Morley J Weston | H&G Chapter 6

Chapter 6 of this The Geography of Urban Transportation deals with mass transit systems and the different ways of measuring their accuracy. *Passenger miles* are one basic metric, in which the distance traveled by a passenger population is simply added up. While a very direct and easy to interpret measurement, this does not include many variables, such as passengers switching between different modes of transportation. Each section of a multi-modal journey is an *unlinked trip* which can now be examined in total by use of transit cards such as Taipei's EasyCard system. Transfers are important factors in transit planning; if timed well, they can encourage transit use without the need for additional infrastructure.

Mode share is the proportion of people taking each form of public transit; for example, buses vs cars vs bicycles. (As an aside, the textbook presents a chart of the modal shares for world cities, which claims that 46 percent of journeys in Taipei are made by car. I wonder if this metric is actually "private vehicle," which would include motorcycles.) *Mode shift* is the process by which a population changes from one mode of transport to another. Commuting trips are one subset of mode share, which often differ significantly from the overall total. Some transit modes have fixed routes, others are quite flexible, and different modes vary in passenger capacity. Having the *right of way* increases the speed and regularity of a transit mode, but may obstruct other forms of transit. Buses, for example, share the right of way with other traffic, but are flexible in their routing and schedules. Bus rapid transit (BRT) is a bus system separated from regular traffic that can be much more effective than regular bus systems. Similarly, trolleys, streetcars and light rail are rail systems that run on normal streets, which can have a higher capacity than bus systems. Heavy rail systems, such as metros, require large investments, are fully separated from traffic, but can carry the most people per hour.

The *service area* is the space covered by a transit system, and the *service span* is the number of hours per day that a system operates. *In vehicle time* is the amount of time spend on a vehicle, and w*aiting tim*e is the time spent at a station. A *transit corridor* is the area surrounding a route, and the service capture area is the serviceable area surrounding a stop or station. Operators must plan their routes and schedules carefully to maximize profit and keep the *load factor* close to the vehicle's comfortable capacity. While financial issues must be taken into account, mass transit is rarely profitable, except in small, densely-packed places. The *farebox recovery ratio* is the amount that a transit line makes back from ticket sales, and this ratio rarely passes one, which makes privatization attractive to local governments, but a difficult proposition for companies. Additionally, these projects are quite expensive to start and require large amounts of land and labor. However, these projects benefit people of all ages, races and incomes, so are often worth it for urban cohesion. There are additional benefits to public transit, such as increasing mobility, supporting higher-density neighborhoods, and reducing car traffic, which itself has a number of secondary benefits, from fighting climate change to reducing urban congestion. However, for urban transit to take off in the future, it will have to address the same problems that it had been for the past hundred-so years, while contending with the rapid change in technology that the next few decades will bring.

One idea I've been thinking about is a municipally-run shared Uber-like service. Uber has been a boon for many isolated people in the US, especially given the high reliance on cars in American cities.

Ride-sharing services typically deal only with passenger cars or small vans, but integrating them into an existing bus network would benefit both systems. If only a few passengers are waiting at a stop, they could be picked up by a smaller vehicle, which would make buses faster and increase the umber of runs they could do per day. Conversely, a large number of people going to the same place would generate less congestion than those in ride-share services. Uber has also been aggressively expanding to new cities around the world, which means that it must spend large amounts of money on marketing and legal teams to fight with local governments. Like many tech unicorns, the company has a high valuation, but has never been profitable. The company is obligated to generate profit for shareholders, which means even if they stop losing money, only a small portion of the fare will go to the driver. A municipally-run service would have neither of these constraints, and could operate with the same funding base as a municipal transit agency.

These more flexible forms of transit predicted by technologists already exist to some extent in some parts of the world. Thailand's *Songthaew (*pickup trucks converted to minibuses) run flexible routes in smaller cities, negotiated between passengers and the driver. Until a revamping of the bus system in 2016, Myanmar's largest city of Yangon had hundreds of different bus companies, often with one or two buses each, that would change their route depending on traffic.

Additionally, I feel that a lot of transportation issues could be solved simply by making urban housing markets more fluid and equal, allowing people to live closer to their work (Which is itself a complicated issue). For example, for 7 months, I lived in Xindian and worked near City Hall, which required me to make a massive commute every work day. I was unwilling to move house, partially because it is expensive and annoying, apartments are hard to find, and rent in Xinyi is high. A more fluid rental market would allow people to live, eat, and shop near where they work, which would ease the burden of transportation, at least for people who don't own their own homes. The percentage of people making long commutes were lessened, more could be done to make walking or bicycling a realistic proposition. Expanding sidewalks and bicycle lanes, encouraging food delivery by bicycle, and even providing a YouBike-like system for cargo tricycles would allow for greater use of human-powered transport.

We are heavily influenced by presentism in regards to what we think of as "normal" urban transit. My parents remember a time before the US Interstate highway system reached their hometowns, older Chinese people remember a time where urban transit was dominated by bicycles and buses, and it is equally normal to expect that things will change just as quickly in our lifetimes. However, I am skeptical of any revolutionary forms of transportation. One of my favorite (but sadly abandoned) blogs, Cat-bus, uses the term Gadgetbahn[1] to refer to train-like invention that seems innovative, but still relies on the same basic technologies to move people around, and is subject to the same constraints in terms of time, space, speed and money.

1 http://www.cat-bus.com/2017/12/gadgetbahn/