

Vehicle Miles Traveled (VMT) Tax

The influence of transportation on land use was apparent during the four eras of transportation when new innovations such as the electric street car played a major role in dictating urban form, providing evidence that transportation improvements and road maintenance can have significant impact on land use patterns. Automobile travel has become the predominant mode of transportation over the past several decades, resulting in an ongoing increase of Vehicle Miles Travelled (VMT). Between 1983 and 2003, VMT in Minnesota increased more than 80 percent or approximately three percent per year. Nationwide, VMT increased annually for more than two decades until approximately 2004 when it began to level off. As fuel efficient vehicles become an increasing percentage of vehicle fleet, revenue from the gas tax has slowly declined. Despite this recent fall in VMT due to gas prices, it is still expected to increase steadily until 2030¹. The importance of these changing patterns relates to current reliance on fuel tax as the primary funding source for road construction and existing concerns about its efficiency to fund transportation investments. Reasons for these concerns include growing fuel efficiency and the inability to increase the fuel tax rate sufficiently to accommodate growing needs.

Recent estimates by both the Congressional Budget Office and the treasury indicate that the Highway Trust Fund (HTF) expenditures of federal funds authorized by SAFTEA-LU are significantly exceeding tax receipts coming into the HTF. At the current rate of spending, the highway account of the HTF may be fully drawn down by fiscal year 2009 and the transit account by 2012¹. This combination of increasing VMT and decreasing gas tax revenues creates a discrepancy between revenues generated to fund road improvements and the actual cost of road improvements. In light of this growing pressure, it will be imperative to modify the existing funding structure or introduce new methods to fund the transportation system. Implementation of a vehicle miles travelled tax is a potential solution to this impending challenge.

A VMT tax would charge owners a fee [or tax] based on the number of miles driven rather than on fuel consumption. A VMT tax requires installation of a Global Positioning System (GPS) receiver in vehicles to identify the locations where vehicles travel. The GPS receiver is connected to a GIS database that records the number of miles travelled within delineated jurisdictions. Each jurisdiction would have a fee schedule based on functional road class, vehicle type or other factors, which would be used to calculate the amount of tax the vehicle owner owes for mileage traveled. There are examples of such systems in Germany and the Netherlands. In Germany, heavy trucks on the federal highway system have GPS units that allow an automatic toll collection based on truck weight, level of emissions, and distance traveled (National Surface Transportation Policy and Revenue Study Commission 2007).

There are many advantages linked to the use of VMT tax. First, it would reduce dependence on the gas tax, which is an ever declining source of revenue as more fuel efficient vehicles are purchased. Secondly, it links the usage of roads directly to the taxes collected, which would permit more direct demand management. Thirdly, it can be readily converted to a congestion pricing charge or a weight-distance fee to better reflect the impact of individual vehicles on road wear and tear. Finally, it could lead to increased efficiency of the toll collection process on all toll operations¹. The major drawbacks of such a system are high transaction, technology and administrative costs, and most importantly, concern about privacy.

Articles from the Transportation Research Record (TRR) explore the results of a pilot test of VMT tax and congestion pricing in Oregon. The article by Rufolo and Kimpel discusses three groups, a

control group, which paid gas taxes and behaved as usual, and two experimental groups testing VMT and congestion pricing. The main goals of the pilot project included:

- To determine whether technology created any issues for drivers or service stations;
- To determine whether people changed their driving behavior in response to VMT fee approximating the revenue from the gas tax; and
- To determine whether people changed their behavior in response to differential pricing associated with congestion.

In order to collect information, the VMT group had GPS receivers installed in their vehicles to track mileage. The VMT group paid a fee based on the number of miles they travelled and received rebates from the Oregon DOT for gas tax they paid as long as they used the gas stations specified for the program to fill their tank. The VMT Congestion Pricing Group paid more for travel during rush hour times from areas outside of the Portland Urban Growth Boundary (UGB). The results of the Rufolo and Kimpel study demonstrated that the VMT group travelled less miles on average than the control group. The study showed that it is possible to implement a congestion pricing and VMT tax system using available technology; however, problems with the technology must be resolved before implementation. In addition, the results suggested that a potential implication of the VMT tax is that drivers may consciously take into account transportation costs when considering land use decisions if they are charged for each mile they drive.

As explained in the CNN article, President Obama indicated that there will not be a national VMT tax, but the U.S. Government will continue to explore possibilities. A VMT tax is very controversial because of the perception that recording travel information is a threat to privacy. Although a VMT tax is not likely to be implemented at the national level currently, there is a possibility that individual states will implement a VMT tax program. The Forkenbrock article highlighted goals that should be taken into account when developing a VMT policy:

1. Generate adequate total revenue to finance the transportation system for which a jurisdiction is responsible;
2. Pursue economic efficiency, such that the estimated full costs to society of a particular vehicle trip are reflected in the user charges paid;
3. Encourage fuel-efficient or low-polluting vehicles and discouraging those that consume relatively large amounts of fuel or create relatively more pollution; and
4. Set pricing schedule to influence motorists to travel differently, especially in larger urban areas (e.g., congestion pricing strategies).

The intended purpose of a VMT policy is to reduce vehicle miles traveled by making road users better internalize the marginal cost of driving. The pilot project in Oregon demonstrated that implementation of a VMT tax with a small test group of individuals could result in a reduction in vehicle miles traveled. The researchers mentioned that the reduction observed in the Oregon study could have been due to either participant characteristic or to a change in behavior prompted by the requirement to pay for each mile travelled.

ⁱ Fichtner, R. and N. Riggelman. *Mileage-Based User Fee Public Opinion Study*. Saint Paul, Minnesota: MNDOT, 2007, <http://www.dot.state.mn.us/funding/mileage-based-user-fee/opinionstudyreport.pdf> (accessed August 11, 2008).