

Charging Drivers by the Gallon vs. the Mile: An Equity Analysis by Geography and Income in California

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California, like many other states and the federal government, is actively exploring use of a road-user charge (RUC) to replace motor vehicle fuel excise taxes. This idea is motivated by the declining share of vehicles that burn gasoline or diesel fuel when they drive. Two equity concerns frequently raised in discussions about RUCs are whether they might disproportionately harm rural households and low-income households. This study used data about California households to explore how replacing the current state gas tax with a hypothetical per-mile road user charge (RUC) would affect household costs by geography and income.

Methods

We used data from the 2017 National Household Travel Survey California Add-On sample, which surveyed more than 24,000 California households. We first estimated how household vehicle fuel efficiency, weekly household mileage, and weekly fuel tax costs vary, on average, by geography (rural vs. urban) and by income. We then used these findings to estimate (1) fuel tax payments by types of households, and (2) how much these households would pay if the state replaced fuel taxes with a flat-rate RUC. We assumed the RUC would generate revenues similar to the current state fuel tax (2.52¢ per mile driven).

Findings

The table below summarizes our key findings. Moving from the fuel tax to a revenue-neutral, flat-rate RUC would slightly lower costs for most rural households but raise them for urban households at all income levels. The differences are small, though—less than a dollar a week for every household group. The rural-to-urban burden shift for a RUC is largely explained by fuel efficiency: rural households tend to drive less fuel-efficient vehicles than do urban households.

Because the flat per-mile RUC would not account for fuel efficiency, households with less fuel-efficient vehicle fleets (up to 21.0 MPG) would see their tax burden reduced, while those with more fuel-efficient vehicle fleets (21.1 MPG or higher) would see their tax burden increase.

Summary of Findings

Factor	Variation by geography	Variation by income
Fuel efficiency	Urban households own vehicles that are 12% more fuel-efficient vehicles than do rural households: 23.6 vs. 21.1 MPG	The highest-income households own vehicles that are 8% more efficient than those owned by the lowest-income households (24.2 vs. 22.4 MPG)
Mileage	Rural households drive 18% more miles weekly than urban households (503 vs. 427 miles).	The highest-income households drive 61% more miles per week than the lowest-income households (524 vs. 325 miles)
Fuel tax paid	Rural households pay \$13.31 weekly vs. \$10.10 for urban households, a difference of \$3.21 per week.	The highest-income households pay \$12.33 per week vs. \$7.86 per week for the lowest-income households, a weekly difference of \$4.47.
Shift to a RUC	Lowers costs for most rural households and raises them for all urban households.	Raises costs more for the wealthiest households than for lower-income ones

Policy Implications

Although replacing the state fuel tax with a flat-rate RUC would not increase average costs for rural households, the study findings point to other policy implications that might concern policymakers:

- **Replacing the fuel tax with a flat-rate RUC would slightly increase costs for the poorest urban households.** Although the estimated increases are less than a dollar a week or \$27 annually, the added cost is still a burden for those who can least afford it.
- **Replacing the fuel tax with a flat-rate RUC would run counter to state climate policy, which calls for reducing fuel consumption.** A flat-rate RUC of any price will shift the tax burden away from users of fuel-inefficient vehicles and onto users of fuel-efficient ones, thereby eliminating the fuel tax’s fiscal incentive to consumers to purchase and drive more fuel efficient or zero-emissions vehicles.

Options for addressing these concerns include:

- **Differentiated rate structures that counteract these policy concerns.** One option is an increasing-block-pricing rate: a vehicle owner pays no RUC or a very low rate for the initial set of miles driven annually, and then higher rates for additional miles driven. Alternatively, the state could offer a lower RUC rate to qualifying low-income households, similar to the “lifeline” rates that utilities offer to low-income customers. Yet another option would be to set RUC rates higher for less-efficient vehicles and lower for more efficient vehicles.
- **Counterbalancing RUC costs with policies that help low-income families reduce other transportation costs.** Examples include policies to help low-income households reduce the number of miles they need to drive and/or purchase more fuel-efficient or zero-emissions vehicles.

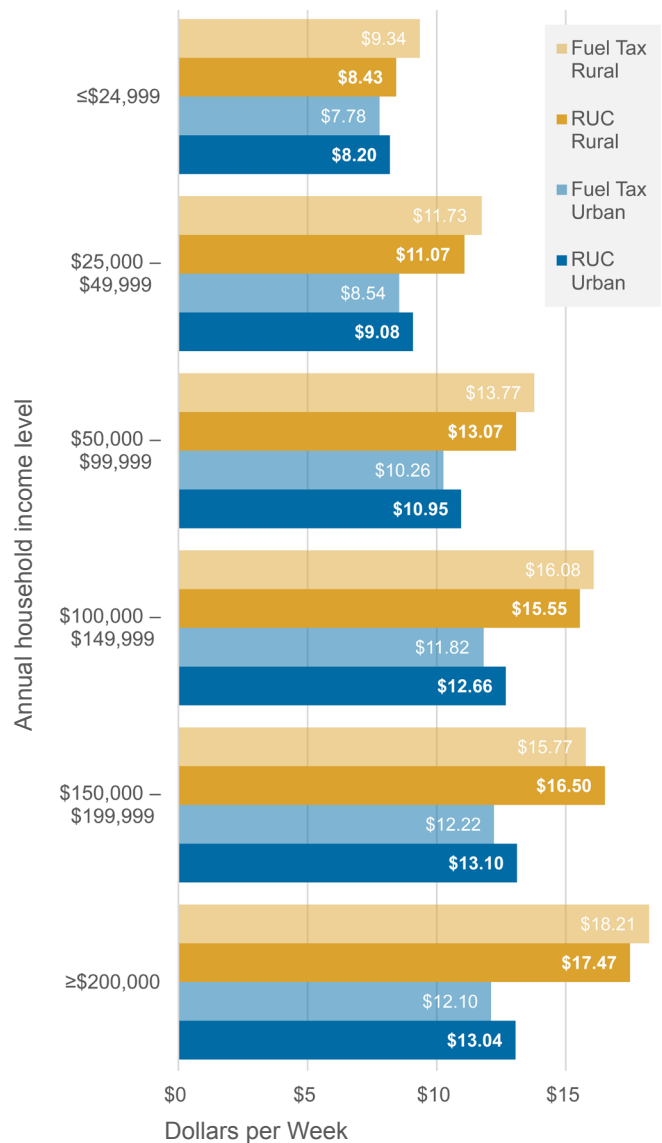
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For more details about the study, download the full report at transweb.sjsu.edu/research/2238

Household Weekly Fuel Tax Cost vs. Estimated RUC Cost



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