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Evaluating Transportation Equity Data Dashboards

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Issue

The historical impacts of transportation planning and investment have adversely impacted communities of color and low-income communities. In response, state departments of transportation, metropolitan planning organizations, and local and county governments have begun to address these injustices through plans, policies, and deeper engagement with communities, though work in this area is still nascent. There are a variety of data, tools, and metrics from research and practice that measure the distributional equity of transportation planning and projects to inform equitable solutions.

Our research team identified 12 data dashboards, from national to local in scope, and conducted a qualitative assessment to evaluate the extent to which each addresses conditions related to transportation equity. The evaluation focused on how each tool determines what is a disadvantaged community, the outcomes they measure (benefits, burdens, or other), their ease of use, and their ability to guide decisions about equity. We also identified the most promising features relevant to transportation equity analysis (Table 1). We conducted workshops with representatives from public agencies and community-based organizations as users and potential users of these tools to identify their strengths and weaknesses to complement our assessment.

Key Research Findings

Metrics used to define a disadvantaged communities vary. Income is a common metric used by the dashboard we evaluated, with some tools using the Federal poverty threshold (household income below 200% of the Federal poverty line), while some use a specific state's median income as the threshold. For example, the Transportation Disparities Mapping Tool grouped tracts based on their median income relative to their region's median income and considered tracts with 80% of the median income

Ease of Use	Decision Making Guidance	Data Access
✓ Includes instructions on the website ✓ Provides technical documentation ✓ Clearly states what the tool is evaluating ✓ Uses clear visualization ✓ Includes various languages that are inclusive to the area ✓ Includes language that can be easily understood by non-transportation professionals	✓ Required part of transportation planning process ✓ Displays current/future transportation investments ✓ Shows data at different points in time so investments and/or changes can be tracked over time ✓ Includes qualitative component that prompts transportation professionals to consider community impacts and community engagement	✓ Includes instructions on the website ✓ Provides technical documentation ✓ Clearly states what the tool is evaluating ✓ Uses clear visualization ✓ Includes various languages that are inclusive to the area ✓ Includes language that can be easily understood by non-transportation professionals

Table 1. Ideal components of a transportation equity tool

or less to be low-income. Other factors that are used in determining disadvantaged communities include age, disability status, indigenous land, education level, and Title VI and environmental justice variables, among others.

Accessibility is the primary transportation benefit measured. Destination accessibility is the primary metric used to assess the benefits of transportation. Examples of destination types included jobs, low-wage jobs, parks, grocery stores, hospitals, urgent care facilities, pharmacies, and colleges and universities. In addition to access to destinations, some tools considered access to various modes of transportation such as public transit, bikeways, and cars. One tool—the Champaign-Urbana Sidewalk Explorer tool—measures walkability, as better sidewalk infrastructure improves walkability, though poor sidewalk infrastructure can also be identified with this tool.

Transportation burdens included a wider variety of metrics. The categories of burdens the tools consider are broader than the benefits. Many assessed burdens related to environmental factors and health outcomes, indicating the significance of addressing the impacts of transportation on air quality and public health. However, several tools included additional burdens such as lack of access, safety, and costs. Historic underinvestment was only found in the Climate and Economic Justice Screening Tool, but is an important metric for understanding communities that that have been historically underserved or subject to systematic disinvestment. Tools that do not measure benefits or burdens primarily focus on population-based metrics that indicate communities that may be disproportionately affected by transportation burdens, which we designated as community vulnerability.

Stakeholders noted the importance of local knowledge when using these tools. Local knowledge is important in the use of these tools as the data may not always reflect actual conditions. For example, the tools that include access to grocery stores as a metric may designate a gas station with an attached convenience store as an available grocery store. Additionally, the data does not always accurately represent the communities, and there is variation that is not captured by some of the tools. The geographic scale of each tool relative to that tool's goals are also important to note. For example, census tracts may be too large of a scale when examining rural areas, and census blocks may be a better fit. Overall, stakeholders noted that the tools should complement a broader story rather than serve as the sole source of information.

Members of community-based organizations noted the importance of language accessibility and community input. In the workshops, members of community-based organizations identified the need for ensuring community perspectives were represented. Though the target audiences of many of the evaluated tools are transportation professionals, it is important that the tools remain accessible to the public. Trainings could be built into the websites, and the role of community-based organizations in training community members to use the tools should be considered. Additionally, many of the tools do not contain a section for community input. Only the Climate and Economic Justice Screening Tool includes a tab for the general public to give input about any missing data sources in the tool.

Conclusion

None of the transportation equity tools evaluated provide all the ideal components listed in Table 1. A commonality is that access is the primary transportation benefit measured, a concept consistent with the scholarship on transportation equity. More tools should provide opportunities for public feedback and options for the public to weight certain equity elements higher than others based on community context.

More Information

This policy brief is drawn from the report "Evaluating Transportation Equity Data Dashboards" prepared by Claire McGinnis and Jesus M. Barajas with the University of California, Davis. The report can be found at https://www.ucits.org/research-project/2023-02. For more information about findings presented in this brief, please contact Jesus Barajas at jmbarajas@udavis.edu.

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