Should the Fuel Tax be Replaced?

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Overview

• Research project funded by ITS Institute through TechPlan.
• Research Team: Lee Munnich, Ferrol Robinson, Zhirong Zhao, David Coyle
• Examine the fuel tax vs. VMT fees from perspective of tax-financing principles.
• Basis for future outreach and education.
Replacing the Gas Tax

- Two national commissions established by U.S. Congress advocate replacing current system of funding transportation based on gas tax with new distance-based system of user fees.
- State of Oregon pilot project demonstrated system for transitioning to mileage-based fees by paying at gas pump.
- University of Iowa currently conducting pilot tests around country to determine how drivers respond to mileage-based fee approach using GPS-based technology.
- Growing consensus among many transportation leaders that gas tax no longer good way of financing transportation system, but no public understanding of why this is so.
Public View of Gas Tax

- Public assumes taxes they pay at pump pay for transportation system, and that
- Whatever funding problems exist with system are due to waste and inefficiency.
- Study examines gas tax on basis of tax policy principles – Efficiency, Equity, Revenue Adequacy and Sustainability, Environmental Sustainability, and Feasibility.
Efficiency

• Fuel taxes do not price for total cost to system
  - Inability to price for congestion exacerbates problem and leads to excessive delays, which comes with stiff costs to users and businesses.

• Fuel taxes as pricing mechanisms may also contribute to unbalanced ratio of auto and truck use versus transit and freight rail use
  - Leaves highways congested while use of public transit and freight rail remain, generally, below capacity.

• Fuel taxes lead to inefficient system investments as they provide poor price signals to public officials and investors
  - Investments in projects that are overused, rather than in most worthwhile projects.

• Fuel taxes’ failure to accurately price use of the system has contributed to urban sprawl
  - Fuel taxes result in low per-mile cost of commuting and induce households to live in farther, low-density locations.
Equity: User Pays–and–
Benefits

• Improvements in motor vehicle fleet fuel efficiency since 1970s have allowed drivers to pay less in fuel taxes per vehicle mile travelled. Trend will continue.
• Hybrids and alternative fuel vehicles create even greater disconnect between system costs and user benefits.
• Not all users pay fuel taxes as some are exempt while others evade payment.
• Fuel tax payments do not cover total internal costs associated with road construction and maintenance, e.g. heavy trucks.
• Fuel tax payments do not recover external costs of congestion and pollution.
• Fuel tax revenues have been used for non–highway purposes such as mass transit.
VMT outpaces Fuel Consumption

Equity: Ability-to-Pay

- From perspective of horizontal equity, violations of user-pays-and-benefits principle lead to problems in which people in equal positions are treated unequally.
- Fuel taxes have a jurisdictional equity problem in which there is a disconnect between what a state pays in fuel taxes and what it receives in federal funding.
- Although fuel taxes help to promote mobility for disadvantaged groups, through public transit funding, there remain vertical equity issues that negatively affect lower income groups.
Percent of Income Spent on Gas Taxes by Income Group

Source: Tax Foundation, Bureau of Labor Statistics
Revenue Adequacy and Sustainability

As currently structured, fuel taxes fare poorly on revenue adequacy and sustainability grounds:

- Inflation has eroded purchasing power of revenue collected through fuel taxes
  - Current fuel tax rate too low and funding inadequate.

- Fuel taxes are unsustainable going forward.
  - Inflation, changes in the price of fuel and fuel efficiency, and the introduction of alternative fuels conspire to reduce the tax base and the amount of fuel tax revenue collected.
Projected U.S. Highway and Transit Account Balances

Environmental Sustainability

- Fuel taxes weakly adhere to polluters-pay principle
  - Blunt tool in promoting environmental sustainability.
- Fuel taxes better equipped to reduce vehicle miles traveled than general sales taxes or income taxes,
  - But current fuel taxes are not commensurate with costs imposed and do not price for congestion.
  - Only indirectly related to road use and thus limited ability to reduce vehicle-miles traveled.
- Fuel taxes’ ability to reduce petroleum-based fuel consumption and greenhouse gas emissions limited
  - Mainly due to low tax rates.
- Fuel taxes provide some incentive for use of less-polluting fuels
  - However, because of low fuel tax rates in U.S., effect is marginal.
Feasibility

• Political feasibility
  - While it is true that states and federal government have had difficult time raising fuel taxes, some suggest that raising fuel taxes should not be seen as political liability.

• Simplicity of the system
  - Ensure driver privacy and system security.

• Visible to a degree
  - Currently low levels of political and public support
  - If fuel taxes more closely adhered to the benefit principle, as they did in the early and middle decades of the 1900s, they would most likely garner greater support.

• Fuel taxes benefit from some low levels of tax exportation.

• Administrative costs
  - Implementation, operation, enforcement and compliance costs relatively low.
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<thead>
<tr>
<th>PRINCIPLES</th>
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<tbody>
<tr>
<td><strong>Efficiency</strong></td>
<td></td>
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<tr>
<td>• Transportation system overuse</td>
<td>Moderate</td>
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<td>• Efficient investment in transportation</td>
<td>Moderate</td>
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<tr>
<td>• Efficient land use</td>
<td>Weak</td>
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<tr>
<td><strong>Equity</strong></td>
<td></td>
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<tr>
<td>• Adherence to user-pays-and-benefits principle</td>
<td>Moderate</td>
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<tr>
<td>• Horizontal equity</td>
<td>Moderate</td>
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<tr>
<td>• Vertical equity</td>
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## Fuel Tax Assessment Scorecard

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<td>Revenue Adequacy and Sustainability</td>
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<tr>
<td>• Revenue adequacy</td>
<td>Moderate</td>
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<tr>
<td>• Tax rate</td>
<td>Moderate</td>
</tr>
<tr>
<td>• Revenue sustainability</td>
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<td>Environmental Sustainability</td>
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Next Steps

- Compare Mileage-based User (VMT) Fees with Fuel Taxes on Tax-Financing Principles
- Examine VMT fee technology options and feasibility for future transportation financing
- Explore outreach and education effort with public, stakeholders and policymakers.
Questions?
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