

World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016

Exploring the benefits of a traveller clustering approach based on multimodality attitudes and behaviours

Juan David Rodriguez Cote ^a, Marco Diana ^{a,*}

^a*Politecnico di Torino – DIATI, Corso Duca degli Abruzzi 24, Torino, 10129, Italy*

Abstract

This paper presents a new market segmentation study of travellers based on measures of multimodality attitudes and behaviours. The study involved a sample of researchers and clerical workers of the French national transport research institute to allow for a long and detailed questionnaire on multimodality habits. Two different cluster analyses are implemented. The first one considers variables related to the specific trip that was investigated in the survey, namely the intention to make such trip with changing travel means over time and the propensity to use a different mode in the future. The second study focuses on the more general multimodality behaviour, contemplating the actual and desired frequencies of use of different means and the propensity to try new services that are not yet existing in reality. The resulting market segments are compared and they are consistently pointing at almost the same classification of travellers. The best transport policy measures to achieve a behavioural change for each market segment are discussed.

© 2017 The Authors. Published by Elsevier B.V.

Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.

Keywords: multimodality; cluster analysis; market segmentation; traveller profiles

1. Introduction

Several different market segmentation studies have been proposed in the past to define homogeneous groups of travellers. Related clustering techniques are normally based on a wealth of variables describing socio-demographic characteristics of the population, as well as their attitudes and behaviours concerning mobility. These clusters have

* Corresponding author. Tel.: +39-011-090-5638; fax: +39-011-090-7699.

E-mail address: marco.diana@polito.it

proven their utility in defining more targeted and effective policy actions aimed at promoting behavioural changes and increasing the sustainability of transport systems.

According to Kotler et al. (2002), four types of segmentation studies can be identified: *geographic*, that considers the localization of the consumer; *demographic*, according to the personal characteristics of the individual; *psychographic*, based on lifestyle variables, including attitudes, values and belief; *behavioural*, based on the actual purchasing choices. Such different segmentation approaches have been assessed in the travel research domain by Haustein and Hunecke (2013). While psychographic segmentations have proven their utility for travel forecast and planning purposes, especially if jointly considered with an appropriate behavioural theory such as the Theory of Planned Behaviour, behavioural classifications might be easier to implement since they are based on more easily observable variables. Most of the segmentation studies in the travel behaviour research domain are indeed based in one of these latter two approaches (recent examples include Diana and Pronello, 2010; Prillwitz and Barr, 2011; Cools et al., 2012; Li et al., 2013; Damant-Sirois and El-Geneydy, 2015; Haustein and Siren, 2015; de Oña and de Oña, 2015) and have provided important feedback to decision makers on how to personalise travel-related measures to maximize the expected benefits and impacts.

On the other hand, previous research has also shown the relevance of analysing how individuals combine the use of several different travel means (Diana, 2010; Vij et al., 2013). Multimodality behaviours are therefore increasingly being studied in transport research (e.g. Kuhnimhof et al., 2012; Buehler and Hamre, 2015a,b; Diana and Pirra, in press). The purpose of the present paper is to strengthen the connection between these two research streams, namely the characterization of different travellers' profiles through market segmentation techniques and the study of multimodality, by defining a classification scheme of a given group of travellers on the basis of variables describing their multimodality behaviours and by assessing the benefits of this clustering scheme, compared to those used in this field so far.

To the best of the authors' knowledge, only two previous studies have used measures of multimodality attitudes and behaviours to draw a behavioural- and attitudinal-based market segmentation study. Diana and Mokhtarian (2009a) define behavioural market segments based on different mobility levels and the levels of use of both cars and public transport, while the segmentation presented in Diana and Mokhtarian (2009b) more explicitly considers the degree of heterogeneity of the individual modal baskets and attitudinal elements related to both the subjective assessment of the quantity of trips and the relative desired amount of travel in the future. These two multimodality-based segmentation studies have however some limitations. Since their focus is in drawing a comparison across different geographical areas (namely, France and California), variables there used to profile travellers are influenced by data availability issues and therefore are only related to objective, subjective and relative desired mobility levels related to different travel means in general terms, without a more specific reference to particular trips or to attitudes as expressed in a stated choice exercise for a specific situation.

This paper seeks therefore to more thoroughly explore the benefits of using several different measures of multimodality, both at the individual level and at the trip-specific level, to define both attitudinal- and behavioural-based homogeneous groups of travellers for which specific strategies are more effective to achieve a behavioural change to minimize the environmental footprint of the transport sector. Data gathering activities and the resulting variables that will be used to measure multimodality are presented in the following section, while section 3 details the methodology used to define the clusters. Section 4 presents the results of the analysis and identifies the best strategies of intervention for each cluster, while section 5 presents some conclusions and, complementing the discussion of section 4, lists the profiles of travellers that should be more responsive to a given measure.

2. Data

A web-based self-administered survey was carried out within the personnel of the former French National Institute for Transport and Safety Research (INRETS, now IFSTTAR) to thoroughly assess multimodality attitudes and behaviours. 164 valid responses were collected. While such individuals are not representative of a general population, their average skills and moreover their sensitivity to issues related to transport research allowed us to administer a survey that is much longer than usual. Therefore, we collected a wealth of information that could be evaluated to understand what is really useful to include in a survey aimed at capturing multimodality behaviours. This study only focuses on multimodality that can be considered to define the clusters, therefore letting aside other

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات