Chapter 6

Equidistance: Evidence of the Influence of Parking Organization on Mode Choice

Guenter Emberger
Technische Universität Wien, Austria

Paul Pfaffenbichler
Technische Universität Wien, Austria

ABSTRACT

The chapter will provide empirical evidence how parking organization (location, number and pricing policies of parking spaces in urban areas) influences the mode choice of transport system users. Following from that, the presently applied practice of parking space modelling within existing transport models will be presented and discussed critically. It will be shown which influence on transport demand the different parking space instruments have in existing 4-stage models (FSM) and where flaws and errors in the transport demand and mode choice estimation can occur. Finally, potential improvements how to overcome these afore mentioned shortcomings are presented and the impacts on future transport planning and transport policy formulation towards sustainability will be introduced.

INTRODUCTION

Transport related problems in urban agglomeration are of growing concern all around the world. Cities, settlements and agglomerations apply a wide range of transport policies such as the improvements of public transport systems, improvements of road capacity through new construction (where it is still possible) or through the application of ICT (e.g. demand responsive traffic signaling), increase of parking space capacity, introduction of parking space management instruments such as electronic parking place management systems, implementation of parking fees, dedicated bus lanes, cycle lanes, pedestrian zones, shared space, e-mobility, and many more instruments – to mitigate the negative impacts of urban traffic issues.

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Political declarations, international (United Nations, 1998, 2015), EU-wide (Commission of the European Communities, 2001; Department for Transport (DfT), 2000; European Commission Directorate-General Energy and Transport, 2011) and national (BMVIT, 2002, 2013; Kovacic, 1999; Magistrat der Stadt Wien, 2003; Stadt Wien − Stadtentwicklung, 2002; Steininger, 2008), provide visions and targets which should result in the near and much more often, in the far future in a sustainable, green, and “smart” transport system, where every person and good will be able to travel whenever he/she/it wants, paying just a low price, with high speed at every time of the day and night, and between any origin and any destination.

The vision of transport and traffic engineers as well as politicians is to create this “ideal” transport system, which is, when taking laws from physics into consideration, per definition not possible.

As Knoflacher shows in his chapter of this book there exists no growth in (physical) mobility, so an increase of the attractiveness of motorized (and mechanized) means of transport will always result in a decrease of walking trips within the population.

By looking at the afore mentioned transport related policies nearly all of them increase the attractiveness of motorized means of transport and support so the increase of car use in and within settlements.

When looking from a general perspective on a dynamic system (and the land use – transport system is a dynamic system) then it can be said, that as long there is a growth, for example in the distance travelled by cars or the number of trips made by cars, there is no dynamic equilibrium reached. The transport system is continuously looking for such a dynamic equilibrium, where balancing feedbacks will become strong enough to keep the level of travelled distance or number of trips by car constant.

As Knoflacher explored in very detail in his books (Knoflacher, 1997, 2001) road congestion, for example, is such an important balancing feedback, which is an important instrument to limit motorized growth in the transport system. Interesting is here, that traditional educated transport engineers as well as politicians do not understand the importance of road congestion as a transport policy instrument and its adequate application in modern transport planning. Congestion can be used to steer the overall land use transport system towards the desired, sustainable direction - on the contrary, traditional educated transport engineers see road congestion as one of the major issues, which has to be eliminated to reach the above mentioned unlimited motorized mobility of persons and goods.

WHY IS PARKING ORGANIZATION SO IMPORTANT FOR THE MODE CHOICE OF INDIVIDUALS?

Another important steering instruments besides congestion is the organization and much more important the location of parking spaces for cars. It is common sense in transport planning that every trip either made by public transport or by car starts and ends with a walking trip. Therefore the distance to (origin) and from (destination) the parking space (car trip) or to/from the public transport stop plays a dominant role within the intra personal mode choice.

In other words, it could be said from a systemic point of view there is no difference between a public transport stop and a car/(motor-)bike parking place. Both are the interface between walking and the motorized (mechanized) means of transport. Interesting is, that although a public transport stop and a parking place are from a systemic point of view absolute the same, the treatment in transport planning science was/is completely different.