Socio-dynamic discrete choice: Theory and application

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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.

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.

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