Comments on

"Time to Raise Gasoline and Diesel Taxes?"
by Ian Parry

Roberton C. Williams III
University of Maryland, University of Texas,
Resources For the Future, and NBER

American Tax Policy Institute
Conference on U. S. Energy Taxes
10/16/2009

Key Contributions

-Parry & Small (*AER 2005)*

- -Careful & thorough synthesis of literature on vehicle-related externalities
- -Clear analytics on how these determine optimal gas tax
  (optimal tax ≠ simple sum of externalities)

-Today's paper

- -Updates analysis from Parry & Small (2005)
- -Extends analysis to diesel fuel used by large trucks

Analysis on Multiple Margins

-Three main margins for gasoline demand:

1) Vehicle miles traveled
2) Vehicle size
3) Vehicle technology

-Gas tax provides incentive on all three margins

-Other policies typically affect fewer margins

-Different externalities correspond to different margins

-Analysis is not trivial when looking at one policy, and it gets more complicated with multiple policies

Gasoline Tax as a Perfectly Targeted Policy

-For an externality directly tied to gasoline use, gas tax is the ideal instrument

-In this case, all three margins affect externality in the same way, so want to provide incentives for all three

-Other policies fail to provide incentives (or provide perverse incentives) on some margins

-Fuel economy standards

-Hybrid car subsidies

-In theory, a combination of other policies could do as well as a gas tax, but this would be difficult to accomplish in practice

Gasoline Tax as a Blunt Instrument

-For an externality tied to only one margin, gas tax works much less well

-For example, traffic congestion depends on miles driven

  -Vehicle size has little effect, and fuel-saving technology has no effect

  -Ideal instrument is a congestion tax

-Given multiple externalities on multiple margins, first-best outcome requires multiple instruments

  -Gas tax alone can only provide a crude approximation of this

Components of Optimal Gas Tax Estimate

Climate change:	$0.09	gas used
Oil dependence:	$0.10	gas used
Local pollution:	$0.12	miles driven (b/c of other regs)
Traffic congestion:	$0.52	miles driven
Accidents:	$0.41	miles driven

-Most externalities tied to miles driven

-Most current policies target vehicle technology

-Targeting miles driven would be much more efficient

-Directly targeting externalities would be even better

Optimizing a Blunt Instrument

-Contribution of a given externality to the optimal gas tax depends not only on size of the externality, but also on relative importance of each margin

-e.g., if gas tax only affects vehicle size and technology, miles-related externality contributes nothing to optimal gas tax,

-but if gas tax only affects miles driven, then the full amount of the externality enters the optimal gas tax

Optimizing a Blunt Instrument (cont.)

-Optimal gas tax depends very strongly on what other instruments are in place

-other instruments can correct some externalities (e.g., with efficient congestion tax, congestion component of gas tax disappears)

-implies a much lower optimal gas tax

-other instruments can influence effects of gas tax (e.g., with binding fuel economy standard, gas tax only affects miles driven)

-implies a much higher optimal gax tax

-fuel economy standards and gas taxes are complements, not substitutes

Oil Dependency Externality?

-Lots of talk about “oil dependency” but no single clear definition

-Most commonly used definitions aren’t externalities

  -Risk of sudden price increase should be internalized

-How could there be an “oil dependency” externality?

  -Optimal tariff argument (U.S. as oligopsonist)?

  -Suboptimal policy responses? (commitment problem?)

Accident Externality

-This paper assumes accident externality is affected only by miles traveled

-External damage in an accident depends on vehicle size

  -Damage to other vehicle is roughly proportional to **fourth** power of vehicle weight

  -Insurance doesn’t come close to fully internalizing this

Use of Gas Tax Revenue

-Paper argues that optimal gas tax is very sensitive to use of revenue

-very inefficient use of revenue --> lower optimal tax

-I'm not sure this is true, for two reasons

1) What's the counterfactual? Would we have done that spending anyway?

-This is much harder to determine than statutory use of revenue

2) Economic efficiency isn't the only consideration. We also care about distributional effects

Distributional Effects

-Common argument against higher gas tax is that it is regressive

    -Gasoline spending is larger share of budget for lower-income households (except at very bottom in urban areas)

-How does this affect optimal gas tax?

-Consider gas tax plus offsetting increase in redistribution via tax/transfer system (neutralizing distributional effects)

-That increased redistribution has an efficiency cost --> lower optimal gas tax

-But this effect is modest (estimated $0.12/gallon), not enough to justify current gas tax rates