

Understanding Proposed CAFE Reforms for Light- Duty Trucks

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October 20, 2005



- Discuss assumptions about external costs of automobiles used in the Preliminary Regulatory Impact Analysis.
- The assumptions are carefully based on available empirical evidence; so I'll mention some caveats to the existing literature.

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Energy Security

Assumed to be 10 cents/gal. based on a comprehensive study of economic costs by Leiby et al. (1997).

Two components:

- (a) Expected costs of macroeconomic disruptions due to the risks of future oil price shocks that might not be taken into account by the private sector (e.g., costs of temporarily idled labor and capital).
- (b) “Optimum tariff” to account for US market power: that is the ability of US importers as a group to influence world oil prices (and hence costs to individual US energy consumers).

Caveat

- It is difficult to gauge the risk of future price shocks (e.g., from terrorist attacks on oil supply infrastructure, policy change in Saudi Arabia). Given that these risks may have increased recently, more scenario analysis is needed to examine the reliability of the cost estimate.

Broader Costs of Oil Dependence

US military spending in the Middle East—excluded because it is more likely influenced by other factors (developments in Iraq), than a modest change in US oil imports.

Foreign policy and national security costs—from oil revenues flowing to undemocratic nations or terrorist groups. Excluded because they are hard to quantify *and* the proposed regulatory change would have minimal effect on these revenue flows through a change in the world oil price.

Greenhouse Warming Damages

- Excluded, but they would not make a lot of difference.
- Conventional economic studies put the damages from today's emissions at less than \$50 per ton of carbon (Pearce 2003, Nordhaus and Boyer 2000). \$50 per ton \equiv 12 cents per gallon of gasoline (though more than 100% of the price of coal).
- Obviously these damage estimates are speculative and contentious (e.g., the assumed risks of catastrophic climate change in the damage estimates based on the subjective views of experts).
- Nonetheless most of the low-cost options for carbon abatement are in other sectors (especially electricity generation) not passenger vehicles.

Rebound Effect

- Even though the increase in driving in response to lower fuel costs per mile is modest, the resulting increase in external costs is still significant because the magnitude of driving-related externalities (congestion, accidents) is large relative to fuel-related external costs (energy security).
- Rebound effect is assumed to be 20%.
- This is higher than in Small and Van Dender (2005), though the rebound effect may have risen since 1997, the end of their data period, because higher fuel prices have increased the importance of fuel costs in total driving costs.

Traffic Congestion

- The marginal cost of traffic congestion, averaged across peak and off-peak periods, and across urban and rural areas, is 4.3 cents per mile (80 cents per gallon), which seems reasonable. And this accounts for the weaker sensitivity of driving on congested roads (dominated by people commuting to work) than driving on rural roads and at off-peak hours.

Traffic Accidents

- The marginal external cost of accidents for light trucks is difficult to measure:
 - (a) It requires assumptions about to what extent drivers take account of injury risks to all occupants of their vehicle, property damage, etc. from extra mileage
 - (b) Not clear to what extent extra driving raises accident risks for other drivers.
 - (c) Recent econometric evidence (White 2004) suggests that light trucks affect fatality rates for other drivers more than cars (for given driver characteristics). This is not incorporated in external cost estimates for light trucks.
- The report assumes external costs per mile are 2.3 cents for light trucks; more empirical work is needed on this.

Noise and Local Pollution Emissions

- These external costs are relatively minor; local emissions because of stringent emissions per mile standards on new vehicles and improved durability of abatement equipment over the vehicle life.

Conclusion

- External cost assumptions seem reasonable though more research needs to be done.