



Congressional Budget Office

Alternative Approaches to Funding Highways

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Background on CBO

- Created by the Congressional Budget and Impoundment Act of 1974
- Staff of about 250 people
- Products include
 - Forecasts for the economy and federal budget
 - Cost estimates for all bills passed by a House or Senate committee
 - Economic analyses of policy issues, usually done at the request of a Chairman or Ranking Member



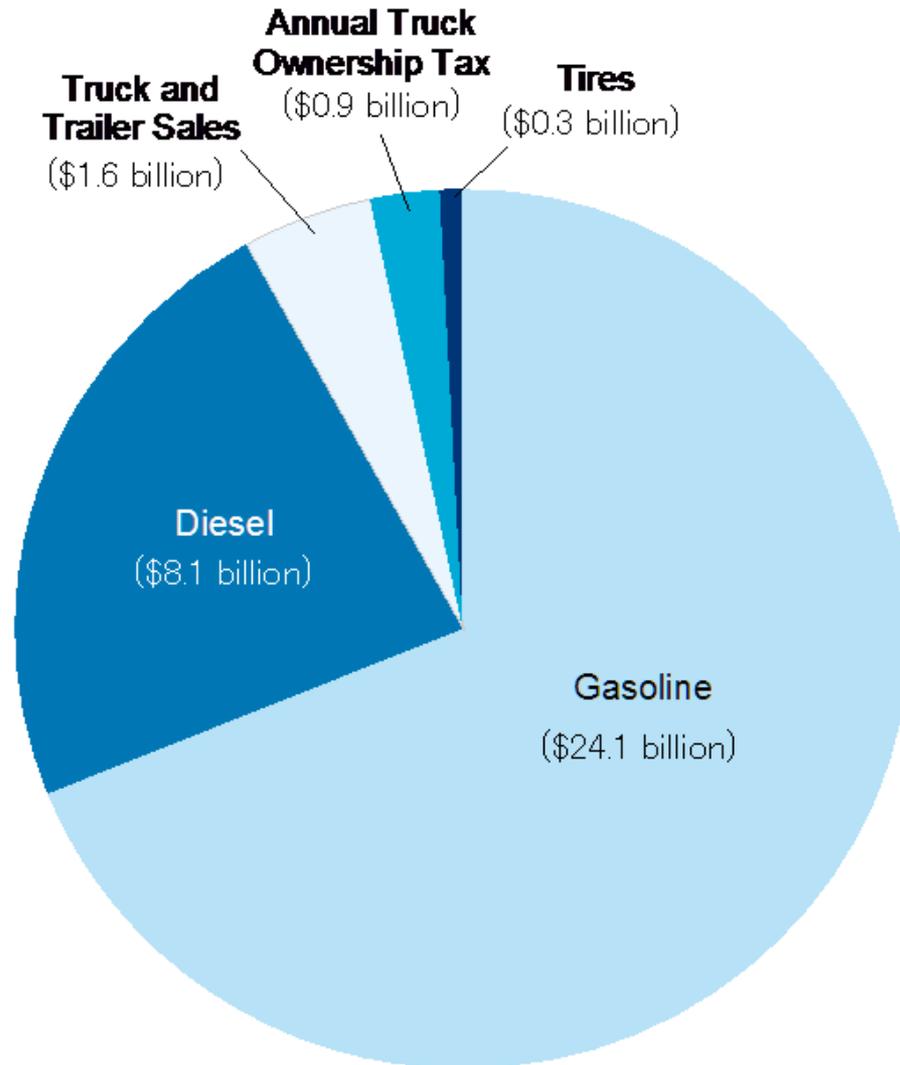
CBO's Report on Funding Alternatives for Federal Spending on Highways*

- Focuses on fuel taxes and potential taxes on vehicle-miles traveled (VMT)
- Presents facts and estimates from existing literature and an economic framework for thinking about the issues
- Requested by the Chairman of the Senate Budget Committee

* Here "highway" = "road"; generally includes bridges and tunnels also



Funding for the Highway Trust Fund, FY 2010





Why Consider Alternatives?

- Revenues are below spending
 - For 2011, CBO estimates total revenues = \$36.9 B and total outlays = \$44.3 B
 - Since 2008, the HTF highway account has received ~\$30 B from general revenues
- Absent policy change, gap will grow
 - Fuel taxes are defined in nominal dollars; were last raised in 1993
 - Fuel taxes yield less revenue as MPG increases
- Current charges are not aligned with costs of use



Highway Funding Goals

- Efficiency
- Equity
- Privacy



Highway Funding Goals: Efficiency

- Maximize benefits of road travel net of total costs, including
 - Costs of road use (fuel, time, wear and tear on vehicles and roads, injuries and deaths, pollution, etc.)
 - Costs of collecting the funds (including any indirect costs from distorting people's decisions about working, saving, etc.)
 - Costs of building and maintaining highways—funding method can influence how much is needed, if not how it's done



Highway Funding Goals: Equity and Privacy

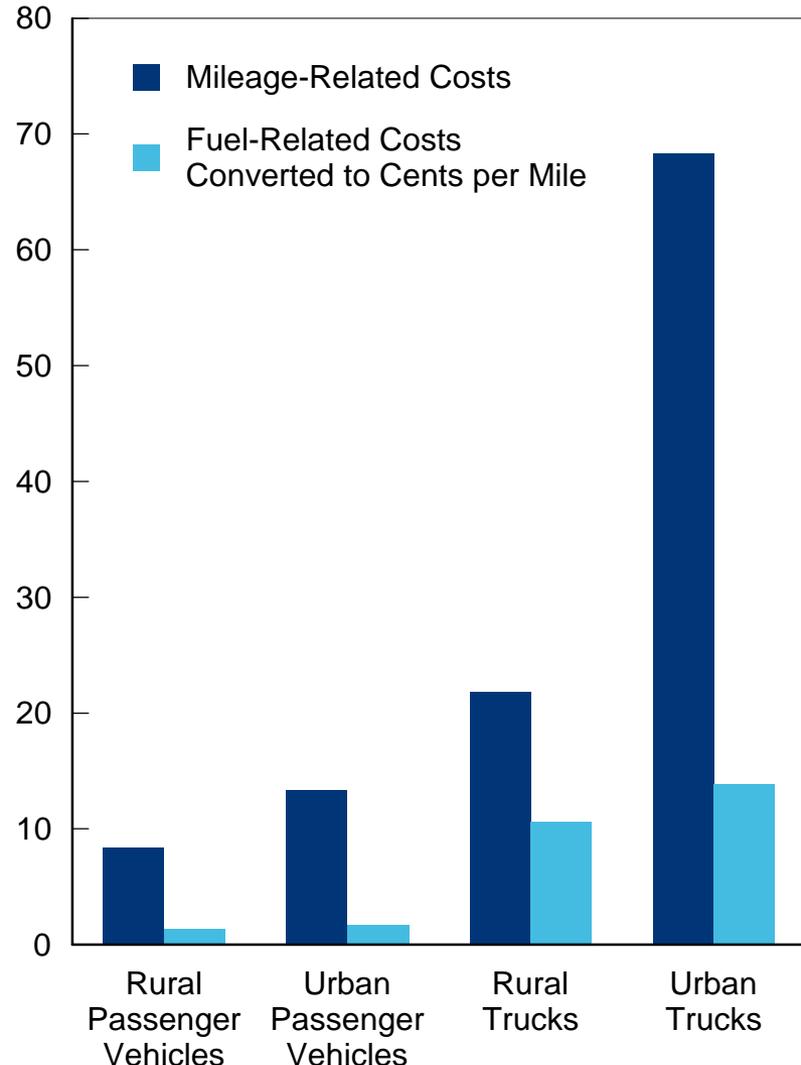
- Fair treatment for
 - Different groups of users?
 - General taxpayers?
 - People with low incomes?
 - Rural residents?
 - “Donor” states?
 - All of the above?

- Privacy: not violating people’s rights



Comparing Fuel and VMT Taxes: Incentives for Efficient Road Use

- Prescription for efficiency: Charge people for the marginal cost of their use or consumption of a good or service
- Most marginal costs (~80%) are more directly related to miles traveled than to fuel consumed





What Are the Marginal Societal Costs of Road Use?

Fuel-Related	Mileage-Related
Oil dependence	Congestion
Climate change	Pavement damage (trucks)
Local air pollution from trucks	Local air pollution from passenger vehicles
	Accident risk
	Noise



Charges That Maximize Efficiency of Road Use

- Users would be charged for both VMT and fuel use
 - Might pay the charges separately or jointly
- Total charges would be much higher than current fuel taxes
- Efficient VMT charge: uniform “base” component + larger local/regional “congestion” component
 - Estimate of peak-period driving costs on all D.C. area roads in 2002: ~ \$0.34 per mile (2009 dollars)
- Congestion charges could save \$20 - \$50 B/yr in time and fuel and ~\$40 B/yr in construction costs



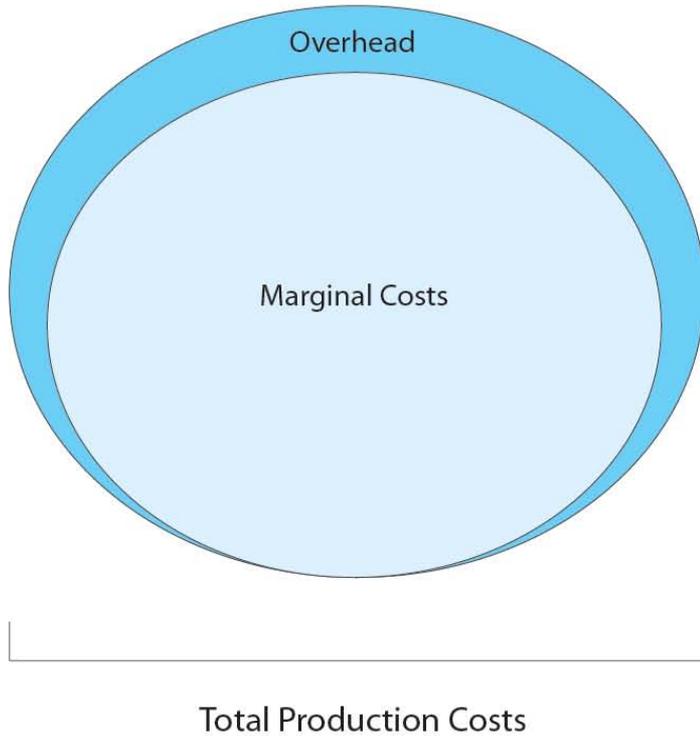
Beyond Efficiency of Road Use: The Big Picture

- Would marginal-cost road pricing yield enough revenue to fund an efficient level of highway spending by itself? Or would other sources be needed, and if so, what about their costs?
- Would VMT charges still be efficient when collection costs are taken into account?
- What about the equity and privacy issues?



Would Revenue Be Adequate?

Simple "Text Book" Case



Highways





Would Revenue Be Adequate?

- Full marginal-cost pricing on entire road network would yield ~ \$500 B per year; total construction and O&M spending currently ~ \$160 B/yr
 - Full marginal-cost pricing would yield more than enough revenue to fund efficient highway spending
 - Users would pay much more than they do now
- It is possible that some uncongested roads that are efficient to build and maintain would not be self-supporting



Would the Collection Costs of VMT Taxes Outweigh Their Benefits?

- Costs of a nationwide system very uncertain; available evidence from pilot studies, foreign countries, etc. is limited
- Estimated benefits of \$60 – 90 B per year from congestion pricing leave a lot of room for collection costs
- Would benefits exceed costs for less comprehensive VMT taxes? E.g.,
 - Trucks only?
 - No congestion pricing?



Equity Implications

- Fuel taxes impose larger relative burdens on
 - Households that drive more (e.g., rural)
 - Lower-income households
 - Households using vehicles w/ lower MPG (sports cars, SUVs, pickup trucks, older cars)
- Uniform (component of) VMT taxes impose larger relative burdens on
 - Households that drive more
 - Lower-income households
- Congestion charges shift tax burden toward (mostly urban) households that drive in congested conditions



Options for Addressing Privacy Concerns

1. Limit the information used
2. Use detailed information but do all charge calculations in-vehicle,
 - internally storing info for specified time (e.g., 2 months) or
 - deducting charges in real time from prepaid debit card

(continued)



Options for Privacy Concerns (cont'd.)

3. Use detailed information; calculate charges externally but
 - anonymously or
 - using a private company
4. Ease into VMT system; make it appealing by letting private firms bundle other services
5. Allow opt-out alternative(s), such as significantly higher fuel taxes, as a “safety valve” for those most concerned about privacy



Summary Comparison of Fuel and VMT Taxes: Efficiency

	Fuel Taxes	VMT Taxes
	Efficiency	
Address fuel-related costs	Yes	Significantly (no incentive to raise MPG)
Address mileage-related costs	Somewhat (little or no incentive to avoid congestion, add truck axles)	Yes
Collection costs	Low	High



Summary Comparison of Fuel and VMT Taxes: Equity and Privacy

	Fuel Taxes	VMT Taxes
	Equity	
User pays	Yes	Yes
Larger relative burden on low-income people	Generally yes	Generally yes, but perhaps less than fuel taxes
Larger relative burden on people in rural areas	Yes	Yes for noncongestion charge, but less than fuel taxes
	Privacy	
Poses privacy issues	No	Yes



Two Key Questions for Designing and Implementing a System of VMT Charges

- What should the system do?
 - Just raise revenue? (Lowest implementation cost; little gain in efficiency of road use)
 - Reduce pavement damage? (Trucks ~ 4% of vehicles but account for almost all road wear)
 - Reduce specific congestion problems? (Wouldn't need national system; complexity would depend on problem—e.g., core area, bridge/tunnel, arterials throughout region)
 - Maximize efficiency of road use? (Highest cost)



Two Key Questions (cont'd.)

- Who should lead the system's introduction?
 - The federal government? (Economies of scale; facilitates planning for Highway Trust Fund; minimizes coordination problems)
 - The states? (More opportunity for experimentation; direct access to enforcement agencies; perhaps more incentives for voluntary adoption)
 - The private sector? (Could minimize public resistance through initial focus on voluntary participation)