

Reading reflections

USP 570

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Week 5

- virtuous circle or vicious circle in mode split

Levinson and Krizek (2018 Chapter.5) introduce some concepts about individual demand, modal competition, and network effects explain the mode choice decisions. The discipline of psychology defines travel behavior as habitual behavior which means “learned sequences of acts that have become automatic responses to specific cues, and are functional in obtaining certain goals or end-states.”

travelers are generally being individually rational. They select automobile for transit’s weakness in terms of door-to-door travel time. **Wardrop’s Principle of User Equilibrium**¹⁰ states that users are minimizing their own time rather than minimizing society’s overall travel time. **arms race** is another reason of consumer prefer SUVs than compact car, choosing car instead of bicycle in some case. The competition between users leads to overuse “common pool” resources that have limited supply and free access, bids up the cost for everyone. The competition between modes may result in socially sub-optimal results and lead to a vicious circle.

To avoid **Prisoner’s Dilemma**, a mechanism should let players consider their effects on others, care about the future payoffs, and play a Pareto efficient strategy. The investment and subsidies in transit show a collective rationality for lower total social travel costs by a high transit mode share. The **Mohring Effect**⁷ states that When bus frequency increases on a given route, users benefit from reduced waiting times, an increasing returns property of networks The positive feedback loop.

Transit supply and demand have two stable states: One at high wait time yields zero ridership, which returns high wait time. Another at low wait time yields high rider ship, which returns low wait times. The interim states are not stable and need large subsidies to prop them up.

- Describing people’s travel

In Chapter.6, Levinson and Krizek (2018) describe and explain people’s time spent in activities and transportation. The destination characteristics strongly influence trip characteristics. These discription only let us realize the complex of travel behaviors. It’s still hard to understand and measure the whole prossess of trips. The analysts use several strategies to understand time spent in travel. Work versus non-work trips, simple versus complex tours, there are many dimensions of travel. The commom methods include calculate the distance, number of trips, and the mode of travel. Measures can be averaged at different levels from a single individual to a household, to transportation analysis zones, or even to entire metropolitan regions. Hagerstrand’s Space–Time Prism provides a powerful method

for representing the relation among activities, individual trips, and total travel.

“Travel is a derived demand, and therefore we only do it when we want to get somewhere else or when necessary.” In other word, how complex people’s activities are determines how complex people’s travels are. Hamilton suggests that people’s actual commutes were eight times longer than model-predicted values for shortest commutes. It is not strange that “even the most robust models that predict travel distance rarely explain more than 30 percent of the observed variation.” The concoction of behaviors is difficult to predict.

References

Levinson, David M, and Kevin J Krizek. 2018. *Metropolitan Land Use and Transport: Planning for Place and Plexus*. Routledge. <https://doi.org/10.4324/9781315684482>.