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# Reducing Transportation CO<sub>2</sub> Emissions in Europe – Some Reflections

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Theodoros I. Zachariadis *Editor*

## Cars and Carbon

Automobiles and European Climate  
Policy in a Global Context

 Springer



# Fuel Economy / CO<sub>2</sub> Emission Standards

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- CO<sub>2</sub> standard (g/km) appropriate for Europe due to two fuel types (gasoline & diesel)
  - But has to be revised as hybrid & electric vehicles enter the market
- Standards probably inferior to fuel/carbon taxes from an economic perspective
  - But are a realistic solution, “a trade-off between lower political costs and higher economic costs”  
[JTRC (2008) The Cost and Effectiveness of Policies to Reduce Vehicle Emissions. Discussion Paper No. 2008-9, OECD/ITF, Paris]
- EU legislation is full of derogations and loopholes that may cancel out some environmental benefits

# Fuel Taxes

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- The most effective environmental measure in EU
- Affect both the choice of car and the use of the vehicle (help avoid rebound effect even if small)
  - But are higher than the climate & energy security externalities they are supposed to tackle
- Economically optimal solution would be a uniform carbon tax on all economic sectors, combined with distance-based vehicle taxation (for internalizing other externalities e.g. congestion & accidents)
- Same fuel tax treatment of both gasoline and diesel fuel is necessary – currently not the case in Europe, may change with new EU Energy Tax Directive

# Vehicle Taxes

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- Very different across European countries; taxation is considered a matter of national sovereignty; in most countries vehicle taxes are not fuel-neutral
- But currently most countries base vehicle taxes – at least partly – on CO<sub>2</sub> emissions
- Current taxation schemes in many European countries imply very high costs per ton of carbon
- Company car taxation is different; may compromise the effectiveness of such policy instruments

# Feebates – A promising type of vehicle tax?

- Cars emitting CO<sub>2</sub> above a threshold (e.g. 130 g/km) pay a fee; those emitting less than the threshold receive a rebate
- If tax rate is constant (for each g/km) then marginal compliance costs are equalized across all car models; probably the economically efficient outcome
  - But most current systems do not apply constant tax rates
- If threshold decreases over the years, feebates provide a credible long-term price signal that can stimulate innovation – technology-neutrally
  - Can convince economists because the cost of carbon emissions increases over the years

# Features of Feebates

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- Market-based instrument
- Equivalent to a flexible fuel economy / CO<sub>2</sub> standard
- Oriented to consumers because they directly affect car prices, in contrast to standards that impose an obligation on the supply side
- Can be designed to be revenue-neutral
  - But current real-world applications (e.g. Netherlands, France, Ireland) turned out to be costly for governments
- Not detrimental to consumer 'welfare': consumers can shift to low-carbon cars in the same segment
- Impressive results from implementation in France & Norway: significant drop in new-car CO<sub>2</sub> emissions

# Conclusions for real-life policy choices

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- Apply combinations of policy tools – sometimes
- Regulate energy use in the future, rather than CO<sub>2</sub>
- Harmonize taxes across countries as much as possible
- Offer technologically neutral incentives, maybe with cautious short-term support to some promising technologies
- Apply continuous functions of incentives (e.g. constant tax rates); avoid thresholds and notches
- Treat private and company cars in the same way
- If necessary, allow for different treatment according to vehicle size (footprint), not vehicle weight
- Costs should be close to the social cost of carbon

# Thank you, Lee Schipper

