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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