Evaluating Transportation Equity
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Introduction
Social equity (also called fairness and justice) refers to the distribution of benefits and costs and the degree to which it is considered appropriate. Transportation planning decisions have significant equity impacts; they affect the allocation of valuable public resources and impact people’s quality of life and economic opportunities. It is therefore important to incorporate equity analysis into transportation planning. However, this can be challenging; a decision may seem equitable when evaluated one way, but not if evaluated another. This Quickbite provides an overview of key transportation equity concepts and describes practical ways to incorporate equity analysis into planning.

Perspectives and Impacts
Transportation equity analysis is multifaceted. The following are the four main types to consider:

1. **Horizontal equity** (also called fairness or equality) requires that people with similar needs and abilities be treated similarly; for example, they receive similar shares of benefits and bear similar costs. It implies that people should generally “get what they pay for and pay for what they get,” and so should minimize or compensate for external costs.

2. **Vertical equity with regard to need and ability** considers how transportation systems serve people with disabilities and other special mobility needs. This justifies multimodal planning and universal design practices to accommodate diverse users.

3. **Vertical equity with regard to income** considers how transportation systems affect lower-income people. Policies that favor lower-income people are called progressive and those that harm them are called regressive. This justifies policies that improve affordable modes, subsidies for low-income users, and more affordable housing in high-accessibility areas.

4. **Social justice** considers how transportation systems serve disadvantaged and underserved groups and address structural injustices such as racism and sexism.

Horizontal Equity: A Fair Share of Public Resources
Horizontal equity implies that the public resources allocated to a mode or group should reflect its share of travel demands. The figure below compares indicators of walking, bicycling, and public transit demands with expenditures on their infrastructure. This suggests that equity justifies investing 10 to 30 percent of infrastructure spending on these modes. The last column shows the estimated portion of transportation infrastructure expenditures made in each mode, which is smaller than most indicators of demand; this indicates that people who rely on non-auto modes receive less than their share of investments.
Figure 1. This figure compares indicators of walking, bicycling, and public transit travel demands with estimated expenditures on their infrastructure. This indicates that non-auto modes receive less than their fair share of investments. (ACS = American Community Survey. NHTS = National Household Travel Survey.). Source: Victoria Transport Policy Institute.

Horizontal Equity: External Costs
External costs are negative impacts that travel activities impose on other people, such as congestion, crash risk, and pollution damages. These tend to be horizontally inequitable. For example:

- It is unfair that travelers using space-efficient modes, such as buses, bear traffic congestion caused by space-intensive modes such as automobile. Fairness justifies HOV and bus lanes, and decongestion pricing to internalize this cost.

- It is unfair that pedestrians and bicyclists bear excessive barrier effects (delays and crash risk) imposed by automobile traffic. Fairness justifies pedestrian and bicycle safety improvements, such as protected sidewalks, paths, bikeways, and traffic calming, financed with road user fees to internalize these costs.

- It is unfair that some communities bear traffic, noise, and air pollution. Fairness justifies pollution reduction policies such as electric vehicle mandates, fossil-fuel traffic restrictions and speed reductions, plus emission fees to internalize these costs.

Because automobile travel imposes particularly large external costs, people who drive more than average impose significant net external costs on people who drive less than average.

Inclusivity: Accommodating People with Disabilities and Other Special Needs
To be equitable, a transportation system must serve diverse users including travelers with disabilities, young children, pets, baggage, and other special needs. Serving their demands requires multimodal planning to provide diverse travel options, plus universal design to accommodate travelers with disabilities and other special needs.

Affordability: Serving Travelers with Low Incomes
Affordability refers to costs relative to incomes, and therefore people’s ability to purchase basic goods within their limited budget. Affordability can be defined as households spending less than 45 percent of their budgets on transportation and housing combined, so a typical household that
spends 30 percent of its budget on housing has 15 percent to spend on transportation; more if they have low housing costs and less if they have higher housing costs. Most lower-income automobile-owning households spend more on transportation than is considered affordable.

Figure 2 compares typical user costs of various modes. Walking, bicycling, and public transit are more affordable than automobile travel, particularly if driven high annual mileage.

![Typical Annual Costs by Mode](chart)

**Figure 2.** Walking, bicycling, and public transit are the most affordable modes. Automobiles are far more expensive. Source: Victoria Transport Policy Institute.

To increase affordability, communities can improve lower-cost travel modes and create more affordable housing in compact, multimodal neighborhoods where it is easy to get around without a car. New tools, such as the Location Affordability Index and the Housing and Transportation Affordability Index, calculate total costs, and therefore the savings provided by more affordable modes and more accessible, multimodal locations.

**Social Justice**
Social justice objectives address structural inequities such as racism, sexism, and classism. It is often addressed by establishing affirmative action policies, programs, and targets, plus employee training and professional development.

Social justice can be evaluated by identifying structural inequities, such as inadequate participation by disadvantaged groups in a planning process and disparities in outcomes between advantaged and disadvantaged groups, such as differences in job access between non-drivers and drivers, or between low- and higher-income residents.

**Conclusions**
Transportation equity evaluation is important but challenging due to multiple impacts, metrics, and groups to consider. Because of this complexity, transportation equity analysis should be comprehensive. It must consider multiple perspectives and impacts, define measurable equity objectives, and identify policies to achieve them. These policies should usually include a combination of structural reforms to create a fairer and more inclusive transportation system, plus targeted programs to address specific injustices.