



# Factors driving public support for road congestion reduction policies: Congestion charging, free public transport and more roads in Stockholm, Helsinki and Lyon



Maria Börjesson <sup>a,1</sup>, Carl J. Hamilton <sup>a,2</sup>, Per Näsman <sup>b,3</sup>, Claire Papaix <sup>c,\*</sup>

<sup>a</sup> Center for Transport Studies, KTH Royal Institute of Technology, Sweden

<sup>b</sup> Transport and Location Analysis, KTH Royal Institute of Technology, Sweden

<sup>c</sup> French Institute of Science and Technology for Transport, Development and Networks (IFSTTAR), Department for Planning, Mobility and Environment (AME), Economic and Social Dynamics of Transport Laboratory (DEST), France

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## ABSTRACT

Based on an across-the-board survey conducted among residents of Stockholm, Helsinki and Lyon, we explore the opinions on three policy measures to combat road congestion: congestion charging, free public transport and building more roads. The support for the two latter policies is substantially higher than the support for congestion charging, which is only supported by a majority in Stockholm. Self-interest is important for the formation of the opinion to all three policies. However, fundamental values and general political views, indicated by four attitudinal factors, are even more important in forming opinions towards the three transport policies. Of all attitudinal factors, the one indicating environmental concern most influences the support for all policies. Equity concerns, however, increase the support for free public transport and opposition to taxation increases the support for building more roads.

Our results further suggest that the opinions towards free public transport and building more roads can be mapped along the left–right political axis, where Environment and Equity are to the left and Pricing and Taxation are to the right. However, the opinion towards congestion charging cuts right through the political spectrum. The impact of the fundamental values and self-interest variables are similar for Stockholm and Helsinki, indicating that even if experience increases the overall support for charging, it does not change the relative strength of different political arguments to any major extent.

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## 1. Introduction

Congestion is an increasing problem in urban regions all over the globe. In this paper, we study the opinion towards three suggested policies to combat urban road congestion, -- congestion charging, free public transport and building more roads, --

\* Corresponding author at: IFSTTAR-DEST, site de Marne-la-Vallée, 14-20 Boulevard Newton, Cité Descartes, Champs sur Marne, F-77447 Marne la Vallée Cedex 2, France. Tel.: +33 (0)6 27 04 02 53.

E-mail addresses: [maria.borjesson@abe.kth.se](mailto:maria.borjesson@abe.kth.se) (M. Börjesson), [carl.hamilton@policytechnology.com](mailto:carl.hamilton@policytechnology.com) (C.J. Hamilton), [per.nasman@abe.kth.se](mailto:per.nasman@abe.kth.se) (P. Näsman), [clairepapaixpro@gmail.com](mailto:clairepapaixpro@gmail.com) (C. Papaix).

<sup>1</sup> Present address: Teknikringen 10, 100 44 Stockholm, Sweden. Tel.: +46 (0)7 02 58 32 66.

<sup>2</sup> Present address: Teknikringen 10, 100 44 Stockholm, Sweden. Tel.: +46 (0)7 05 22 49 12.

<sup>3</sup> Present address: Teknikringen 10, 100 44 Stockholm, Sweden. Tel.: +46 (0)8 790 75 30.

and how these opinions are formed. The study is based on an across-the-board survey distributed in three cities: Stockholm, Helsinki and Lyon. The survey questions are designed to indicate fundamental values and more general political options related to environmental concern, equity, taxes and pricing of externalities and scarce resources, but also self-interest in the suggested measures and socioeconomic characteristics.

Hamilton et al. (2014) previously analyzed the public opinion towards congestion charging based on the same survey. They find that the opinion on congestion charging increases significantly with experience and that self-interest influences the opinion as expected. They also find a strong link between attitudes towards congestion charging and opinions related to more general issues, such as the natural environment and taxation (Hamilton et al., 2014). We extend their work in two ways. First, we explicitly study the impact of latent variables on the opinion towards three policies that we study. The latent variables are designed to indicate fundamental values and more general political views, not specifically related to transport policy. We assume that these are more developed in the respondent's mind and therefore more stable over time (Ajzen, 1991) than the opinion towards the transport policies we study. The survey questions, concerning more general issues, are used as indicators of these fundamental values. The latent variables are determined using factor analysis. We model the opinion towards congestion charging, free public transport and building more roads as a function of the latent variables, self-interest and socioeconomic variables. Second, we extend the analysis by Hamilton et al. (2014) by modelling the opinions towards free public transport and building more roads.

Congestion charging is a cost-efficient and effective policy to reduce congestion and is recommended by economists. Congestion charging also raises revenue and improves the local environment (Bonsall and Young, 2010). Theoretically, revenues raised by optimal congestion charging exactly pay for optimal road capacity (Mohring and Harwitz, 1962). However, low public and political support usually prevents its implementation and there are only a few real-world examples of congestion charging (London (2003), Stockholm (2006), Milano (2008), Singapore (1997)).

Free public transport (PT) is very uncommon (see Cats et al., 2014; Thøgersen, 2009 for some examples) and is also inefficient from a welfare perspective (Van Dender and Proost, 2009). Moreover, free public transport would be very costly and increase congestion in the public transport system by substituting more walking and cycling trips than car trips with public transport (Preston, 2008). Subsidization, however, is justified because public transport exhibits economies of scale (Mohring, 1972), encourages economic activity and reduces road congestion (Parry and Small, 2009).

Building more roads was the dominant way of fighting congestion in the 1970s (OECD/ECMT, 2007). However, since road capacity extensions require large investments and space, and they give rise to negative externalities in terms of pollution and noise, this has long been questioned. The large literature on the potential to combat congestion with road capacity extensions also mainly indicates negative results due to generation of new traffic (see Schade and Schlag, 2003 for reviews). The Association for European Transport (2005) and Schuitema and Steg (2008) argue that the opinion for building more roads is currently low in Europe. However, the public opinion in favour of pull measures such as more roads and free/cheap public transport is in general higher than for push measures like congestion charging (Eriksson et al., 2006). This is also what we find in the present study. A likely reason is that the cost of the pull measures is more indirect, often left out from the public debate and it is often unclear who will pay for them (essentially depending on the tax system).

Survey-based attitude studies (Schade and Schlag, 2003; Jaensirisak et al., 2005; De Borger and Proost, 2012) as well as studies based on real voting patterns (Hårsman and Quigley, 2010) indicate that the support for congestion charging is linked to self-interest. Self-interest is determined by out-of-pocket expenses, time savings and value of travel time (VTT), and benefits derived from the use of revenue. Self-interest relating to free public transport and building more roads is indicated by such factors as car access and use.

In the present study, the factor analysis resulted in four attitudinal factors labelled Environment, Equity, Pricing and Taxation, and these are interpreted as indicators of more fundamental values and general political views. We find that the factors have a strong prediction power for the public opinion of all three policies. Some variables reflecting self-interest, such as car access and car use, are also significant. The prediction power of the self-interest variables, however, is smaller than that of the attitudinal factors. This is the case for the opinions towards congestion charging, as found by Hamilton et al. (2014), but the attitudinal factors have an even stronger relative prediction power (over self-interest variables) for support for free public transport and building more roads.

Of all the attitudinal factors, those indicating environmental concern and support for policy interventions have the greatest influence on the opinion for all three measures in all three cities. The factor indicating equity concerns does not significantly influence the opinion towards congestion charging in Stockholm and Helsinki, but does in Lyon. In all cities, however, equity concerns increase the support for free public transport. The factor indicating opposition to taxation reduces the support for congestion charging and increases the support for building more roads.

One of the most well-established observations about attitudes to congestion charging, and road pricing in general, is that familiarity breeds acceptability (Brundell-Freij and Jonsson, 2009; Börjesson et al., 2012). An often-cited reason for the changes in the opinion towards congestion charges once they are introduced is that, before the introduction, people do not expect the benefit of the congestion charging to be as large as they turn out to be (Goodwin, 2006). We find that the impact of the fundamental values and self-interest variables are similar for Stockholm and Helsinki. This indicates that even if experience increases the overall support, it does not, to any major extent, change the relative strength of different political arguments in favour of or against congestion charging. It also contradicts the hypothesis that the reason for the change in opinion is that benefits are larger than expected.

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