Can the Trucking Industry Benefit From Distance-Based Fees?

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The Transportation Funding Problem

- Fuel taxes are insufficient to keep the THF afloat: Almost $52 billion transferred from general funds and ARRA
- Reasons for deficit:
  - Using more fuel efficient vehicles; paying less in fuel taxes to travel
  - Growth in alternative fuel and electric vehicles
  - Federal fuel tax not raised since 1993
  - Decline in purchasing power due to inflation
- Conclusion: Fuel tax is neither adequate nor sustainable now, and it is expected to worsen in the future
- Optional Approach: Mileage-based pricing

Basic Research Question

Will benefits of mileage-based pricing to the trucking industry exceed the charges?

Study Assumptions

- Distance-based pricing, VMT fees and MBUF are indistinguishable: Drivers pay a fee per mile traveled instead of a tax per gallon of fuel
- Distance-based pricing: A stand-in for charges by weight, distance, time of day, emissions, or fuel efficiency, since fees can vary—if desired—by each of these factors
- It's anticipated that we are 10-15 years away from fully implementing distance-based pricing.
- In the interim, distance-based pricing would coexist with fuel taxes

Underlying Pricing Principle: User Pays

- The cost of road/bridge construction/maintenance is a function of road use (VMT) and weight (per axle and GVW)
- Vehicles of similar weight that use less fuel per mile(or no fuel) cause the same road damage as those that use more fuel
- Heavy trucks cause more damage to roads and bridges than cars and light trucks
- With distance-based charges, users pay for use of the road and for the impact they cause

Selected Industry Objections

1. Truckers already pay a lot (or too much) in transportation taxes

Comments:

- Trucks pay a lot in taxes but they also cause more damage to roads
- Studies show that most categories of trucks pay less than their cost responsibility, while autos and light trucks pay more
- Neither trucks nor cars pay for most cost externalities
- Estimated THF revenues: $32B/year; required: $100 B/year

Industry Objections and Concerns

2. We have already paid for the Interstate and other highways

Comments:

- Initial capital and ongoing maintenance costs were paid for
- The system is beyond its 50-year life, and needs to be reconstructed and expanded--this hasn't been paid for
- Original capital cost: $129 billion (over 30 years); today's reconstruction cost estimate: $1.3 to $2.5 trillion

Industry Objections and Concerns

3. The industry supports a user fee system such as the fuel tax, and a fair registration fee based on weight, but not a weight-distance tax

Comments:

- The fuel tax is not a fair user fee system: many categories of trucks pay less than their cost responsibility; and many types of cars pay less than fair share
- A once-a-year truck registration based on weight does not reflect ongoing operations and weight variability

Industry Objections and Concerns

4. Fuel efficiency improvements and alternative fuel use apply to autos, not to trucks

Comments

- The implication is that distance-based charges should apply to autos, not trucks
- Schwan Foods (MN) have a fleet of more than 5,000 vehicles that use propane gas as fuel
- New CAFÉ standards call for heavy truck fleet to have a fuel economy of 28.8 mpg by 2016, a 23% increase

Comment regarding the 2016 CAFÉ standards for heavy trucks:

> “ Legislating fuel economy standards for truckers is like requiring bears to crap in the woods.”
>
> (Heavy Duty Trucking Magazine)

Industry Objections and Concerns

5. Fuel taxes work well and are more efficient to collect, administer and enforce. Just increase the fuel tax

Findings of a Humphrey School study comparing fuel taxes and distance-based fees on five transportation funding principles:

Principle	Fuel Taxes	Distance-based
Efficiency	Weak	**Strong**
Equity	Moderate	**Strong**
Revenue Adequacy & Sustainability	Moderate	**Strong**
Environmental Sustainability	Moderate	Moderate
Feasibility (including cost)	**Strong**	Weak

Comment: Cost is important, but it's not the only factor to consider

Industry Objections and Concerns

6. Distance-based charge approach would be too costly to implement, operate and enforce

Comments

- Will likely be costlier than the fuel tax, but will also correct many shortcomings of the fuel tax
- High cost estimate assumes implementation today, and the need to retrofit vehicles with new and costly technology
- In the 10- to15-year timeframe, most vehicles would be factory-equipped with needed technology, and prices are likely to continue to fall
- Most trucks already equipped with the required technology

Industry Objections and Concerns

7. Privacy is a concern

Comments

- Privacy is a bigger issue for autos than for trucks. Fleet owners already use current technology to establish location of trucks
- A bigger issue may be to ensure that information is not divulged to competitors

Germany's Experience With Tolling Heavy Trucks

- Electronic and GPS–based toll system implemented in 2005 for trucks over 26,000 GVW using the Autobahn
- Applies to domestic and foreign trucks (about one-third)
- Charges based on distance traveled, weight and emission level

Outcomes

- By 2006, 20% decrease in empty truck trips
- Decrease in high-emission trucks: from 50% to 36%
- Reliability rate: 99.7%
- Evasion rate: 1.7%

Germany (cont).

- Total initial cost: 25% to 35% of revenues
- Total current cost: 10% to 15% of revenues

  Note: Costs include debt repayment, interest,depreciation, profit, enforcement, maintenance and operations
- Truckers have passed on the toll costs to customers

Study Premise

- In the U.S., it's estimated that transportation costs account for almost 40 percent of freight logistics costs
- To the extent that distance-based pricing can reduce transportation costs, the freight industry will experience measurable benefits

Industry Transportation-Related Problems and Concerns

1. **Congestion/Bottlenecks**
   - Costly in terms of delays/time lost and higher operating expenses
   - Annual congestion costs for shippers: $7 billion (Winston, 2004)
   - Annual congestion costs for trucks: 115 billion in 2009 (TTI, 2010)

Industry Transportation-Related Problems and Concerns

Comments

- Congestion pricing in London, Stockholm and Singapore have reduced congestion by 20% or more (Litman, Robinson, Oh)
- Simulations with econometric models show cost savings of 24 cents per-mile (for refrigerated dry vans) and 52 cents per mile (for less-than-full-load carriers) in urban areas (Global Insights, 2008)

Industry Transportation-Related Problems and Concerns

2. **Travel time reliability/predictability:** Can reduce costs through optimal routing and scheduling

Comments

A study of freight industry value of travel time reliability found that VOT was highest for

- delays resulting from an increased trip time with a fixed departure time. Ave. valuation: $1.57/minute
- increase in the speed or range of arrival times, with a fixed departure time. Ave. valuation: $1,34 per minute

(Fowkes et al, 2004)

Industry Transportation-Related Problems and Concerns

3. **Better roads:** Lead to lower vehicle maintenance costs and less damage to cargo . **Question:** Are the right roads being improved?

   Comments

   - Perception of roads as “free” results in overuse and congestion—which can lead to inefficient investment to correct overuse (expansion)
   - Priced roads that are still congested reflect true demand: A signal of where to invest
   - Result: Better system improvement prioritization

Industry Transportation-Related Problems and Concerns

4. **Benefits of better data**

- Distance-based charges are a means to accurately collect truck travel data needed to satisfy requirements of the International Fuel Tax Agreement (IFTA)
- Additional benefits: Fleet owners are better able to manage their fleet using the distance-based technology infrastructure

Industry Transportation-Related Problems and Concerns

5. **Secondary, but important benefits of reduced travel time and improved travel time reliability**
   - Reduced hourly wages paid to drivers and lower truck operating expenditures (fuel, tires, maintenance)
   - Congestion reduction can reduce crash exposure
   - Reduced cost through optimal routing and fleet configuration
   - Reduced shipper in-transit costs (spoilage)
   - Reduced scheduling costs from reduction in intermodal transfer delays & port clearance

Study Status and Next Steps

The study is in its initial stages:

- Literature search has been completed
- Analysis of issues and benefits is underway
- Interviews and discussion sessions are planned with shippers, carriers and receivers (middle July)
- Study will be completed this Fall

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