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### Socio-dynamic discrete choice: Theory and application

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## PREFACE

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When I first started graduate research at the Universiteit van Amsterdam, I had various ideas, many of which still remain close to my heart. My dissertation has ultimately ended up focusing on the right hand portion of Figure 0.1, “Conceptualizing micro-macro relations,” excerpted from one of my early conference papers, *The Long-term Effects of Multi-modal Transportation Networks: The Residential Choice Behavior of Households*, appearing in the Proceedings of the 9th World Conference on Transportation Research, Seoul, Korea. This dissertation thus focuses on the demand side of the picture. It is non-trivial to make the supply-demand link at the micro level, at the macro level, and perhaps especially the micro-macro link at the supply side.

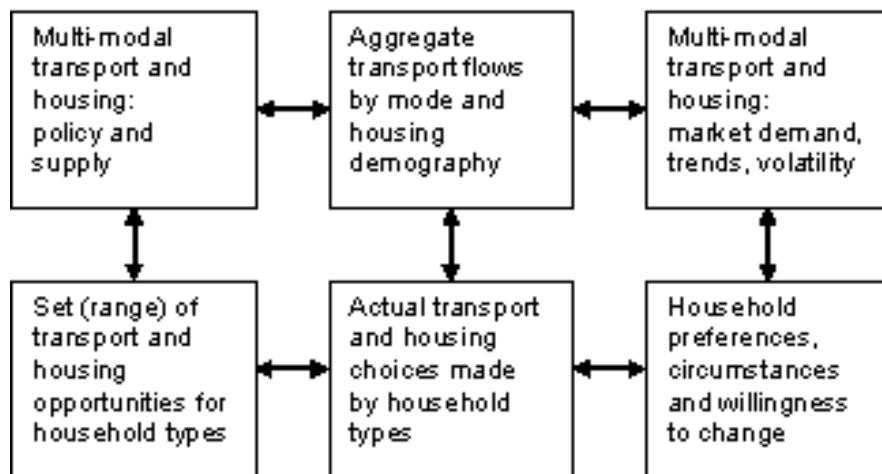


Figure 0.1: Conceptualizing micro-macro relations in transportation and residential choice modeling.

Even within the right hand portion of the figure, I have made further limitations in the scope of the PhD research. For example, I have focused only on questions regarding travel demand endogenously, leaving housing demand exogenous. In the context of social influence, there is a critical distinction which makes for example transportation mode choice different from residential location choice: whether you choose to commute to work by car or by public transit has no effect on who your neighbors are; where you choose to live has a direct effect on who your neighbors are. If neighbors are a source of social influence, one choice (transportation mode) involves a static influence

network with respect to the choice; the other (residential location) involves a dynamic influence network with respect to the choice. The study of dynamically changing choice behavior on a network which is itself changing is an extremely interesting question. But to in order to understand this, I chose to first get a better grasp on the dynamically changing choice behavior on a static network. Treating dynamic networks endogenously is something I am keen to pursue in the future, potentially facilitated by the steadily increasing volume of personal electronic trace data.

I have many people to thank, first and foremost, my current primary supervisors, Harry Timmermans and Cars Hommes, and former supervisors, Frank le Clercq and Loek Kapoen, for supporting me in various ways, believing in me, and making my research position possible, as well as external supervisor Joan Walker and long-time colleague László Gulyás for their kind collaboration on specific sections of the thesis, respectively econometric estimation and multi-agent based simulation. I would also like to thank Theo Arentze and Antonio Páez for their collaboration in guest editing journal special issues, and additionally Jianquan Cheng, Xinyu Cao, Kay Axhausen, Juan Carrasco, Fabrice Marchal, Hitomi Nakanishi, and Darren Scott for collaboration with coordinating conference workshops. I would like to thank Zuzana Sasovova, Aljaz Ule, Tuire Palonen, Koen Veermans, Peter Groenewegen, Gerhard van de Bunt, Maurits de Klepper, Karin Pfeffer, Els Veldhuizen, for their collaboration in teaching as well as Judith Schoonenboom for introducing me to the fine points of pedagogy, and ICT and education experts Arjan Sas, Wies Verschoor, Wessel Kieft, Frank Hamers, Auke Hamers, Jaap Tuyp, Werner Degger, Erik Boon for their wonderful technical support.

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