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Road Usage Charges Could Reduce Costs for Rural Drivers but Show Minimal Effect on Disadvantaged Communities

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Issue

The gasoline tax, the primary source of transportation funding in California and United States, is rapidly losing effectiveness as vehicles become more fuel efficient and as electric vehicles enter the market. To address this funding shortfall, many states are exploring alternatives to the gas tax such as a road usage charge (RUC), which charge drivers based on miles traveled rather than fuel consumed. The 2021 federal Infrastructure Investment and Jobs Act (IIJA) supports this transition by funding both national and state-level RUC pilot demonstrations.

Despite growing momentum, questions remain about how RUCs affect equity. Policymakers are particularly concerned about whether rural residents, who often travel longer distances, or disadvantaged communities, who already face economic and mobility barriers, would be disproportionately burdened. To better understand these impacts, my team examined how a revenue-neutral RUC in California would change the financial burden of switching from a gas tax to RUC, focusing on geographic and community differences.

Key Research Findings

Rural drivers would pay less under a mileage-based fee than a gas tax. Vehicle registration data reveals

that rural areas tend to have less fuel-efficient vehicles, which means they currently pay more per mile under the gas tax. Because a RUC system charges all drivers the same per-mile rate, irrespective of vehicle efficiency, rural drivers — who currently shoulder a disproportionate share of costs — would see some financial relief if California replaced its gas tax with a mileage-based fee.

Disadvantaged communities (DACs) would not see a significant change if California moves to a RUC. Using CalEnviroScreen to identify DACs, we found that their average vehicle fuel economy closely mirrors that of other communities. As a result, shifting from a gas tax to a RUC would not substantially change their overall transportation costs (see Figure 1).

Most Californians would see only small changes in costs. When aggregating data at the census tract level, we observed that for most regions, the difference in average per-mile costs between the gasoline tax and a RUC falls within a narrow band of $\pm 5\%$. While a few census tracts may experience cost shifts as large as a 30% reduction or a 25% increase, these cases are rare. For most households, a transition to a RUC would not meaningfully change what they pay.

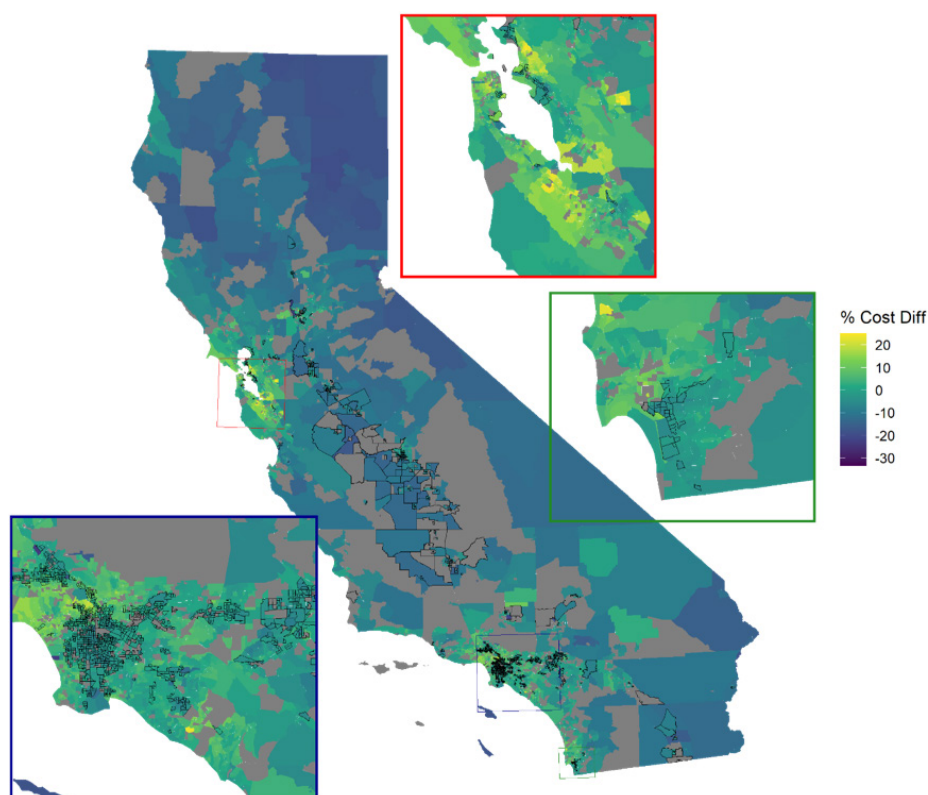


Figure 1. Differential in per mile cost to drivers by switching to a mileage-based fee (compared to a gasoline tax) at the census level. Disadvantaged communities (based on top 10% of DACs in CalEnviroScreen) outlined in black and rural regions are outlined in blue.

Administrative and privacy concerns may slow implementation. Unlike the gas tax, which is collected upstream at fuel terminals, a RUC requires metering and data collection from individual vehicles — raising both cost and privacy concerns. Administrative expenses are estimated to be 5–10% of revenue collected, far exceeding the ~1% cost for gas tax collection. Additionally, concerns over travel data collection and storage may reduce public support, particularly in the absence of transparent and secure data governance protocols.

More Information

This brief is based on the report, “Road Usage Charges and Impacts on Rural and Disadvantaged Communities,” which can be found at <https://www.ucits.org/research-project/2022-03/>. For more information, contact Alan Jenn at ajenn@ucdavis.edu.

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