

The following document is supplemental to *NCHRP WebResource 2: Road Usage Charge Guide* (NCHRP Project 19-18, “Transitioning Fuel Tax Assessments to a Road Usage Charge”). The full WebResource can be found at <https://crp.trb.org/nchrpwebresource2/>.

The National Cooperative Highway Research Program (NCHRP) is sponsored by the individual state departments of transportation of the American Association of State Highway and Transportation Officials. NCHRP is administered by the Transportation Research Board (TRB), part of the National Academies of Sciences, Engineering, and Medicine, under a cooperative agreement with the Federal Highway Administration (FHWA). Any opinions and conclusions expressed or implied in resulting research products are those of the individuals and organizations who performed the research and are not necessarily those of TRB; the National Academies of Sciences, Engineering, and Medicine; the FHWA; or NCHRP sponsors.

Socioeconomic Analysis

Description:

Socioeconomic analyses of RUC programs encompass qualitative and quantitative methods that assess and measure the impacts of RUC program design elements on distinct segments of motorists impacted. Results support stakeholders, policymakers, and program administrators in determining how to decide policy and program design choices.

Questions that often arise in studying RUC include: What is the share of transportation taxes and fees among all household expenditures? How would low-income motorists be impacted by RUC? How does RUC compare to fuel taxes by income level? Would RUC be more or less equitable than existing funding mechanisms or other alternative revenue mechanisms? How does RUC compare to fuel taxes based on residence location? Would rural drivers be more severely impacted than urban drivers? Will RUC be equally accessible with ease of compliance for historically underserved communities? What can be done to make a RUC program more equitable?

Much of the discussion of equity in transportation revolves around how revenues are allocated to projects, for example by mode and geography. However, socioeconomic analysis of RUC deals with the impact of the revenue mechanism itself, not with how the funds are spent. Assessment of the socioeconomic impacts of transportation spending and investments comes with a distinct set of questions and analysis methodologies that can be deployed regardless of the revenue mechanism under consideration, whether fuel taxes, vehicle fees, RUC, general taxes, or something else.

Data Required:

Urban-rural classification; demographic data (household size and income, race/ethnicity, gender); vehicle fleet composition (age, value, engine type, fuel efficiency) by location; vehicle miles traveled; transportation taxes/fees (rates and definitions); overall household expenditures and household transportation expenditures by category, broken down by income level; survey results or other experience-based feedback from prospective RUC payers.

For each data type, consider historical, current, and forecasted values

Data Sources:

US Census Bureau; State Vehicle Registry; Economic data and demographic data projections (Woods & Poole Economics, Moody's, etc.); US DOT, FHWA, Highway Performance Monitoring System (HPMS); Transportation revenue data (tax and fee rates and definitions from state revenue department or equivalent); U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics; US DOT, Bureau of Transportation Statistics; U.S. Energy Information Administration, Annual Energy Outlook (AEO); Transportation Energy Data Book.

Analysis Steps:

1. Gather questions and concerns from policy makers and stakeholders about what types of socioeconomic impacts are most important to consider.
 2. For comparative purposes, evaluate the financial impact of the status quo scenario (existing revenue mechanisms) across socioeconomic groups of interest over time.
 3. Consider and study the financial impact of RUC across socioeconomic groups of interests, and how various RUC policy choices impact the groups over time (e.g., by varying the RUC rate, introducing RUC to specific vehicle types). Specifically, measure the financial impact of RUC to various groups including the average impact and, where possible, the distribution of the impact within groups. Groupings could include vehicles belonging to low-income households, vehicles belonging to rural households, and vehicles belonging to households that include minority racial or ethnic persons.
-

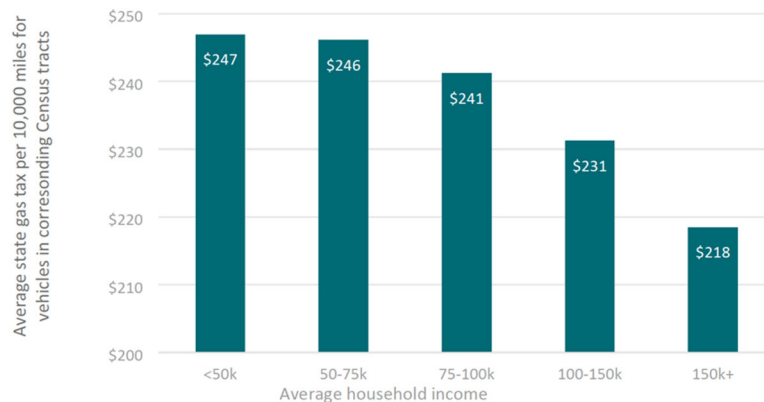
- Compare the financial impacts of RUC against the status quo. Impacts should be measured in units that allow comparison between RUC and other funding strategies, and between various RUC policy choices such as per capita, per vehicle mile traveled, and per household.
- In addition to the quantitative analysis described above, which measures the financial impact of RUC by specific groups, measure the qualitative impact of RUC by surveying and interviewing customers about their experience with RUC, their ability to pay, their preferred methods of reporting and paying, and compare the results to the system design to identify any service gaps that may disproportionately impact certain groups (e.g., rural vehicle owners, low-income vehicle owners).

Considerations/Lessons Learned:

In general, socioeconomic analyses have tended to explore how RUC impacts would vary by geography (urban vs. rural vs. suburban) or demographics (by income level) compared to fuel taxes or alternative fuel vehicle fees. To date, these analyses have shown that a RUC in lieu of fuel taxes would largely benefit rural and low-income households since those households tend to own older, less fuel-efficient cars that burn more fuel and therefore pay more fuel tax per mile driven than their urban and higher-income counterparts, on average.

Sample Output (Optional)

The chart below taken from equity assessment conducted in Washington in 2021 illustrates what the average household pays in fuel taxes per 10,000 miles driven, organized by average income of each Census tract in Washington. Under a RUC, each household would pay the same (\$240) per 10,000 miles driven. As the chart shows, households in higher-income Census tracts currently pay substantially less.



The map below illustrates findings from The Eastern Transportation Coalition’s analysis of impacts of RUC compared to the fuel tax in North Carolina. The findings corroborate findings from other states showing that vehicles in rural areas would, on average, pay less, while vehicles in urban areas would pay more.

