Harmonizing Energy Taxes in the EU

David Newbery, DAE Cambridge

Tax policy in the European Union
The Hague, 17-19 Oct, 2001

www.econ.cam.ac.uk/dae/people/newbery/index.htm
Energy taxes are very variable

- by fuel *within* each country
- for each fuel *across* countries
- Why is energy taxed at all?
- Why should rates vary so much?
- Are the rates efficiently set?
- Should they be the same across the EU?
Average mineral oil excise 1997

EC Excise Tax Duty Tables, July 2001
ranked by tax rate
Tax rates on industrial fuels
EU 1997, excluding VAT

Netherlands
Luxemburg
Belgium
Denmark
Austria
Germany
UK
Ireland
Sweden
Finland
Spain
France
Portugal
Greece
Italy
average

IEA Energy Prices and Taxes
ranked by tax on LFO
Effective tax rates on domestic fuel
EU 1997, net of standard VAT

- Luxemburg
- Belgium
- UK
- Ireland
- Germany
- Finland
- Austria
- France
- Netherlands
- Spain
- Denmark
- Portugal
- Sweden
- Greece
- Italy
- Average

Percentages
Unleaded Petrol

Minimum excise duty: 287 euro per 1000 litres
Diesel
(Gas Oil "Propellant")

Minimum excise duty: 245 euro per 1000 litres
Effective road fuel tax rates
EU 1997, net of standard VAT

% Diesel
% Gasoline (unleaded)
Minimum excise duty: 13 euro per 1000 kg
Why tax energy?

• No input taxes (Diamond-Mirrlees)
  – unless there are market failures:
    – Environmental damage
    – Global warming
    – Second-best arguments
    – Tax evasion reasons
    – Optimal import taxes?
    – Security of supply?
Road taxes as road user charges

- fuel taxes poor at efficient pricing
  - congestion costs vary by factor of 100:1
  - fuel consumption varies by 3.5:1
- set at right level and rebalance when road pricing feasible
- charges for roads analogous to charges for other infrastructure: pipelines and grids
Setting the road fuel tax level

• cover Opex, interest and dep of capital
• in GB, perhaps 4 eurocents/km
• depressed by road under-supply
\[\Rightarrow\text{Eur 400}/’000 \text{ litres gasoline}\]
• EU avg ex-UK (2001) = Eur 531; UK 815
\[\Rightarrow\text{Eur 500+}/’000 \text{ litres diesel}\]
• EU avg ex-UK Eur 363; UK 865
Environmental externalities

• carbon taxes perfect instrument
• other emissions depend on fuel, place, time
• input taxes if outputs not observable
  – but for large plant $\text{SO}_2$ and $\text{NO}_x$ are tradable
  – impractical for vehicles, small plant
  – set standards, tax inputs
Green taxes for road fuels?

- Invoked to justify high taxes
- to be credible need to be:
  - **Distinct**: from other components of tax
  - **Non-discriminatory**: apply to all uses
  - **Quantified**: defensibly measured

*But road pollution small part of whole*
Sources of Air Pollution
UK 1991

Digest of Environmental Protection and...
Green taxes for road fuels - 2?

**Distinct:** from road charges to allow rebalancing

**Quantified:** defensibly measured
- measured by QALYs: ~ 4-6 months
- QALY ~ Eur 50-80K
- suggests very low costs per km:
  - < 0.1 cents/km, c.f. earlier estimates 6 c/km!
Carbon taxes

• part of collective plan or individually rational - high or low?
• Tax for global optimum ~ Eur 10-220/tC
• Marginal cost now ~ Eur 110/tC (+/- 50%)
• Old EU carbon tax = $10/bbl =Eur 100/tC
  ⇒ Eur 49/’000 l gasoline; 53 diesel; 57 LFO
  ⇒17%; 22% and 315% of EC minimum taxes
The special case of coal

- nominally untaxed except in DK, FI
- in past coal mining heavily subsidised
- 1991 producer subsidy equivalent:
  - 50% UK, 250% Germany, 450% Spain
- supported by high final prices
- now largely ended
  - but UK gas moritorium, Climate Change Levy
- proposed carbon tax = Eur 67/ tonne
Energy security

• optimal import tax for oil?
• Highest HC taxes in oil exporters!
• Tricky issues of credibility, commitment
• tax to reduce import dependence?
• But gas largely untaxed
Sumptuary, redistributive taxes

- tax use of large envy-making cars
- easier to tax energy than final goods
  - esp in Mediterranean countries
- domestic energy use income inelastic
- fuel poverty (>10% income) = 20% UK
- LFO heavily taxed in IT, Greece, SE, DK
The case for harmonization

• reduce trade distortions and tax arbitrage
  ⇒ concentrate on production

• *Energy Security*: do taxes distort choices?
  – Generation: coal favoured in DK, IT, (DE)
  – industrial steam raising: same
  – domestic space heating: gas over LFO in IE, ES
  – car: diesel over gasoline in BE, FR, DE, SE
Generation in England and Wales by fuel type

- Nuclear
- Coal
- other steam
- hydro+other
- CCGT
- imports
Other distortions

- merit order of existing power stations
- might be more serious if gas prices rise
- “dash for gas” - 25% of GB now CCGT
- road haulage distorted - use vignettes?
- but overall not very significant?
Conclusions

• opportunity to rationalise energy taxes
  ⇒ carbon tax as base, not HC taxes
• result likely to be more uniform
• 2001: EC adopts Transport White Paper
  – argues strongly for harmonizing haulage fuel
  – for better infrastructure and emissions charges
  – for raising diesel prices, lower UK gasoline
• likely to be political dynamite
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Minimum excise duty: 337 euro per 1000 litres
Figure 13: **Automotive Diesel Prices and Taxes 2Q2001***
(US Dollars/litre)

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<th>Country</th>
<th>Tax</th>
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<td>New Zealand</td>
<td>0.034</td>
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