



Environmental norms, transport priorities and resistance to change associated with acceptance of push measures in transport



Trond Nordfjærn^{a,*}, Torbjørn Rundmo^{a,b}

^a NTNU Samfunnsforskning, Studio Apertura, Dragvoll Allé, 38 B, 7491 Trondheim, Norway

^b Norwegian University of Science and Technology, Department of Psychology, Dragvoll, 7491 Trondheim, Norway

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ABSTRACT

The negative short- and long-term consequences of excessive car use in urban areas are well-documented. The core aim of the present study was to investigate the relative role of environmental norms, transport priorities and resistance to change for acceptance of transport push measures in an urban Norwegian public with car access. A questionnaire survey was carried out in a randomly selected representative sample of the Norwegian population in six urban regions obtained from the Norwegian population registry ($n=881$). Regression analysis showed that transport priorities and resistance to change added to the explained variance in acceptance of transport push measures, while adjusting for environmental norms in the Norm Activation Model (NAM) and demographic characteristics. Awareness of consequences and personal norms were associated with more acceptance, whereas priorities of flexibility and priorities of safety and security were associated with a low acceptance of transport push measures. Emotional reactions to change were also related to a low acceptance of these measures. SEM supported the assumptions in the NAM theory, but a direct relation between awareness of car use consequences and acceptance of transport push measures was found to improve model fit. A short-term focus on change was also related to a low ascription of responsibility in the NAM. High education was the sole demographic characteristic associated with more acceptance of transport push measures. Campaigns aimed to promote acceptance of transport push measures need to consider additional factors to environmental norms. The findings suggest that people who prioritize travel flexibility and safety and security need to be focused in order to increase acceptance of transport push measures in the urban public. Furthermore, efforts to promote environmentally significant behaviour may benefit by taking the resistance to change trait into account.

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1. Introduction

In order to obtain a sustainable urban environment it is crucial to reduce car use and promote use of public (e.g. trams and metro) and active transport (e.g. walking and bicycling). Car use causes substantial CO₂ emissions, congestion, noise and excessive use of land due to a growing urban road network. Although car use has caused increased mobility and welfare in urban environments, the negative short- and long-term effects are well-documented (Banister, 2011).

Research has reported that the most efficient way of promoting public and active transport is by introducing push measures (Schlag and Teubel, 1997). This may be due to the fact that car use is partially habitual and scripted (Eriksson et al., 2008). Consequently, punishment and efforts to block the behaviour by, for

instance, restricting car use in the city centres may be more efficient than educational efforts which require deliberate processing (Bamberg et al., 2003a). Transport push measures typically aim to make car use less attractive by, for instance, increased costs of using urban parking spaces, restrictions on car use in the city centres and high costs on fuel. However, authorities are somewhat reluctant to introduce such measures because they are overall unpopular in most populations and may introduce perceptions of restricted freedom, reduced mobility and quality of life in the target groups (Groot and Steg, 2006; Steg and Gifford, 2005). As such, the acceptance of transport measures (i.e. the extent of tolerance expressed by the public towards disincentive efforts aimed to reduce car use) in the urban public is crucial, because acceptance is related to the effectiveness of the push measures (Viera et al., 2007). When push measures are untolerated in the target groups, they may facilitate psychological reactance; a psychological process where the individual increases the perceived value of a given activity because someone is trying to reduce or remove the option for the individual to participate in the activity (Tertoolen

* Corresponding author. Fax: +47 73 59 63 30.

E-mail address: tn@sirus.no (T. Nordfjærn).

et al., 1998). In this way, a transport ‘push measure’ may have the opposite effect if it is not well-tolerated, introducing an even stronger persistence to use a car. The current research will provide insights into psychological factors relevant for acceptance of transport push measures in an urban public.

The majority of transport push measures tend to be economic disincentives, such as pricing schemes. One could therefore argue that psychological factors are not very interesting for acceptance of these measures, as income may be the more important determinant. However, this assumption has received scant empirical support and several studies reported that psychological factors are important for acceptance also when adjusting for income (e.g. Jakobsson et al., 2000; Schade and Schlag, 2003). Norway also has a very stable economy with a rather equally distributed income based on a social-democratic welfare model and with a growing individual purchasing power. Norway is also consistently rated in the top range on most international economic indicators (UNDP, 2013). Such factors may mitigate the relevance of income for acceptance of transport push measures.

The Norm Activation Model (NAM) (Schwartz, 1977) is one of the most studied psychological models in relation to use of public transport and, to some extent, tolerance of measures to promote use of such transport. This model asserts that pro-environmental norms related to giving up on personal interests for the benefit of others could be relevant for car use (Nordlund and Garvill, 2003). The model argues that people must realize the negative consequences of car use (awareness of consequences) before they can feel morally committed to amend transportation behaviour (ascription of responsibility). Ascription of responsibility is in turn assumed to activate personal norms which induce pro-environmental behaviour (see also Abrahamse et al., 2009; Groot and Steg, 2009 for in-depth discussion of the theory). Empirical studies have generally supported the idea that the NAM framework predicts use of public transportation (e.g. Bamberg et al., 2007). However, research findings are more equivocal related to acceptance of push measures intended to promote use of such transport. Some studies reported a relation between environmental norms and acceptance of push measures (e.g. Schade and Schlag, 2003), whereas other studies did not detect a relation (e.g. Jakobsson et al., 2000).

Although there is a growing body of research, which has examined the NAM in relation to acceptance of transport push measures, there are fewer studies which have investigated the relative role of instrumental transport priorities (i.e. the relative perceived importance of factors such as mobility, comfort, punctuality and safety) in relation to acceptance of push measures. One previous study which focused on transportation mode use found that strong priorities of flexibility, e.g. possibility to choose when to travel, were related to more car use (Rundmo et al., 2011). Simsekoglu et al. (2015) reported that priorities of convenience (e.g. frequent departures and punctuality) and priorities of safety and security related to intentions to use public transport, while transport attitudes and car use habit were controlled for in the model. It is possible that such instrumental priorities also relate to acceptance of push measures aimed at reducing car use in a similar manner. For instance, people who strongly prioritize safety regarding major accidents and terrorism, and who tend to focus on security factors such as theft and violence, may exhibit a low acceptance of push disincentives because such incidents are more likely to occur in public transport. To our knowledge no studies have investigated the relative role of instrumental priorities for acceptance of transport push measures, while accounting for demographic characteristics and environmental norms in the NAM.

Previous studies which examined acceptance of push measures did not incorporate predispositional traits into the empirical framework. The underlying premise of transport push measures is often to promote a change in transportation mode use, and some

individuals may hold predisposing traits which may make them more resistant or willing to change. In this line of enquiry resistance to change could be an important factor, a construct which is assumed to be stable across different contexts similarly to personality traits (Oreg, 2003). Individuals with a strong resistance to change tend, for instance, to have a preference for routines and may react with negative emotions when faced upon events implying change. These are trait markers which could reduce the acceptance of transport push measures.

As mentioned above, we have previously conducted a study aimed at investigating the role of transport priorities, travel mode attitudes and car use habit for travel mode use with the same survey data as in the present study (Simsekoglu et al., 2015). The present study advances the previous one by focusing on a different transport-relevant outcome (i.e. acceptance of transport push measures). Mode use and acceptance of transport push measures provide substantially different information, as people who have a low or high acceptance of transport push measures may use a variety of transport modes. For instance, if the price level for car use is perceived to be too high and unacceptable, the person may choose to use public transport as an alternative to the car. However, some of these individuals may continue to use a car in spite of not accepting or tolerating the push measures. Hence, cognitions about transport push measures may not be directly reflected in mode use behaviour. Moreover, the current study advances the empirical account conducted by Simsekoglu et al. (2015) by examining the relative role of the NAM theoretical framework and the resistance to change trait in relation to acceptance of transport push measures, while also considering the relative influence of instrumental transport priorities and demographic characteristics. Consequently, the present study has a focus on more stable characteristics (i.e. norms and traits) than those focused in the previous empirical account which mainly focused on dynamic social cognitive entities.

1.1. Aims and hypotheses

The core objective of the present study is to investigate the relative role of environmental norms, transport priorities and resistance to change for acceptance of transport push measures in an urban Norwegian public with car access. Specifically, the study aims to examine whether transport priorities and resistance to change explain variance in acceptance of transport push measures while accounting for the NAM and demographic characteristics. Moreover, we tested a theoretical model including these factors by structural equation modelling (SEM). As shown in Fig. 1, we hypothesize that resistance to change and instrumental transport priorities will predict a low acceptance of transport push measures, whereas high scores on the NAM are expected to facilitate acceptance. Demographic characteristics, such as gender, age, education and gross income, have been found to be important for acceptance of transport push measures (e.g. Odeck and Bråthen, 2008) and were consequently adjusted for in the analyses.

The coming sections will describe the methodology applied in the current study, including sampling procedures, measurement instruments, and statistical analysis. Thereafter, results will be presented and discussed in line with the research hypotheses.

2. Methods

2.1. Sampling

The present study is part of a large population-based self-completion transportation survey carried out in June and August 2013. The survey was conducted in a randomly selected

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