

Chapter 10 of The Geography of Urban Transportation deals with transportation finance, both in the amount that is given and the way that is distributed within a city. This brings us back to the first chapter of the book, in which different funding regimes resulted in different forms of transportation being implemented, from streetcars to urban freeways. It also answers questions regarding how such systems should be maintained financially – who should pay, and how much?

The problem with funding public transportation is that it is on the border of being a public good and a private good – non-riders benefit from other people using public transportation, but the cost of a ticket is borne by the rider. The public benefits of public investment in transportation include revitalizing neighborhoods through expenditure effects, increasing accessibility and mobility through transportation effects, and increasing equity by bringing transportation to neighborhoods that couldn't afford it on their own. This must be weighed against the ability of a system to perform well and the political feasibility – system performance and program performance.

Equity in transportation funding is a complex equation, one that can be analyzed in terms of costs, opportunities, or system performance, and can rely on individuals, social groups, or neighborhoods as a modeled unit. For example, we read earlier about how many transport systems are built to ease traffic rather than increase mobility for disadvantaged groups, and these paradigms are different forms of equity. Different forms of transportation are often funded in different ways, with direct and indirect subsidies borne by different groups – for example, local streets are often publicly financed, but are subsidized in the form of pollution and resource use by everyone in the neighborhood, and parking, for example, is often indirectly subsidized by those in the neighborhood. Funding can be secured in a variety of ways, from fuel taxes to electronic road fees to plain taxes, and these can be used to maintain a system. Capital finance is more complicated, and often involves debt financing in the form of municipal bonds. This leads to overspending on capital projects and under-spending on maintenance, especially in the American context.

I agree with the authors that at least in the US, these will continue to be a move away from fuel and road taxes into more indirect methods of payment, especially as fewer people can afford cars, while at the same time electric cars will make fuel taxes less profitable. Within the past year, the US has approved some new light rail projects in the mid-sized cities of Phoenix and Nashville (population 1,660,272 and 691,243, respectively, and this trend is likely to continue. The LA metro has largely been a success, and this will allow greater density of buildings to be built.

I was curious about the share of capital funding that goes towards public transit around the world – this textbook claims that 15 percent is spend on public transport in the US. While this exact statistic is difficult to find, some OECD data¹ indicates that China is spending more than 5 times the US on new rail infrastructure, but much of this is presumably going towards the HSR system. Another interesting World Bank study² compared the operating costs of different metro systems around the world, showing immense variation in the cost per kilometer of public transport systems – Caracas’ metro rail cost US\$90 million per kilometer, where Mexico City’s cost \$40 million. Clearly, the costs of implementing transportation systems have many factors, and the funding regimes can be just as varied.

One measure that I’ve always found to be heartening in Taipei are the plaques in metro stations saying how much the construction cost and which company built it. These numbers can be quite staggering, but the stations are built to last for many decades. Older subway systems are at somewhat of a disadvantage in this sense. London, Glasgow, New York and Boston have exceptionally old metro systems, and maintaining them is a major hassle, which pulls money from other projects. Once people rely on a transit line, it is very difficult to close it for maintenance or an overhaul. For example, New York City has 24 hour metro service, which means that maintaining the tracks is quite difficult, leading to hundreds of fires on the tracks per year from built-up trash and debris.³ Planners must then be careful to plan their projects correctly from the beginning, secure enough capital funding to do things correctly, budget enough for maintenance, and be sure not to offer a service that they will have to take away later.

1 <https://data.oecd.org/transport/infrastructure-investment.htm>

2 <http://documents.worldbank.org/curated/en/928301468762905413/> p. 113

3 <https://www.nytimes.com/2017/07/21/nyregion/subway-delays-track-fires-trash.html>