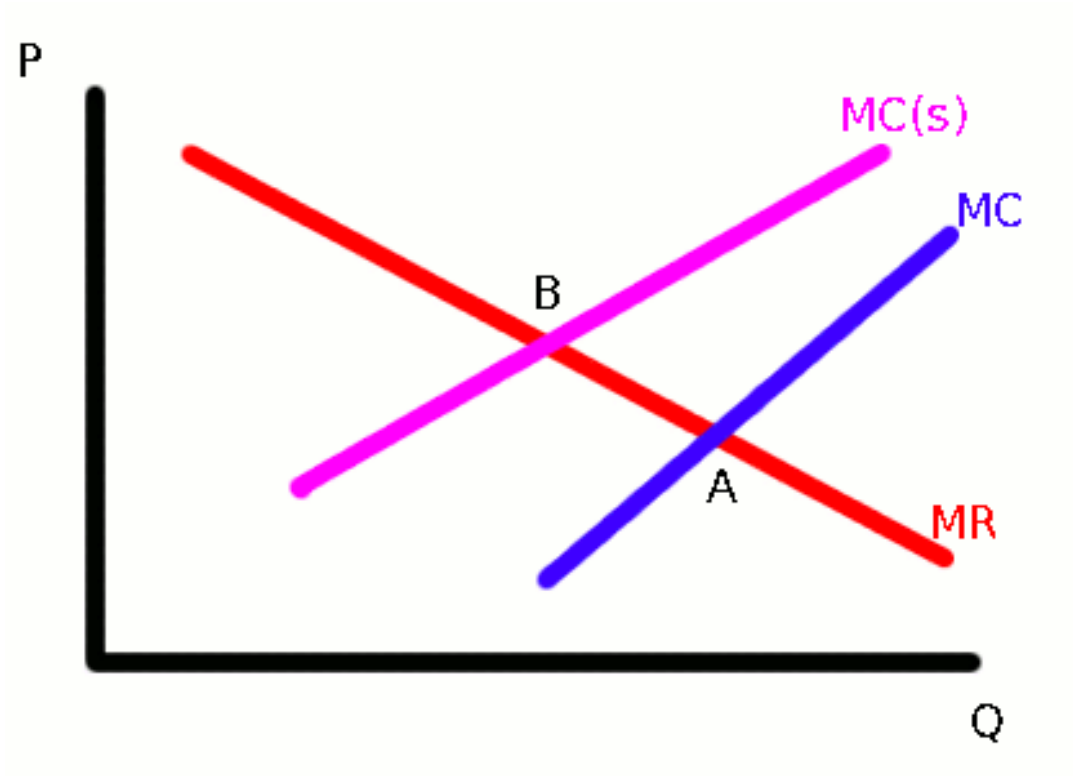




Carbon tax: an assessment

Ruud A. de Mooij

*Brussels Tax Forum
March 2, 2010*



Theory

Pigouvian principle & carbon tax

- Social cost of carbon
 - ▶ Stern Review 2007: \$85/tC
 - ▶ IPPC 2007: mean \$43/tC
 - ▶ Meta analysis Tol(2007): mean \$23/tC

- Tax: right price, uncertain CO₂
- Alternative: right CO₂, uncertain price



Arthur Pigou



Tax vs cap (and trade)

■ International agreements in terms of quantities

- ▶ Kyoto goal EU: 20% reduction in 2020
- ▶ Lisbon goal EU: 60 – 80% reduction in 2050
- ▶ EU ETS → Cap and trade

■ What's best?

- ▶ Equivalence result under certainty & auctioning
- ▶ Carbon tax better under uncertainty
 - Smaller welfare loss in case of mistakes
 - Better technology adoption
- ▶ Efficient to raise revenue (from scarcity rents)



European Policy: EU ETS

- Carbon tax & competitiveness
 - ▶ Border-tax adjustments, exemptions or rebates
 - ▶ Nordics '90s

- EU ETS with grandfathering
 - ▶ Covers 45% of emissions (12 000 large emitters)
 - ▶ Good start, room for improvement
 - Scope (aircraft, non-CO₂)
 - Price stability
 - Auctioning
 - Non-ETS emissions



Prospects European carbon tax

- Carbon tax feasible for non-EU ETS emissions
 - ▶ Households, transport, small firms
 - ▶ Renewed debate in FRA & EU

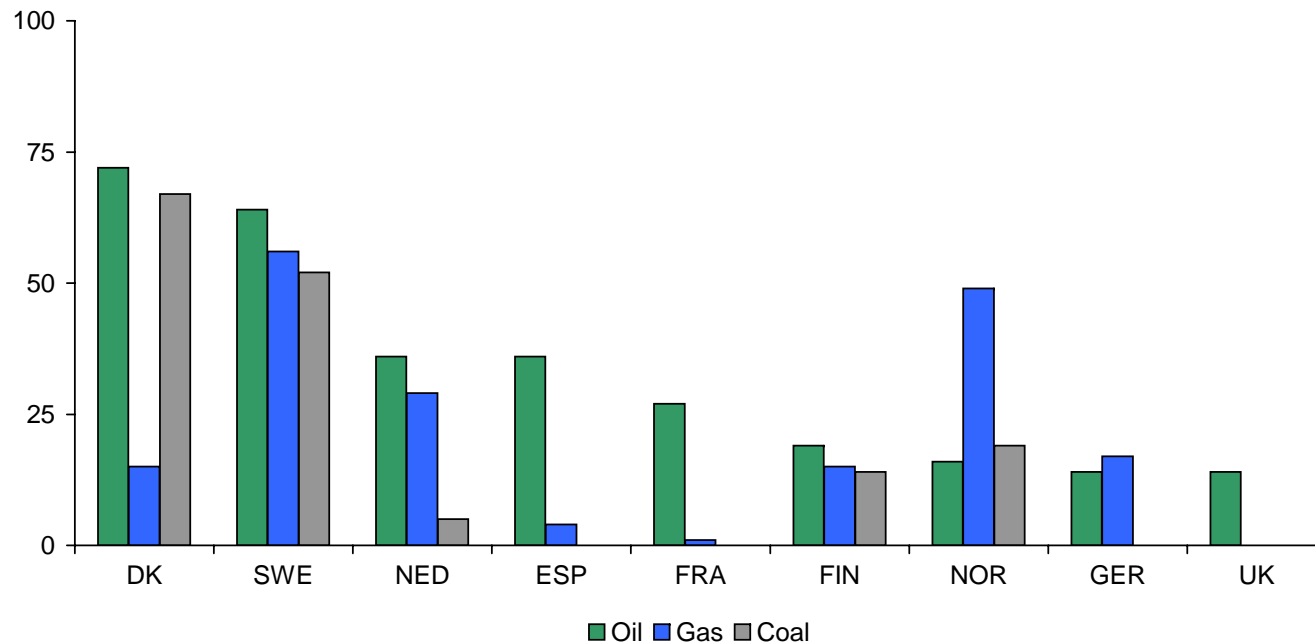
- How should carbon tax be designed?
 - ▶ Base
 - ▶ EU coordination
 - ▶ Second-best
 - ▶ Revenue



Base: tax on CO₂ content

- Influence all relevant decision margins
 - ▶ Abatement technologies, CO₂ capture & storage
 - ▶ Fuel substitution & renewable energy, energy saving
- Practice: green taxes not on CO₂

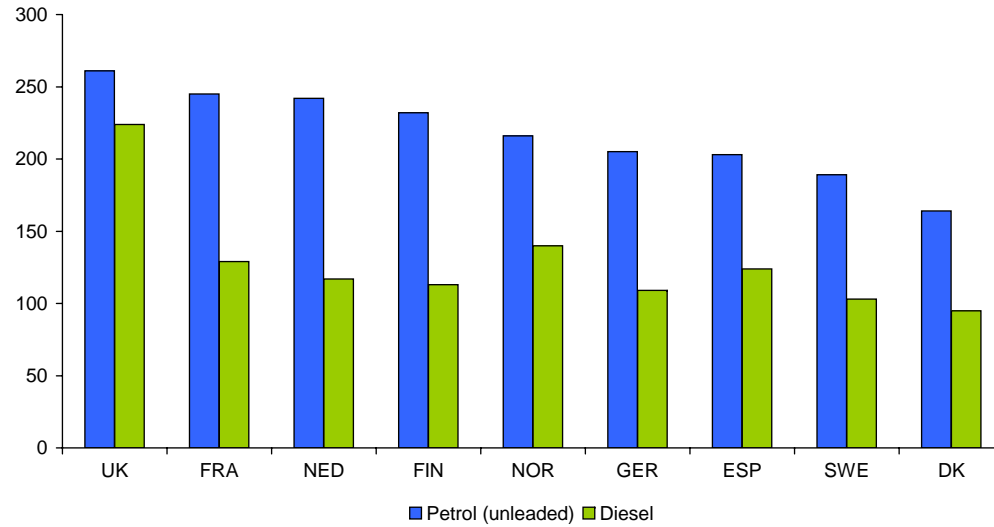
Implicit tax on carbon industrial energy use
(\$PPP per ton CO₂)



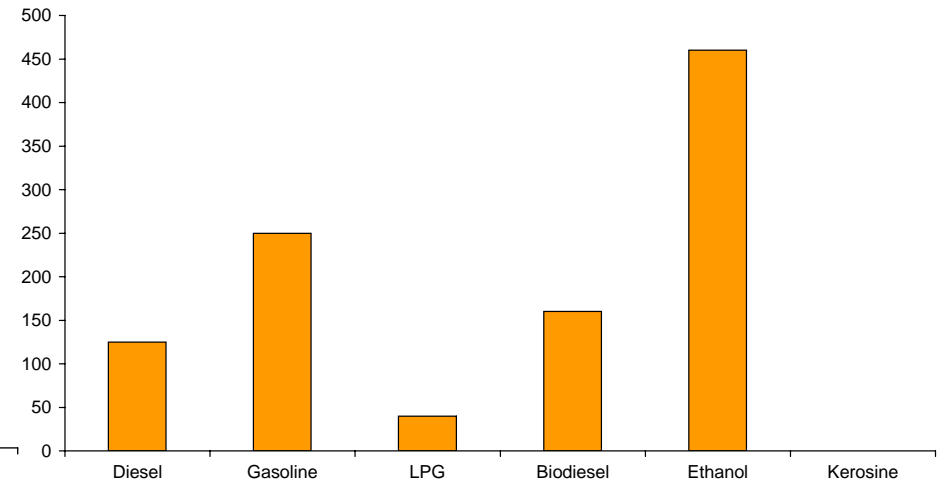


Transport taxes & CO₂

Implicit tax on carbon, transport use (\$PPP per ton CO₂)



Implicit tax on carbon in /tC in Netherlands





Coordination & Second-best

- Coordination is efficient
 - ▶ Avoids relocation, carbon leakage & cross-border shopping
 - ▶ Equalizes marginal abatement costs
 - ▶ Trade-off with sovereignty
 - Minimum rates
 - Enhanced cooperation

- Second best
 - ▶ In principle: approximate first-best Pigouvian rate
 - ▶ Additional e.g. to VAT or road-user charges

Revenue: downplay importance

■ Revenue use

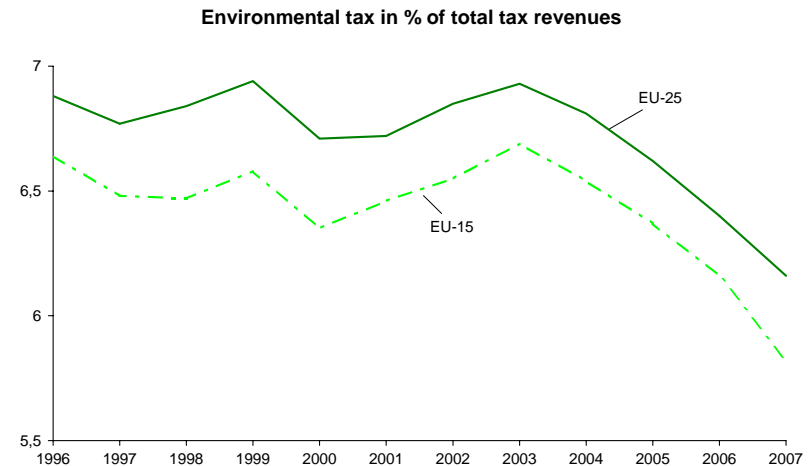
- ▶ Unstable revenue source
- ▶ Earmarking unwise
- ▶ Best to reduce other taxes

■ Distribution

- ▶ Carbon tax is regressive
- ▶ Recycle to compensate

■ Revenue-neutral & distribution-neutral reform

- ▶ No employment or efficiency gain
- ▶ Advice: do not burden carbon tax with other goals



- Carbon tax is good climate policy
 - ▶ In theory preferred to ETS
 - ▶ In practice: complement to ETS
 - Improving ETS is priority no. 1

- Design of carbon tax in Europe
 - ▶ Align to carbon content
 - ▶ Coordination desirable
 - ▶ Not burden with non-CO₂ goals