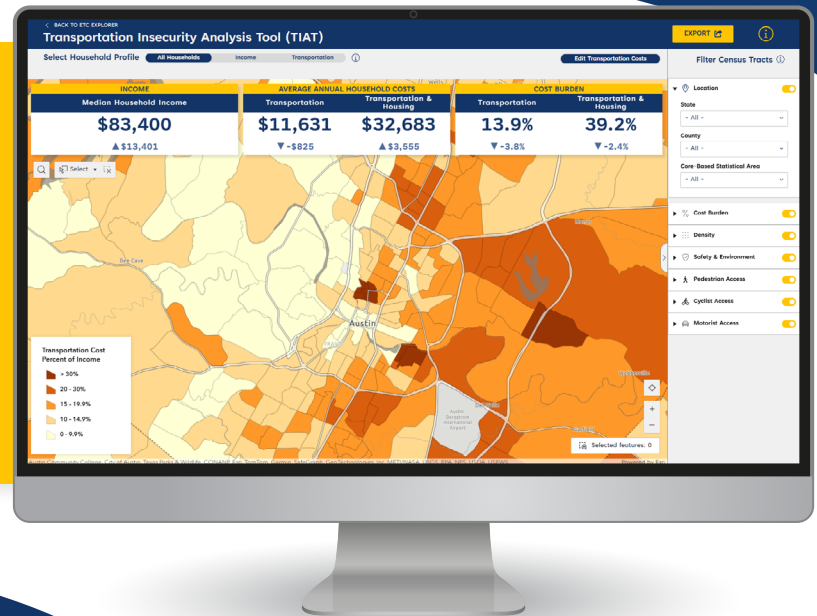U.S. Department of Transportation

Transportation Insecurity Analysis Tool

The Transportation Insecurity Analysis Tool (TIAT) is a powerful resource designed to support federal, state, and local agencies in understanding transportation affordability and accessibility needs across the nation. TIAT provides localized estimates of transportation cost burden to help agencies and planners identify and alleviate transportation-related access and financial stresses on households.

Key Features Include:

View Transportation and Household Attributes

Discover local and regional data on household transportation and housing costs, income, and cost burden, then see how these household statistics relate to the national average.

Select Various Household Profiles

Tailor cost burden information using 25 different household profiles corresponding to subsets of households defined by income or access characteristics (e.g., households with zero vehicles).

Filter Neighborhood Characteristics

Filter census tracts by characteristics including location, housing density, pedestrian, cyclist, or motorist access, safety and environmental factors, and cost burden.

Modify Transportation Costs

To more precisely characterize a local area, view and adjust regional transportation costs for selected areas to fine-tune cost and cost burden information based on local knowledge and current conditions.

The TIAT Modeling Approach

1

Based on Household Travel Surveys from Across the Nation

Researchers developed and implemented a two-part modeling approach combining binary logit and log-transformed linear regression to accurately predict household miles traveled by auto, public transit, and taxi/ride-hailing.

2

Population Synthesis-based National Model

Population synthesis using PopulationSim created a nationwide synthetic population that mirrors real-world socio-demographics by applying population synthesis techniques using 2017-2021 ACS PUMS data and various control variables at the census block group level.

3

Distinct Household Profile Aggregations

The models are applied to predict annual travel mileage and cost for each household in the synthetic population, with the results aggregated to the Census tract level for various household profile types corresponding to different subsets of households within a Census Tract.

TIAT is an integral component of the broader Transportation Community (TC) Explorer, a suite of resources provided by the U.S. Department of Transportation. The TC Explorer is designed to promote data-driven insights into transportation equity, accessibility, and affordability at both local and national levels. As part of the TC Explorer, TIAT focuses on assessing and visualizing transportation cost burdens, enabling users to explore key factors such as neighborhood characteristics, income, and accessibility, which influence household transportation expenses. Together, TIAT and the TC Explorer offer a comprehensive view of transportation equity to support informed planning and policy-making.

Get More Information

For a deeper dive into the TIAT model and data sources, access the complete User Guide and Technical Documentation available online through the TIAT.

Ready to Dive In?

Visit the Transportation Insecurity Analysis Tool today to gain local-level insights into transportation cost burdens across the nation. Access the tool at https://maps.dot.gov/ost-p/etc-explorer/tiat/

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