tourists for different standards of cycling infrastructure. The results were retrieved from analysis on a stated preference intercept survey carried out among tourists in the summer of 2012. One section of the intercept survey presented the tourists with various scenarios. In these scenarios the respondent was presented with different standards of cycling infrastructure that contained individual conditions for each piece of infrastructure. The respondent then selected their preferred option. Analysis was performed on these choices and is presented later in this text. The respondents' demographic information was also noted in the survey. It was also analysed whether people's choices and preferences alter between demographic categories.

2. Literature review

Several studies have looked at methods to increase cycling. Stinson and Bhat (2004) determined that the most important factors affecting cycle commuting by means of an internet based survey. The results indicate that the most effective policy to increase cycling was to increase cycle parking at employment facilities. Cyclist training and education would also be an easy method of increasing cycling. Birk and Geller (2006) investigated the increase in cycling in Portland, Oregon over a thirteen-year period during which there were extensive improvements to cycling infrastructure. The paper shows that there was a 210% increase in cycling over the time period and a clear correlation between improvements in the cycle network and increases in the usage of the facilities.

A number of international case studies have been published on the benefits of greenways. Richardson (2006) examined the results of intercept surveys on Switzerland's national cycle network over a three-year period. The surveys gathered information at 16 random locations around the network. Temperature, rainfall and cyclist numbers were noted over a period of time at these locations and for certain times of the year, every year, for three years. Intercept surveys were carried out on a passing cyclist every time a certain number of cyclists passed. This information allowed for specific types of cycle flows (purpose/leisure/tourist) and weather patterns to be correlated. The intercept surveys allowed the trip types, distances travelled and the contribution to the local economies to be determined. This paper concluded that there are about 7.2 million day trips on the network and 350,000 overnight trips annually on the network. Other benefits of investing in cycling infrastructure are the improvement in the international and national image of a location.

Stinson and Bhat (2003) determined the variables, which affect a cyclist's route choice from an analysis of commuter cyclists using a stated preference survey. The paper concluded that the six most important factors in order of importance were: lower travels times, road classification, types of cycle infrastructure, barriers between motorists and cyclists, pavement quality, and fewer intersections. These qualities varied from commuter to commuter. The main causes of the variances were a commuter's age, and residential location. Morris (2004) showed that there is an increase in the percentage of residents cycling for a “transportation trip” who live within half a mile of an urban cycle trail. This paper outlined factors influencing cycle commute rates on trails. This paper differed to Stinson and Bhat's (2003) analysis and identified many other externalities such as competing facilities, numbers using a facility, land use around the facility and number of access points on/for the facility. These variables vary for different categories of users. In order to understand the variable for tourist related cycling, it was important to see how these trips are influenced. Downward, Lumsdon, and Weston (2009) wanted to determine the economic impact of sports tourism by looking at the economic impact of a cycle network in North East England. It was found that for leisure and tourist related cycling, expenditure and duration of trip had the largest affect on trip length. Duration did not directly affect expenditure and different route characteristics for this category of cyclists. Income and, if the users were in a group, group size, were key determinants in sports tourism expenditure. It was found that when planning infrastructure that targets tourists and leisure users, it is important to ensure that the infrastructure can cater for longer trips.

Caulfield, Brick, and McCarthy (2012) looked at infrastructure preferences for cyclists in Dublin. This was done by presenting respondents with scenarios in a stated preference survey. The survey was designed using a fractional factorial design. The survey had 1941 valid responses. The scenarios within this survey contained attributes of travel time, cycle route type, cycle route traffic, number of junctions, and adjacent vehicular traffic speed. It was found that a shared “cycle lane/bus lane” and a “no lane” options were very unlikely to be chosen by respondents. It was found that “off road cycle lane” option followed by a “greenway” option were both highly valued by respondents. Respondents who walked and cycled to work had the greatest value of time for journeys to and from work and those that drove or took public transport to and from work had a poor perception of cycling.