Green taxes: a critique

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Outline

• Final Report of Green Fiscal Commission Oct ’09
• Case for Green tax - corrects externality ("polluter pays"), raises revenue, relaxes fiscal budget constraint
• Case for large-scale shift:
  – economically sensible and environmentally effective
  – can deliver 2020 GHG target
  – reduces fuel import dependence
  – can address adverse impacts on poor and competitiveness
• But do the numbers add up?
Modelling a Major Green Tax Shift

- **Baseline**: B1: Oil $110/bbl rising at 2% pa to $170 nominal ($134 real); B2 to $55 real; B3 to $390 real
  - EUA €20 rising to €32 nominal (€24 real)

- **Green taxes**:
  - CCL on electricity from £4.1/MWh to £38.2 (£29 real), gas from £1.5 to £14.3 (£10.8 real),
  - fuel tax from £0.60/l to £2.05/l (£1.54 real)
  - new car tax rising to £3,300 (£2,480)
  - water tax rise to 260% of 2010 average price (200% real)
Composition of tax revenues (S1)

Shift away from NIC

Share increases 2.5 times

Source: GFC Final Report
Green tax proposals

Table 7.2: Final User Energy Prices and Fuel Duty in the GFR Scenarios

<table>
<thead>
<tr>
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<th>2007</th>
<th>2020</th>
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<tr>
<td><strong>2003 prices</strong></td>
<td></td>
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<tr>
<td>Domestic Gas (p/kWh)</td>
<td>3.17</td>
<td>3.23</td>
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<tr>
<td>Domestic Electricity (p/kWh)</td>
<td>10.37</td>
<td>17.50</td>
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<tr>
<td>Petrol (p/l)</td>
<td>84.6</td>
<td>109.9</td>
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<tr>
<td>Diesel (p/l)</td>
<td>91.4</td>
<td>121.6</td>
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<tr>
<td><strong>Nominal prices</strong></td>
<td></td>
<td></td>
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<tr>
<td>Fuel duty (p/l / % annual growth)</td>
<td>50.4</td>
<td>78.3 / 3.6</td>
</tr>
</tbody>
</table>

Notes - inflation rates differ across scenarios despite MPC S2 targets the same end-user *nominal* fuel prices under B2 as S1 but inflation rates differ to real prices differ
Changes in CCC 2020 CO$_2$ forecast

• CCC ’08 forecast central case €50/EUA 2020
• CCC ’09 now forecasts €20/EUA (recession)
  – too low for required low-C investment
• requires action to raise minimum price
  – ETS cap tightened, or stabilised around trend
  – failing which UK issues CfDs on C price, or C-tax

*Underlines uncertainty in C price*
Assumes C price set by coal vs gas-fired generation
Most generation investment is gas and renewables

Central case €50/EUA by 2020

CCC ’08 forecasts instead of 20% under Renewables Directive
CCC 2009 Report

• 2003-7 GHG emissions fall < 1% p.a.
• need to fall 2-3% p.a. (depending on target)
• recession is masking poor performance and undermining ETS Carbon price
• “significant chance” C price too low to incentivize low-C investment
  – need to underwrite C price or provide support
• need to review electricity market arrangements
  – and renewables support
Critique of GFC modelling

- Should identify externality and correct
- major uncorrected externality is CO₂ price
  - arguably should be €25 rising to €50 by 2020
  - and should apply to all emissions not just covered sector
- €50/EUA = £43/EUA = £17/MWh electricity
- €24/EUA = £21/EUA = £8.3/MWh electricity
- proposed CCL on electricity = £29/MWh
  = 3.3 times shortfall of £17-8.3=£8.7/MWh

CCL is not a carbon tax
Gas and road fuel duty

- €50/EUA = £43/EUA = £9/MWh gas
- €24/EUA = £21/EUA = £4.5/MWh gas
- shortfall = £4.5/MWh
- proposed CCL on gas = £11/MWh
  = 2.4 times shortfall
- Road fuel duty
  - £43/EUA = £0.10/l, shortfall £0.048/l
- proposed increase £0.94/l
  = 20 times shortfall
Road fuel duty 2005/6 = £23 bn

Road fuel excises 2003

CO₂ price 25 Euros
Road revenue and costs 2002 by fuel type

- Petrol tax
- Petrol costs
- Diesel tax
- Diesel costs

Categories:
- Noise
- Water pollution
- Global warming
- Air pollution
- Road costs
- VED
- Fuel excise

Pence/litre

petrol tax
petrol costs
diesel tax
diesel costs
Other tax distortions

• Current VAT on domestic energy subsidise energy consumption by 11% = £45/yr
  – for electricity offset by CCL of 0.4/kWh = £13/yr
  – no offset for gas mostly used in central heating

• Heating oil heavily taxed £104/’000 l
  – delivered price £406, pre-tax £302, tax = 34%
  = Tax on country vs town central heating

Correct undertaxing of domestic energy for fiscal and environmental sanity
UK’s 2020 renewables target

= 40% renewable ELECTRICITY (SKM mid scenario)
= 150 TWh; wind = 38GW; total 110 GW
  – 56 GW conventional @ 31% fossil fuel load factor
  – investment cost of renewables = €70 bn + €15 bn grid
  – of non-renewables = £12 b, (£coal=3.9b; nuclear = £3.9b)
= €95/t CO₂ c.f. €14/t current EUA

• CCC 2009 plan lower (27GW, 16GW off-shore
  – more costly still? £100 bn?

So what price of CO₂ is needed?
Green taxes to meet 20-20-20

• Required CO$_2$ price closer to €100/EUA = £86/EUA = £34/MWh elec; £17/MWh gas
• shortfall £25/MWhe, £12.5/MWhg
• proposed CCL = £29/MWhe, £11/MWhg

Almost justifies projected CCL but CCL should become a Carbon tax
Support for RD&D

• Renewables subsidy above C price justified by learning benefits => commercialise to save the planet

• Why charge electricity consumers for that?
  – Make VAT on energy standard rate
  – C-tax on non-tradable non-ETS sectors

Solution - fund from general taxation or EUA auction revenues
British fuel poverty

Annual average domestic standard electricity bill, 3,300 kWh

- Pre-payment
- Standard credit
- Fuel poor England
- Fuel poor UK

4 million taken out of fuel poverty by £100 fall

1.5 m more for a £80 rise

2020 range
Ofgem: note assumes 3,300kWh falling with efficiency
Average domestic consumer bill

Based on 3300 kWh electricity and 700 th gh gas, reducing with energy efficiency measures.
Conclusions

• Main externality is failure to set proper C price
• Main tax distortions - differentials on energy
• Renewables target justified by learning benefits
  – implies higher C price for renewable electricity
  – but not necessarily for all fuel
• Choosing arbitrary green tax escalators has little logic in public finance
  – but might prevent the goose squawking
  – risks undermining credibility of “greenness”

*Start from theory then find politically acceptable transition*
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