

European Transport Conference 2015 – from Sept-28 to Sept-30, 2015

What drives mobility trends: results from case studies in Paris, Santiago de Chile, Singapore and Vienna

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Abstract

This paper discusses recent mobility trends in four cities: Paris, Santiago de Chile, Singapore and Vienna. It follows a case-study approach and relies on quantitative and qualitative analysis of selected trends, with specific focus on users. First, we set up a simplified model differentiating between social-emotional and rational motives to explain user behavior. The trends are then identified by travel-survey analysis, subsequently discussed with experts and finally described from a user perspective using in-depth and focus-group interviews. The study examines a range of modes from cars and bikes to public transport in a spatially and socially differentiated form. It shows that the identification of user motives is highly important to understand demand-side mobility trends, and discusses how this is relevant for policy.

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Peer-review under responsibility of Association for European Transport

Keywords: mobility trends, motives, social-emotional, rational, case study, urban mobility

1. Introduction

Urban mobility of today is becoming more and more diverse. Economic prosperity and growing car use, long inextricably intertwined, are not necessarily linked together like they were till a decade ago (Newman and Kenworthy 2011): Public transport trips are expected to increase, though they still might not keep pace with growing car use (UN Habitat 2013, 6). Cycling and walking are visibly expanding in many developed cities (Pucher 2010).

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These developments are supported by substantial supply-side interventions and policies (Santos, Teytelboym and Behrendt 2010). While road tolls and parking restrictions challenge car attractiveness, the alternatives are being improved. Public transport coverage is increasing (UN Habitat 2013, 6), cycle lanes and pedestrian areas have been expanded. New mobility options such as bike- and car-sharing schemes complement these changes. Their use and combination greatly benefits from information and communication technologies and digitalization (Dacko and Spalteholz 2014).

While focusing on regulation, new infrastructure and new mobility concepts can explain trends somewhat, it may overlook that mobility and mode choices are heavily influenced by personal and social factors, habits and social expectations. It has frequently been discussed, for example, that car ownership cannot be purely understood through rational factors (Steg 2005), and recent research indicates that the same accounts for other modes of transport like cycling (Heinen, Maat and van Wee 2011). Moreover, mobility decisions may further be influenced to some extent by attributes of the built environment. Compact, dense and mixed-use structures generally enable people to choose car-free mobility. However, some evidence suggests car-owning households also seek central urban locations (Jarass and Heinrichs 2014).

In this paper, we aim to explain recent mobility trends by exploring individual motives and drivers for these trends. By mobility trends, we mean recent developments producing visible changes in the assessed case's modal split. We take on psychological and sociological viewpoints and expand the search for motives beyond rational ones.

We follow a case-study approach – an appropriate method for our explorative approach. The case-study selection follows an information-based approach suggested by Flyvbjerg (2009). To initially define trends, the study employs quantitative data analysis, while the in-depth exploration of motives is mainly qualitative.

The main questions addressed are:

- What are the causes of recent mobility trends in the selected cities?
- What are the drivers of these trends from an individual perspective?
- What patterns, if any, can be found in those trends, and can our findings be scaled up to a broader context?

The remainder of this paper is as follows: Section 2 covers the theoretical aspects of our research. We present a framework to understand how mobility trends arise, describe our chosen research approach, and list the criteria that guided our selection of case studies. Furthermore, we list the mobility trends chosen for in-depth analysis. Subsequently, section 3 presents the case studies case by case, describing each city's context and our qualitative findings. In section four, we conclude our paper with a discussion of our findings and their limitations, and discuss their policy relevance.

2. Methodology: Framework, Case Study Selection and Research Approach

2.1. Framework

The project seeks to explain mobility trends, their causes and their drivers. Therefore we adopt an explicit user perspective. Our main interest is in explaining trends from this perspective and generating new findings in the qualitative phase, also from a user perspective. However, the conditions found in each environment – such as recent changes in transport supply, or general societal values – cannot be ignored, as these influence, and are influenced by, the user-related trends, making it necessary to embed the analysis of user motives alongside contextual findings. To assess these factors within an appropriate methodological framework, we have defined the following criteria that the framework should be able to capture:

- Surrounding conditions of each case study and their changes affecting the transport system (e.g. infrastructure, usage cost or land use).
- User-reactions to those changes (mainly visible from modal-split analysis with data from household surveys or other transport statistics).
- Explanation of intrinsic motives to explain user behavior.

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