Examining Fuel Economy and Carbon Standards for Light Vehicles

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What are the key decisions?

- Are carbon emission or fuel economy standards the right approach?
- Stringency of the emissions or fuel economy target?
- Timing – how soon?
- Structure of the regulations
- Complementary policies?
Are carbon emission or fuel economy standards the right approach?

- Already decided that EU will regulate carbon emissions, but issue is still worth examining

- Key factors:
  - How critical is the problem? SEVERE
  - Are potential damages incorporated in the current decision system? GENERALLY NOT, BUT THEY COULD BE
  - Are key decisions sensitive to costs? APPARENTLY ONLY MODERATELY SO
Stringency of the target emissions/fuel economy?

Alternative approaches
- Market basket of “Cost effective” technologies
- “Top runner” approach
- Projected top runners (for future fleet)
- Comparable rate of improvement – based on historical rates or standards elsewhere

Key issues
- Whose definition of cost effective? If not vehicle purchasers’ definition, will they buy?
- Whither performance, luxury, size?
Timing – how soon?

- What does the emissions target demand?
  - % of fleet requiring redesign
  - How extensive is the redesign?
  - Only technologies in current mass production, or requiring extensive product development?
  - Risk of consumer rejection?

- Some key timelines:
  - Time from lab success to first job – 2 to 3 years
  - Introduction to proliferation decision – 2 to 3 years
  - Integration into company fleet – 5 years +

- Must the future resemble the past? (new simulation capability, changed role of suppliers, etc.)
Structure of the regulations

Define Goals:
- Economic efficiency
- Focus primarily on technology or try to encourage mix shift?
- “Fairness” to competing manufacturers
- Avoid damage to individual manufacturers
- Miscellaneous: encourage safety; avoid discouraging key technologies
Uniform targets or attribute-based standards?

- Uniform targets push mix shifts, but place different technical burdens on automakers
- Attribute-based standards tend to even out burdens, are more economically efficient…but offer no incentive for mix shifts
- Weight-based standards offer most even burden…..but no incentive for weight reduction
- Size-based standards incorporate incentive for weight reduction, but burden is less equal across different automakers
What about potential fuel savings that are “outside” of the regulations?

- Technologies that aren’t accounted for in vehicle testing
  - Driver behavior
  - Accessories, and reduced accessory loads
  - Tire pressure
- Replacement tires

Measures can be taken to move “outside” factors to the inside.....or deal with them in other ways.
Complementary policies?

- Are these necessary?
  - Degree of societal buy-in
  - Stringency effects: first costs, loss of amenities (performance, etc.) vs. fuel savings
  - Do goals include protecting all manufacturers?

- For the European market:
  - Fuel costs are not the issue – they’re already high, and raising them may have small effect
  - Sales and registration taxes, circulation taxes – more direct in combating consumer reluctance to pay for more efficiency
One last point:

The costs of new regulations will be many billions of euros.....so getting the fine details right can have huge consequences....

A simple thought experiment: 15.5 million cars/yr (2006) @ 1000+ euros/car....do the math!