Changes in Fuel Tax Policy and the Impact on State and Federal Revenue

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Summary

Problem

- Fuel taxes as an important source of funding for road infrastructure in the United States
- Non-adjustment of fuel taxes to inflation led to a widening funding gap over the years because of road maintenance cost increases

Objective

- Analyze an indexing of fuel taxes to inflation
- Project state and federal revenue over 10 years

Preliminary results

- Relatively small increase in gasoline prices from indexing fuel taxes to inflation.
- Small reduction in gasoline consumed due to inelastic gasoline demand.
Introduction

Gasoline and diesel taxes as an important stream of revenue for state and federal government to fund road infrastructure:

- Tax revenue of $30 billion annually which covers 85% of funding for road construction and maintenance

Erosion of tax revenue over time:

- Increase in fuel efficiency of motor vehicles over time in addition to stagnant vehicle miles traveled (VMT)
- Fixed per-gallon fuel tax not adjusted to inflation in most states and at the federal level
Vehicle Miles Traveled (VMT)

![Graph showing Vehicle Miles Traveled (VMT) from 1985 to 2011. The graph compares National VMT (in Billions) and VMT per licensed driver (in Thousand).]
Fuel Economy and Corporate Average Fuel Economy (CAFE)

Fuel Economy

CAFE Target

CAFE Projected

MPG


Fuel Economy

CAFE Target

CAFE Projected
Cost Evolution

- Construction Cost Index
- Consumer Price Index

Fuel Taxes at the Federal Level

Highway Trust Fund
- Fund reserved to finance the Interstate System and other highway projects
- Current level of tax for gasoline and diesel: $0.184 and $0.244, respectively
- Implementation: October 1st, 1997
- Every 1-cent increase in the gas tax generates $1.5 billion for the Highway Trust Fund

Problem
- Expected balance of zero in September 2014
Fuel Taxes at the State Level

Example: Iowa

- No adjustment of the gasoline tax between 1988 and 2001 ($0.20)
- Last adjustment of the diesel tax: 1988

States in general

- After adjusting to account for growth in construction costs, the average state’s gas tax rate has effectively fallen by 20% or 6.8 cents per gallon since the last time it was increased.
- Loss of $10 billion in revenue each year as a result of failing to plan for transportation cost growth.
Soy Transportation Coalition

Proposals

- Sales tax of 8.4% for gasoline and 10.6% for diesel (American Association of State Highway and Transportation Officials)
- Mileage-based fee
- 1 cent reduction in gasoline and diesel taxes and immediate indexing to inflation (STC)

Motivation

- Short-term concession to taxpayers in exchange for giving long-term sustainability to the transportation program
## Level of investment in local infrastructure

<table>
<thead>
<tr>
<th>Infrastructure type</th>
<th>Too much</th>
<th>Adequate</th>
<th>Not enough</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highways</td>
<td>1%</td>
<td>57%</td>
<td>41%</td>
</tr>
<tr>
<td>Local roads/streets</td>
<td>1%</td>
<td>43%</td>
<td>56%</td>
</tr>
<tr>
<td>Bridges</td>
<td>1%</td>
<td>60%</td>
<td>38%</td>
</tr>
</tbody>
</table>
2012 IACIR Survey

- Increase fuel taxes
- Mileage-based fees
- Public-private partnerships
- Tolls on public roads
- Increase vehicle excise taxes
- Earmark sales tax

Support  Neutral  Oppose
Model and Data

States covered
- Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, and Tennessee

Data about
- Gasoline and diesel consumption at the state level
- Non-taxed amount of diesel: 10%
- State revenue
- Projection about the future evaluation of the consumer price index
- Gasoline price projections
Indiana Results: Overview

Gasoline price
- Gasoline and diesel: $0.03 above the baseline level (unadjusted tax rate)

Tax rates
- Tax rates: 3.2 and 2.7 higher for gasoline and diesel, respectively

Tax revenue
- Tax revenue (2013 dollars) by 2025: 642 versus 752 million dollars
Indiana Results: Tax Rate

![Graph showing the trend of fuel tax rates in Indiana from 2006 to 2025 for baseline and scenario cases for gasoline and diesel taxes.](image-url)
Indiana Results: Tax Revenue

Baseline Fuel Tax Revenue
Scenario Fuel Tax Revenue

in Million 2013 Dollars

Observations

Small changes big results
- Gasoline and diesel demand is very inelastic
- Small changes in tax rates have large impacts
- Small adjustments in the tax rate leads to significant revenues

CPI versus construction price index
- Construction cost index might be more appropriate
- Large fluctuations and less certain revenue stream
Conclusion

Problematic financing of the infrastructure

- Decrease in real tax revenue at the federal and the state level
- Moderate adjustments in the tax rate could lead to a significant improvement of state and federal revenue
- Small changes in gasoline and diesel prices