

# Harmonizing Energy Taxes in the EU

David Newbery, DAE Cambridge

*Tax policy in the European Union*

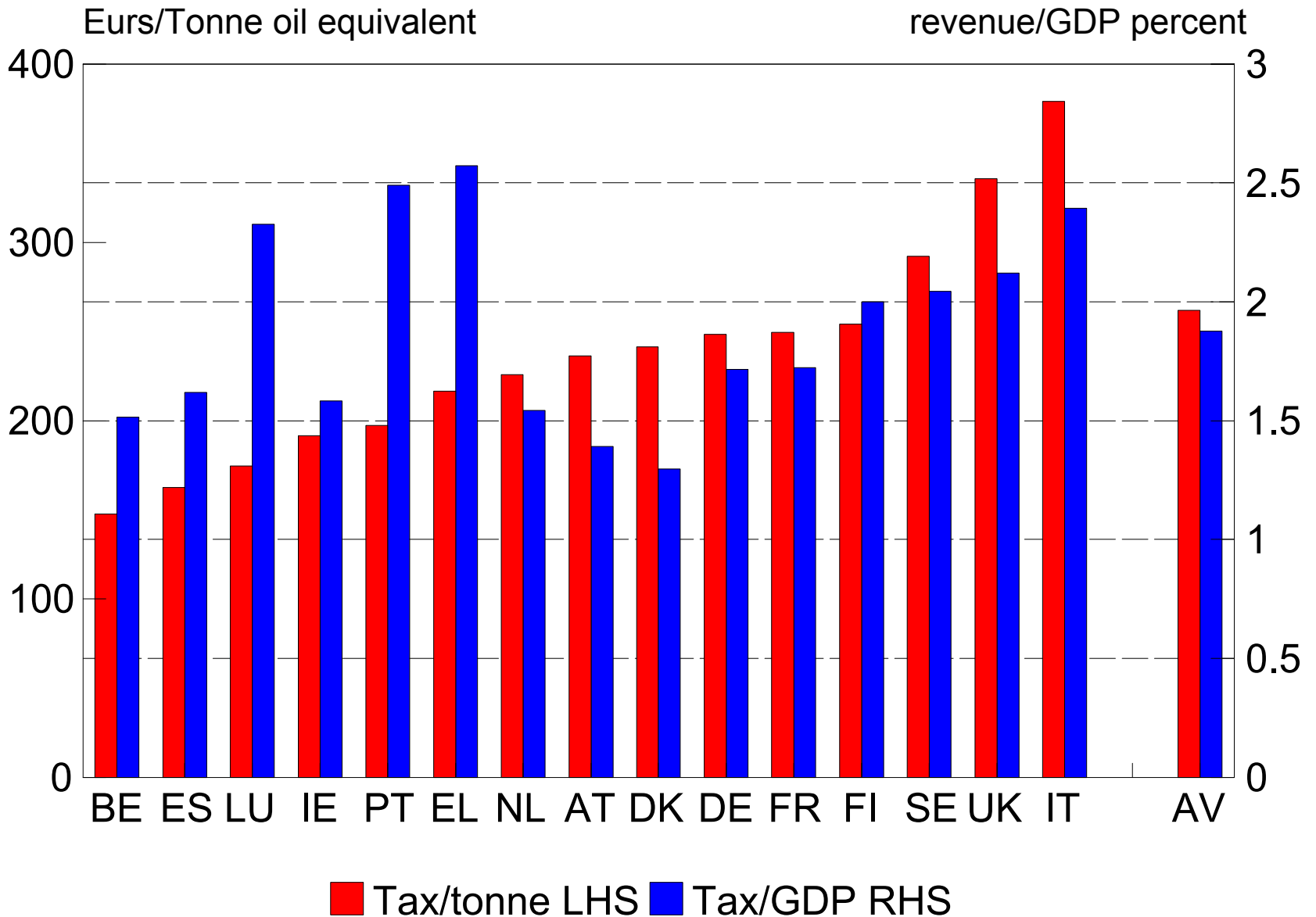
*The Hague, 17-19 Oct, 2001*

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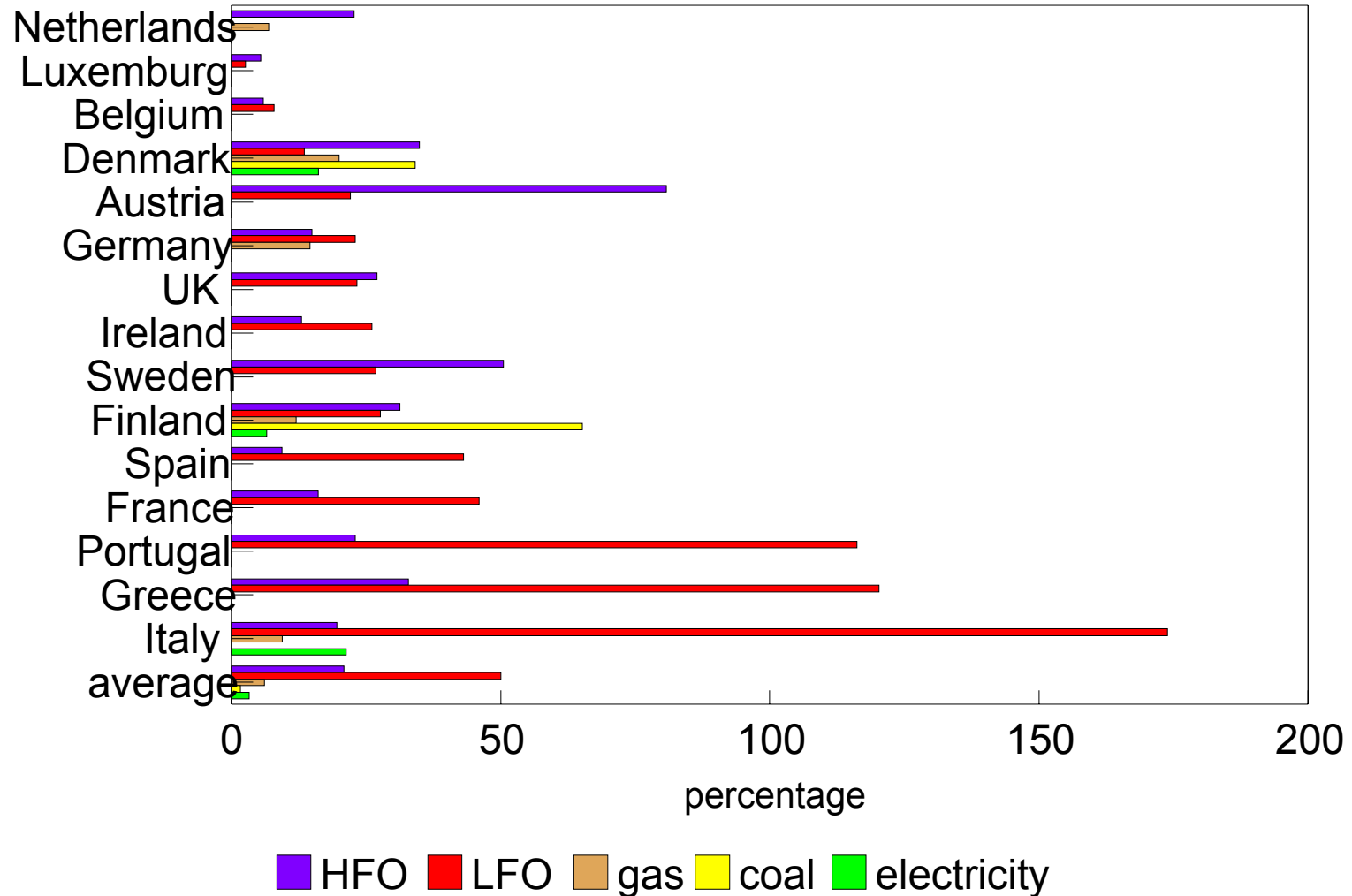
# Energy taxes are very variable

- 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?

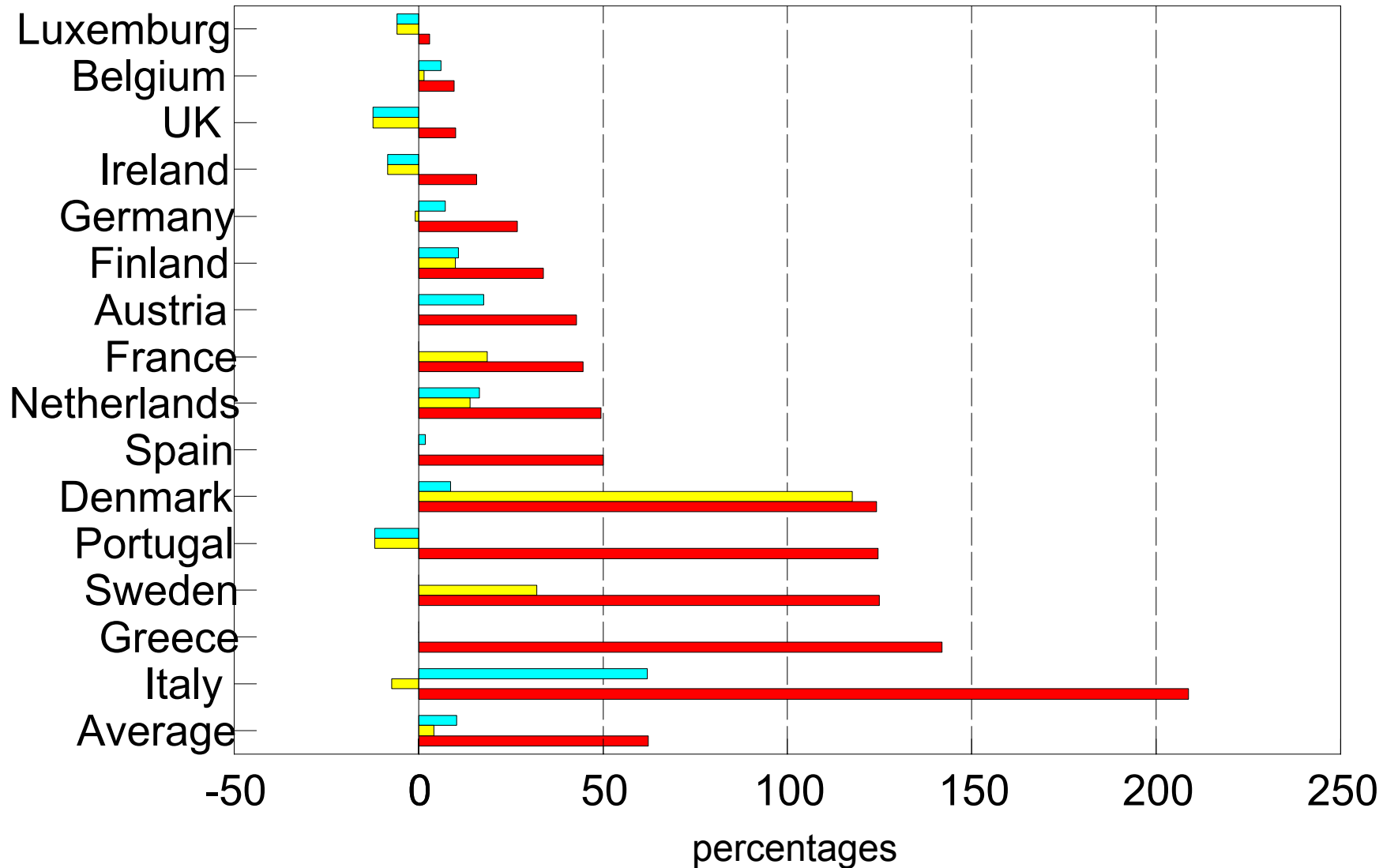
# Average mineral oil excise 1997



# Tax rates on industrial fuels EU 1997, excluding VAT

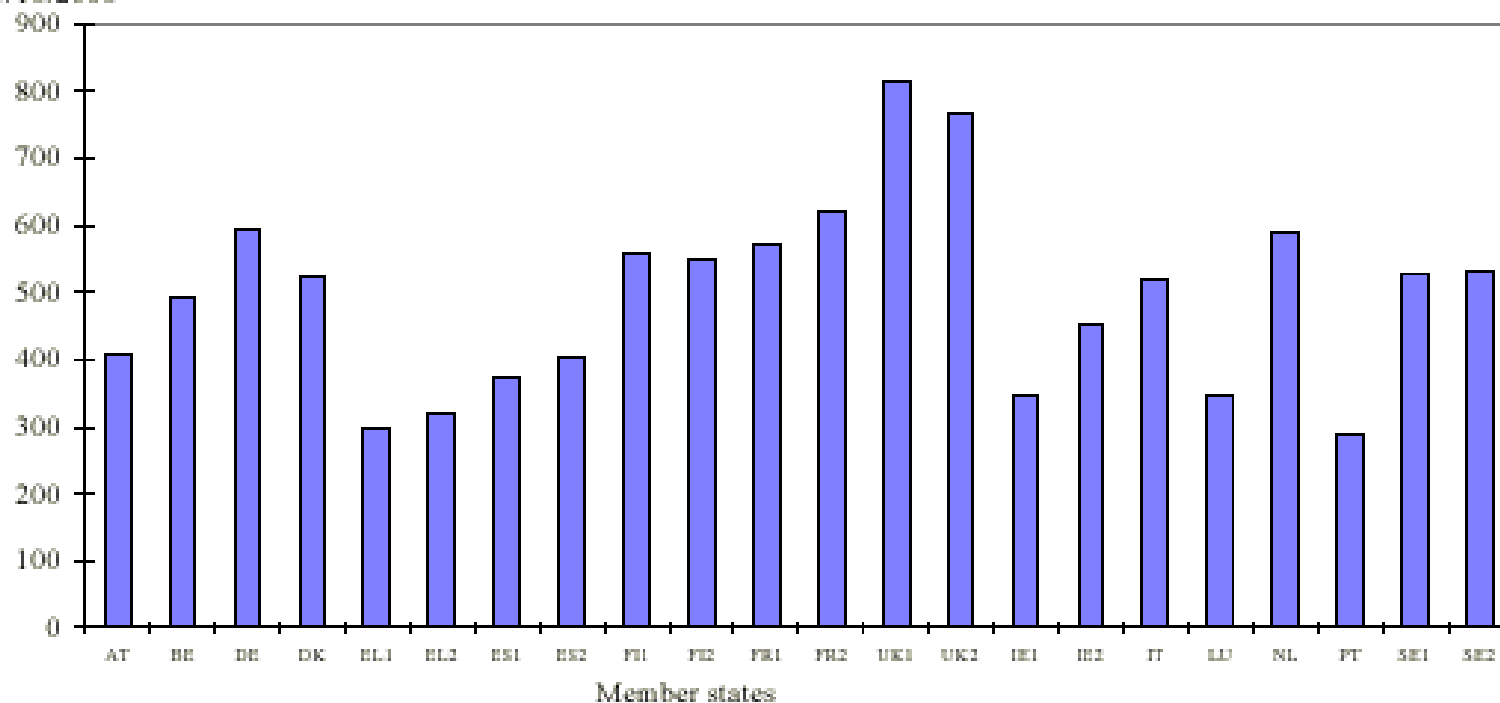


# Effective tax rates on domestic fuel EU 1997, net of standard VAT



## Unleaded Petrol

values in euro at  
1/10/2000



Member states

Excise Duty Rate

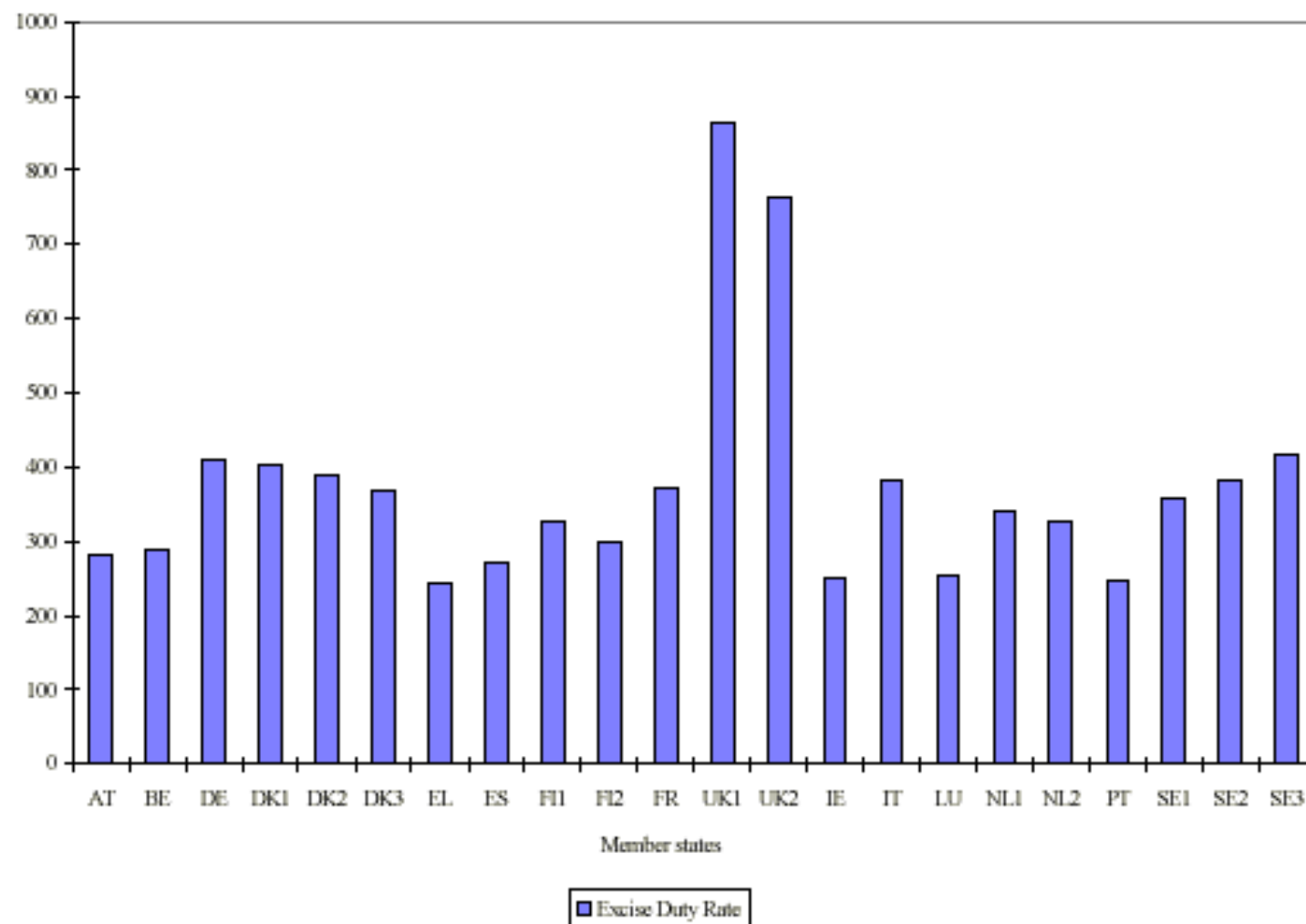
Minimum excise duty: 287 euro per 1000 litres

# Diesel

(Gas Oil "Propellant")

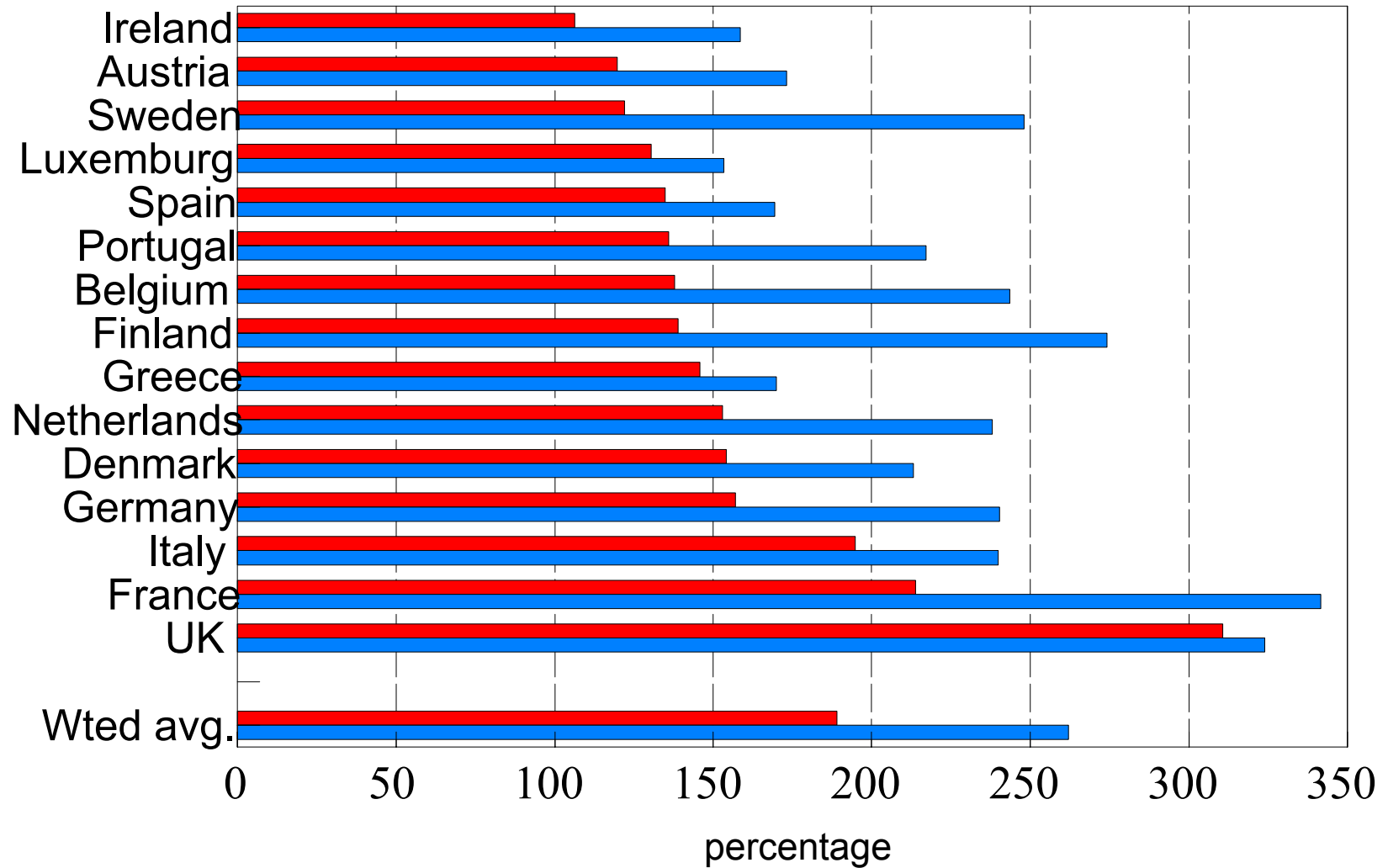
values in euro at 1/10/2000

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Minimum excise duty: 245 euro per 1000 litres

# Effective road fuel tax rates EU 1997, net of standard VAT



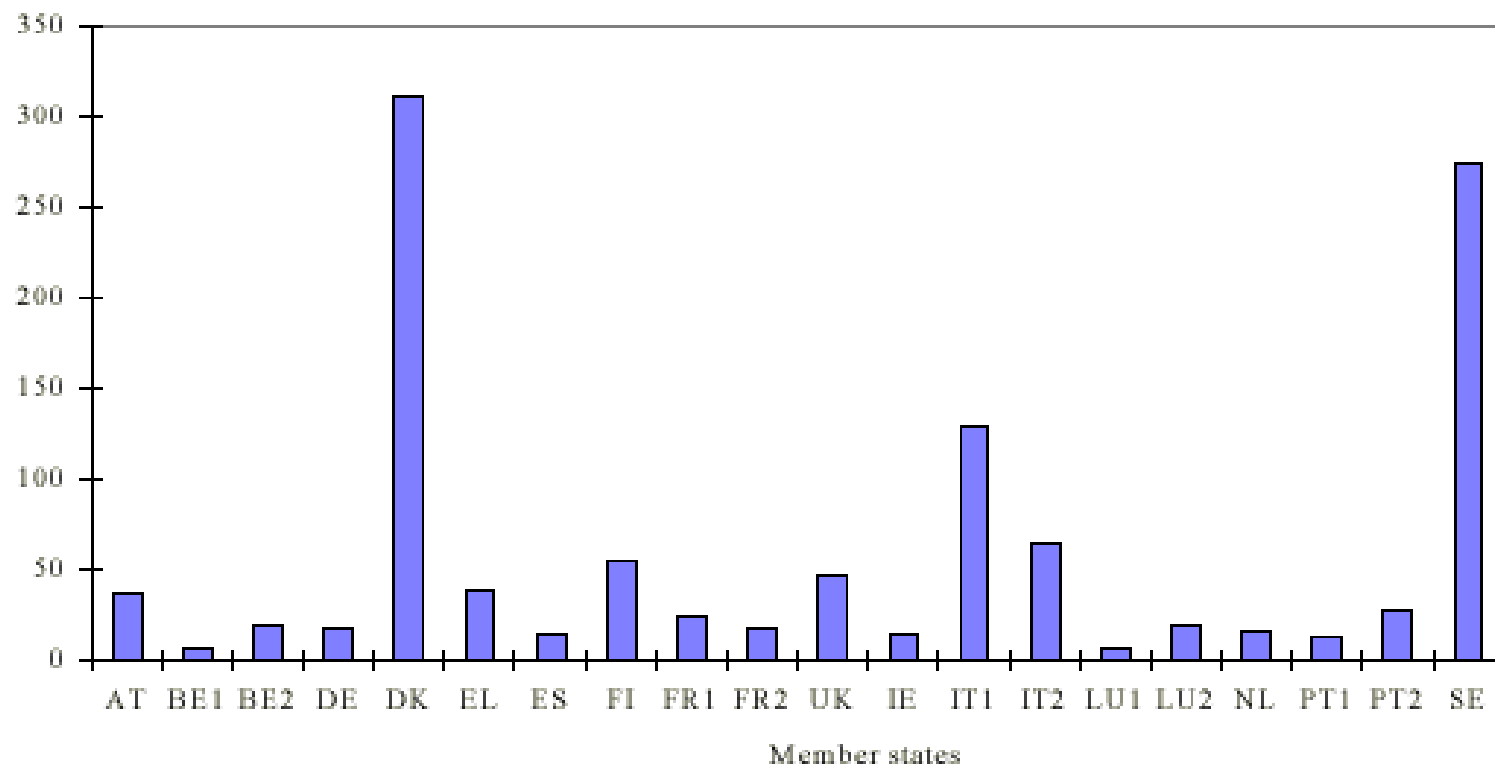
■ Diesel ■ Gasoline (unleaded)



values in euro at  
1/10/2000

## Heavy fuel oil

Page printed 12/6/2001



Minimum excise duty: 13 euro per 1000 kg

Excise Duty Rate

# 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
- ⇒ Eur 400/'000 litres gasoline
- EU avg ex-UK (2001) = Eur 531; UK 815
- ⇒ Eur 500+/'000 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:

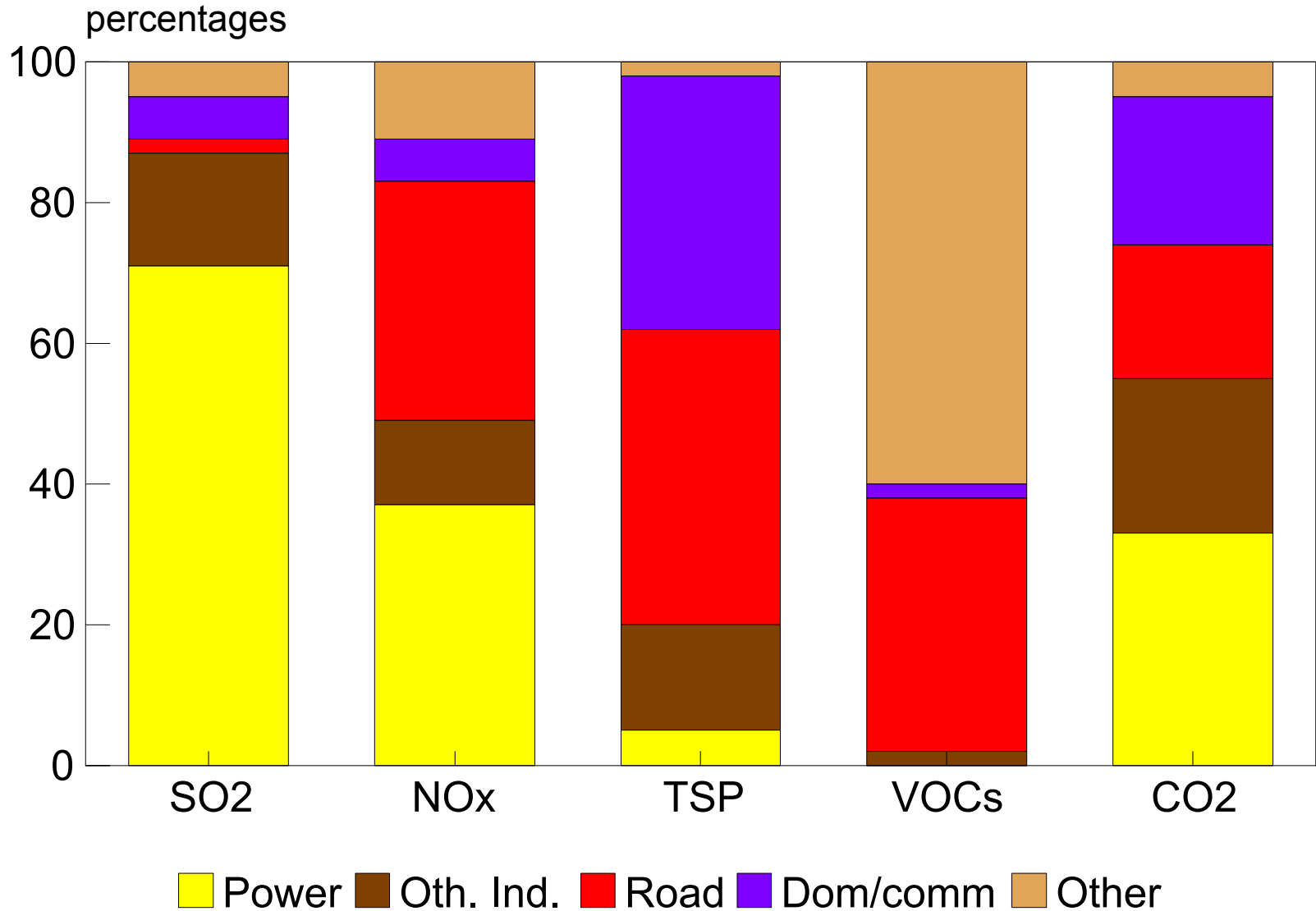
*Distinct:* from other components of tax

*Non-discriminatory:* apply to all uses

*Quantified:* defensibly measured

*But road pollution small part of whole*

# Sources of Air Pollution UK 1991



# 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 1 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 moratorium, 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

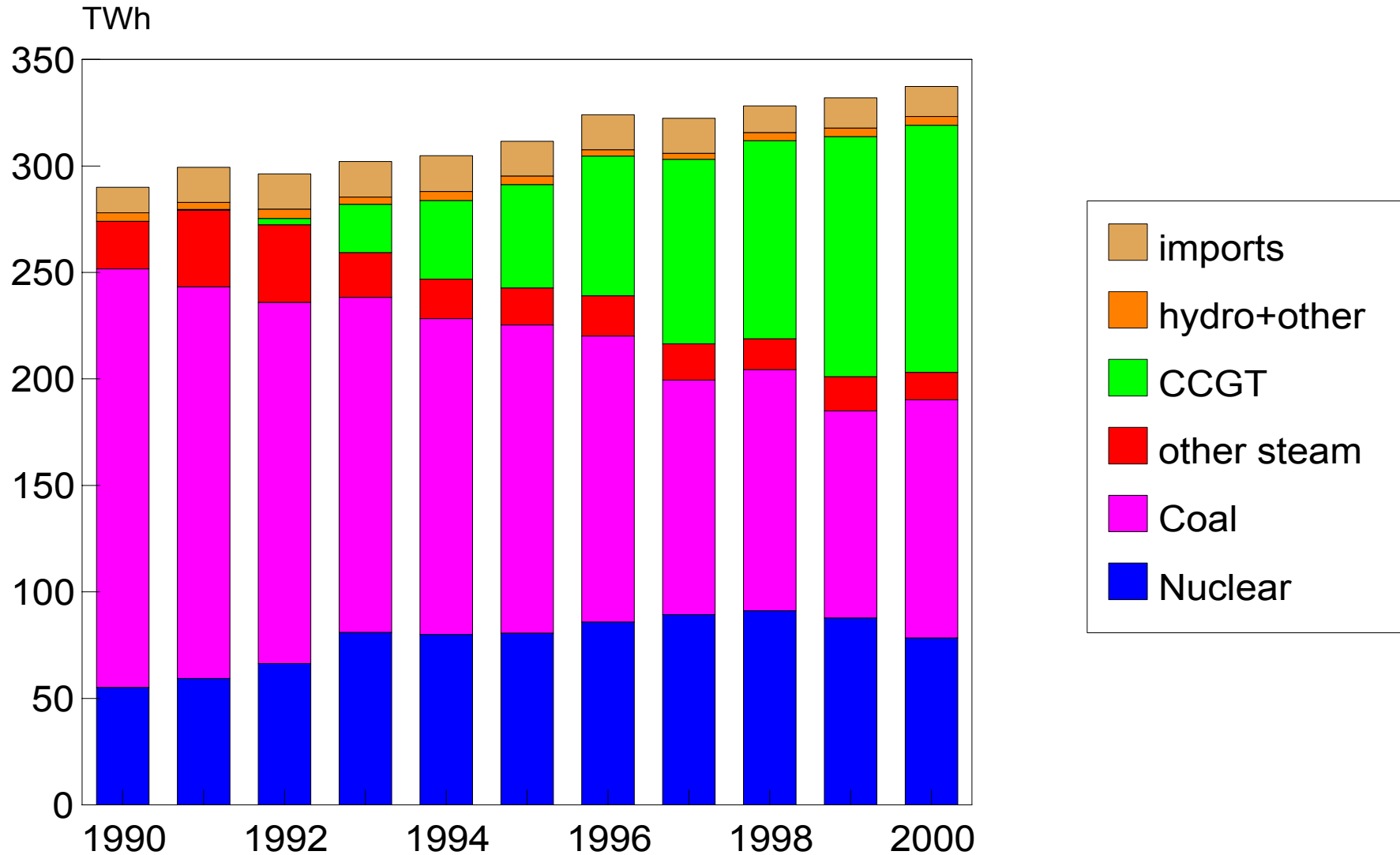
# Sumptuary, redistributive taxes

- 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



# 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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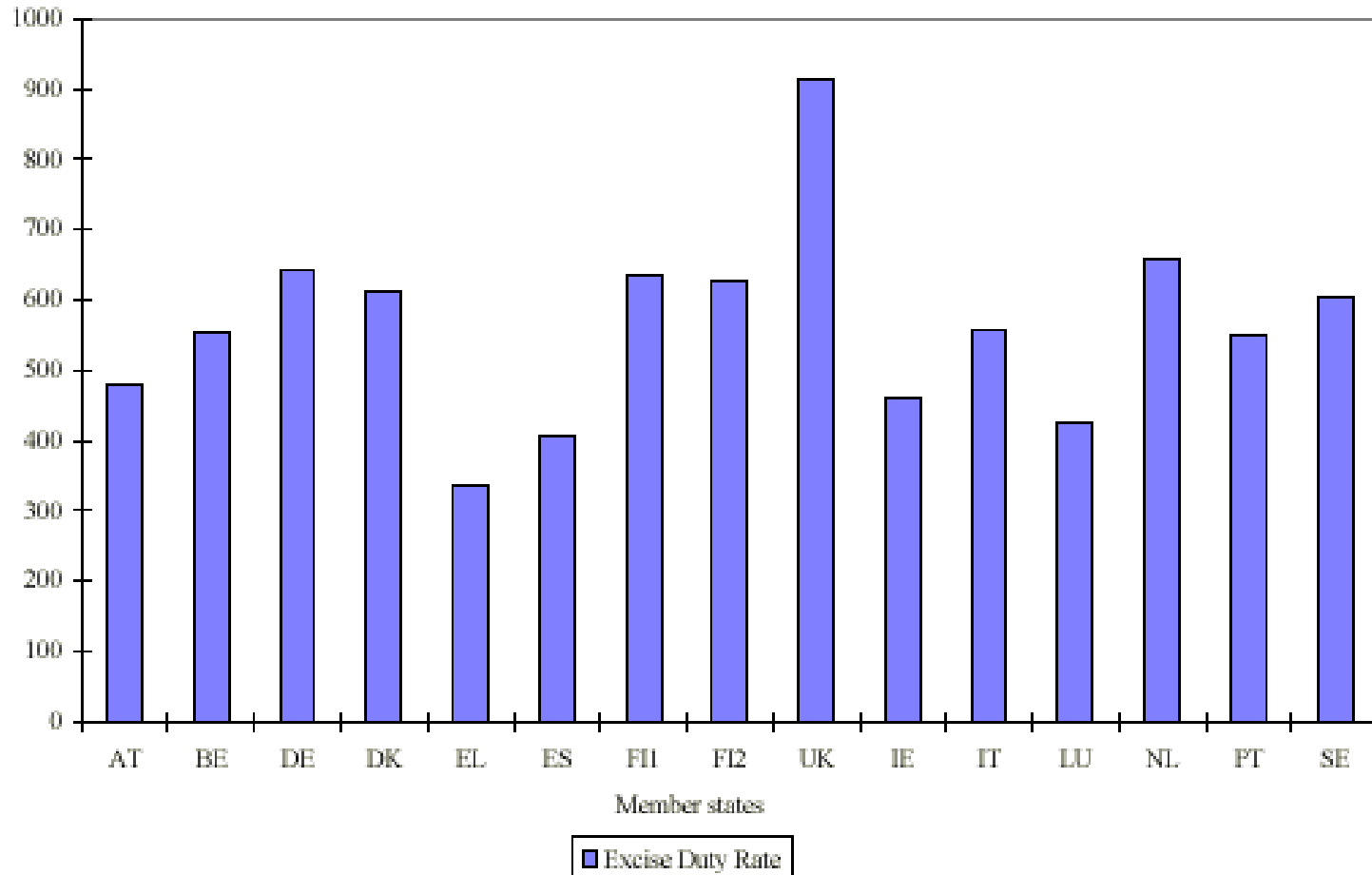
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## Leaded Petrol

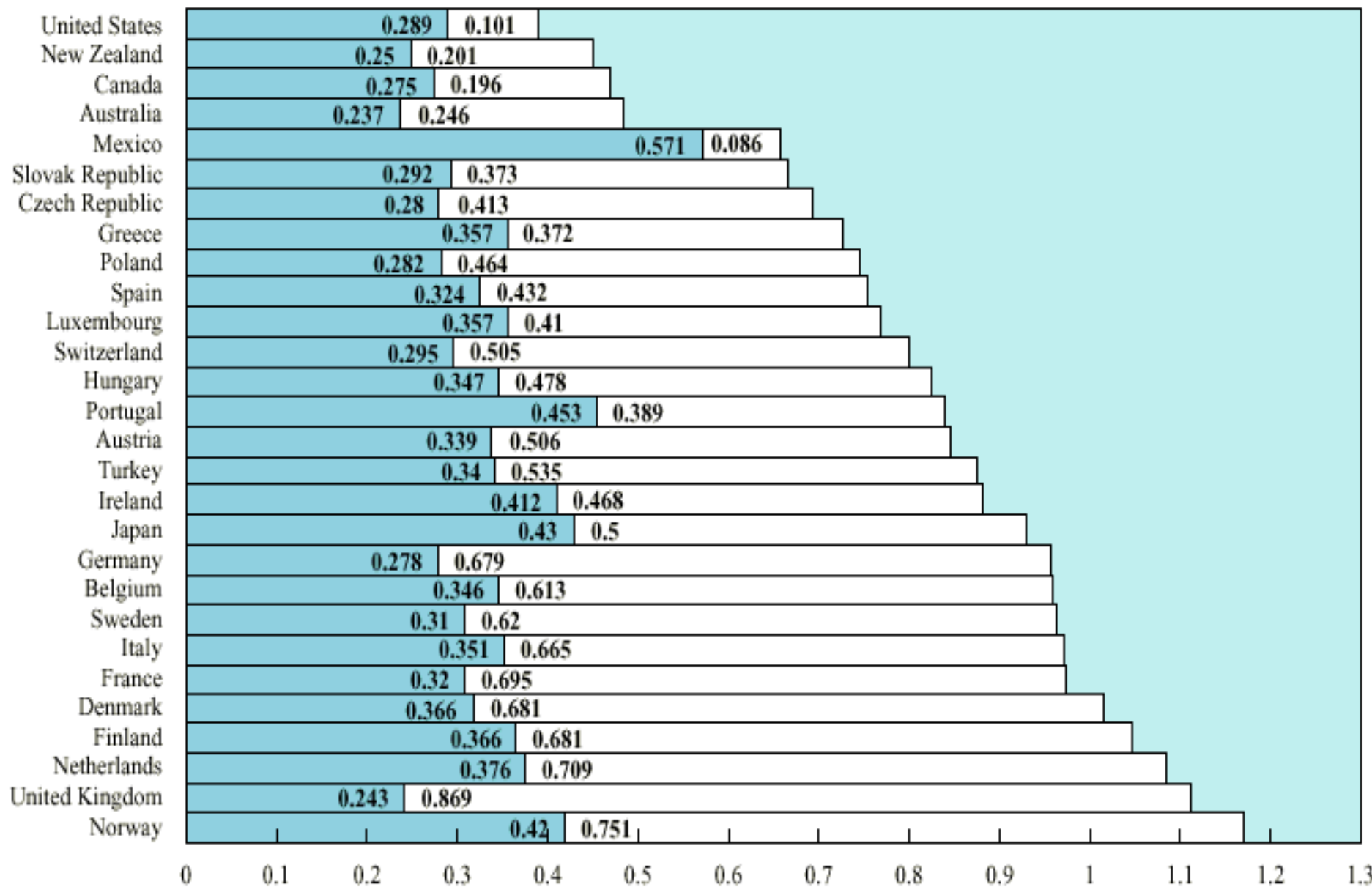
values in euro at  
01/10/2000

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Minimum excise duty: 337 euro per 1000 litres

Figure 11: Unleaded Gasoline Prices and Taxes 2Q2001\*  
(US Dollars/litre)



**Figure 13: Automotive Diesel Prices and Taxes 2Q2001\*  
(US Dollars/litre)**

