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Use of non-motorised modes and life stage in Edinburgh

Tim Ryley *

Department of Civil and Building Engineering, Loughborough University, Leicestershire LE11 3TU, United Kingdom

Abstract

Links between life stage and travel behaviour are explored using Scottish Household Survey non-motorised mode data for Edinburgh. Employing cluster analysis, the sample is split into ten population segments, largely based on life stage. The life stage of having children is shown to affect individual travel behaviour. Households with children present have distinctive travel behaviour characteristics: they are particularly car dependent, tend to own but not use bicycles, and favour leisure cycling trips. A concerted, targeted policy effort is recommended in order to reduce motor car usage and encourage non-motorised modes.
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1. Introduction

Problems associated with the motor car, such as air pollution and congestion, have led to the search for a more sustainable transport system. The characteristics of a sustainable transport system are sufficient fuel for the future, minimal pollution from such fuel, minimal fatalities and injuries from motor vehicle accidents and manageable congestion (Black, 2000). Non-motorised modes (cycling and walking), the focus of this paper, have been promoted as sustainable modes of transport. For an individual, the advantages of non-motorised modes are an environmentally-friendly, cheap and healthy form of transport. However, these advantages tend to be outweighed heavily by the speed and convenience of the motor car.

It has been argued, with most individuals reliant on a motor car, that society has become car dependent (Goodwin, 1997; Stradling, 2002). Those with the greatest propensity to own and use a motor car include those that are of a working age, male, on higher incomes and who have children (Cullinane, 1992; Huby and Burkitt, 2000; Anderson and Stradling, 2004). Travel demand management measures have been promoted to reduce motorised travel. Such measures can be classified into the following groups (Banister, 2000): organisation and operational (e.g. car sharing, demand responsive transport); infrastructure (e.g. public transport and cyclist facilities); financial (e.g. parking charges, road pricing); land use (e.g. determine the location of development), and technological changes (e.g. teleworking, home delivery of goods).

United Kingdom transport policy-makers have recently emphasised changing travel behaviour away from the motor car within an Integrated Transport Strategy (Department of the Environment, Transport and the Regions, 1998; Department for Transport, 2004a). At the same time, non-motorised modes have been promoted (Department of Transport, 1996; Department of the Environment, Transport and the Regions, 2000; Department for Transport, 2004b), although there has been a varied local authority response to the development of non-motorised policy (Gaffron, 2000; Lumsdon and Tolley, 2001).

Although the principles behind the Integrated Transport Strategy were widely welcomed and agreed upon by most commentators during the late—1990s, the primary problem associated with the Strategy has been policy implementation (Goodwin, 1999). Furthermore, a combination of public dissatisfaction with progress in transport, political

* Tel.: +44 0 1509 223422; fax: +44 0 1509 223981.
E-mail address: T.J.Ryley@lboro.ac.uk

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shocks (primarily the national fuel duty protests) and institutional change have led to a policy shift away from integrated transport (Begg and Gray, 2004).

In terms on impacts upon non-motorised modes, Tolley (2003) paints a mixed picture of the recent United Kingdom sustainable transport policy. On the negative side there has been no sign of increase in non-motorised mode use, a lack of appropriate funding, a growth in car ownership, doubts over local authority policy delivery, and a decrease in bus use (knock-on decrease in walking levels). However, on the positive side, arguments to promote non-motorised modes are now in the mainstream, a National Walking Strategy could be developed at some point in the future, and there have been some successes at a local level. It is initiatives at the local level such as Safer Routes to School, Green Transport Plans, "walking buses" and car free days that could prove important to an increase in non-motorised mode use.

Edinburgh, a compact, high-density city with a historic core, is the case study. It has a relatively sustainable modal split when compared with other United Kingdom cities in terms of walking (21%) and public transport (26%), for the journey to work or study (from 2001 Census data—City of Edinburgh Council, 2003), and a supportive sustainable transport policy (City of Edinburgh Council, 2004). Edinburgh tends to be heralded as a city in the United Kingdom taking the lead on sustainable transport issues (Hazel, 1998; Lumsdon and Tolley, 1999). If sustainable transport policy is to make an impact anywhere, then Edinburgh would seem a prime candidate. Edinburgh has particular socio-economic characteristics: a higher proportion of young adults, households on higher incomes and a lower proportion of families than the United Kingdom average (ACORN data, 'A Classification of Residential Neighbourhoods'—City of Edinburgh Council, 1998).

The paper considers links between non-motorised mode use and life stage in Edinburgh using a contemporary data set, the Scottish Household Survey. A life stage can be defined as a specific, optional event such as learning to drive, moving home, moving job or having children. Life stage is distinct from life cycle, a natural event that affects an individual as he or she gets older, progressing from a child to an adult and then to a senior citizen. An individual's attitude to travel and subsequent travel behaviour changes in response to life stage and life cycle events. The following is an example of a classification linking household composition and life stage to travel behaviour (Transport Visions Network, 2001):

- Young single adult living alone. Prime activities for young single adults are work or education and leisure. Nightlife and meeting other young people would tend to be seen as a priority and travel would predominantly be by bus and taxi.
- Young adult living with partner. The effect of two individuals living together would be an increase in household income, a change of leisure activities, and spending time with each other and other couples would tend to be seen as a priority. Car ownership and use would be more affordable, and although not essential, would probably increase.
- Living with partner and young family. With a family, time would become a premium and the patterns of activities would tend to be centred on the children. Motor car use would be seen as essential.
- Living with partner and teenage family. A divergent pattern of activities for parents and children would have increased demands on motor car use, and may lead to an increase in household car ownership.
- Middle aged living with partner. Once children have left home there would tend to be an increase in affluence and a further changes in activities. House size and motor car ownership could be in excess of that required.
- Retired couple. The daily commute(s) would disappear and the absence of the work activity would lead to routines and patterns of activity being redefined with a greater flexibility. Time would tend to be less of a premium, and the activity pattern could be shaped by a role as grandparents.

Such a classification can be adapted for non-motorised mode use. Using cycling as an example, an individual could change their level of cycling at different life stages (Davies et al., 1997). For children, cycling can be a popular pastime, giving them their first chance of independent mobility. However, as they reach adulthood, peer and media pressure make car usage more attractive than cycling. Individuals may return to cycling later in life, perhaps for health reasons or if they have children of their own.

2. Methodology

The analysis presented in this paper used Edinburgh-based Scottish Household Survey data for 1999 and 2000. A sample of 2910 households, all located within the City of Edinburgh Council area, was obtained from the Scottish Executive. The Scottish Household Survey began in February 1999, and interviews 15,000 households per year across Scotland (Scottish Executive, 2001). It is the largest survey of private households in Scotland, with an aim to provide household and individual information for the Scottish Parliament, the Scottish Executive and other interested parties. Transport represents one of the three primary subjects of the survey, along with Local Government and Social Inclusion.

The Scottish Household Survey sample was split into three types of data: socio-economic characteristics, background transport information and travel behaviour variables. Socio-economic characteristics included household information (number of people, number of children, income, housing type) and individual characteristics (age, gender). The background transport information variables related to motor car availability and use (ability to drive, household access to vehicle and vehicle type), and bicycle

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