Implications of Carbon Taxes for US Transport Policies

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The Economics of Carbon Taxes

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Outline

Other climate-related policies
--fuel taxes, CAFE, transit fare subsidies

Issues in highway finance
Other climate-related policies
Besides Carbon, Other Externalities:

- Local pollution
- Congestion
- Accidents
- Road damage (mainly for heavy trucks)
- Energy security (difficult to define) ignored here

<table>
<thead>
<tr>
<th></th>
<th>gasoline (cars)</th>
<th>diesel (trucks)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>1.23</td>
<td>1.15</td>
</tr>
<tr>
<td>Contribution of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>local pollution</td>
<td>0.12</td>
<td>0.36</td>
</tr>
<tr>
<td>carbon</td>
<td>0.19</td>
<td>0.21</td>
</tr>
<tr>
<td>congestion</td>
<td>0.52</td>
<td>0.33</td>
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<tr>
<td>accidents</td>
<td>0.41</td>
<td>0.11</td>
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<tr>
<td>noise</td>
<td>0</td>
<td>0.06</td>
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<tr>
<td>road damage</td>
<td>0</td>
<td>0.20</td>
</tr>
<tr>
<td>auto feeback effect</td>
<td>0</td>
<td>-0.10</td>
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<tr>
<td><strong>Current tax</strong></td>
<td>0.38</td>
<td>0.44</td>
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</tbody>
</table>

Ideal Policy Mix: Balance Fuel and Mileage Taxes

- Per mile tolls
  - congestion: rise and fall over rush hour (nationally or local implemented)
  - accidents: scaled by driver/vehicle risk
  - local emissions: scaled by local population exposure
  - road damage: scaled by truck’s axle weight
CAFE Standards Justified by ‘Energy Paradox’?

- Some evidence consumers discount fuel savings from better fuel economy at excessive rates

- Could be market failure (e.g., short horizons), but
  - alternatively ‘hidden costs’
  - evidence on energy paradox mixed rather than definitive

- Energy paradox justifies increasing fuel economy up to 15 percent (Parry et al. 2012)
  - other rationales (e.g., energy security) needed to justify current standards
Case for Urban Bus/Rail Fare Subsidies Still Robust (mainly state issue)

- Gains from reducing congestion (much larger than environmental gains)

- Scale economies, e.g., reduction in average costs to transit users from reduced
  - wait times
  - access costs
Issues in Highway Finance
<table>
<thead>
<tr>
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<th>$billion</th>
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<tr>
<td><strong>Spending, 2009</strong></td>
<td>54</td>
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<tr>
<td>Highways</td>
<td>43</td>
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<tr>
<td>Transit</td>
<td>11</td>
</tr>
<tr>
<td><strong>Revenues, 2009</strong></td>
<td>35</td>
</tr>
<tr>
<td>Motor vehicles</td>
<td>35</td>
</tr>
<tr>
<td>Transit</td>
<td>0</td>
</tr>
<tr>
<td><strong>Revenue gain from higher taxes</strong></td>
<td></td>
</tr>
<tr>
<td>Charge for carbon</td>
<td>33</td>
</tr>
<tr>
<td>Charge for all externalities</td>
<td>143</td>
</tr>
</tbody>
</table>

Source. BTS, author's calculations.
Fuel vs. Other Taxes in Government’s Budget

- From fiscal perspective
  - set fuel taxes at corrective levels, or even higher due to this tax being good at raising revenue with minimal distortion of labor markets
  - if VAT introduced, it should apply to consumer prices (for vehicles and fuels)—including external costs—but VAT on intermediate inputs (vehicle and fuel purchases by firms) would be rebated
Earmarking

- Generally not recommended
  - no relation between efficient levels of tax and spending (e.g., on climate adaptation)

- But has historically been more acceptable for transportation
  - people perceive closer link between need for spending and revenues raised—both depend on highway use

- Again mileage taxes better than fuel taxes
  - avoids complications posed by alternative-fuel vehicles and rising fuel economy
  - improves productivity of investments when road use optimized
Conclusion

- Opportune time for thorough re-assessment of transportation policy
  - congestion worsening (though accidents, local emissions, oil imports declining)
  - mounting pressure on highway budgets

- Both point to replacing fuel tax with mileage tax, though retaining component for carbon charge
  - to prepare transition, encourage local congestion pricing schemes, pay-as-you-drive insurance, development of metering technologies