- Riding More Frequently: Disaggregate Ridership Elasticity Estimation for Chicago's Bus Network *(Charlotte Frei, Hani S. Mahmassani - Northwestern University Transportation Center)*

  In this presentation, stop level transit elasticities with respect to service frequency are estimated and discussed. Public transportation ridership is typically studied at an aggregate level, where variables influencing ridership are averaged over time and space for a metropolitan area. Understanding transit ridership at a finer temporal and spatial level is generally limited to mode choice models. Most aggregate analyses are unable to capture important effects at the parcel or block level. Such analyses also cannot account for variation in demand over time of day, an issue which has been addressed to some extent via time series modeling. Using data for the Chicago transit system, the results suggest that aggregate analyses overestimate the effect of service frequency on demand. In the context of other disaggregate analyses, these results suggest that walking quality results in distinct increases in ridership, even after accounting for land use, population and other demographics. A headway elasticity of ridership is estimated to be -0.263 to -0.277, very similar to recent disaggregate analysis of New York City transit data. The case is made for a better spatio-temporal understanding of transit ridership in order to allocate resources effectively.