

Environmental Tax/Fiscal Reform: Time to Bite the Bullet

A presentation to the
20th Global Conference on Environmental Taxation

Professor Paul Ekins

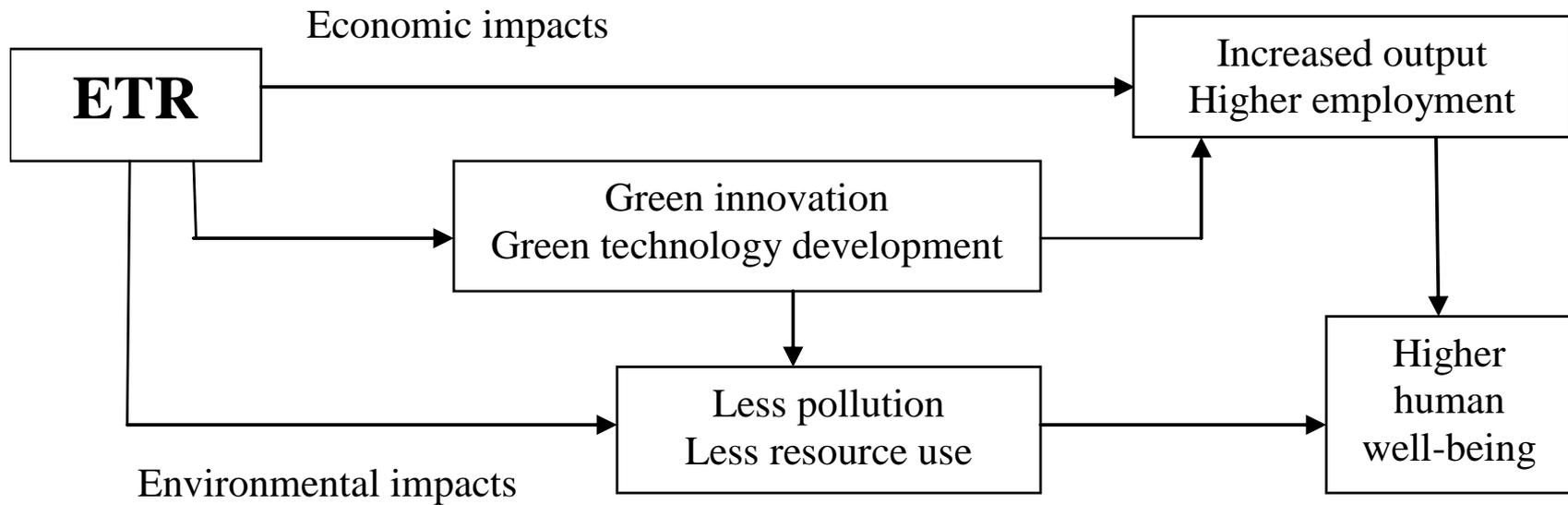
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Environmental Tax/Fiscal Reform

Environmental Tax Reform (ETR) is the shifting of taxation from 'goods' (like income, profits) to 'bads' (like resource use and pollution) (EEA);
Environmental Fiscal Reform also includes the removal of environmentally harmful subsidies (EHS)



Experience to date of ETR in Europe

- Six EU countries have implemented ETRs: Denmark, Finland, Germany, Netherlands, Sweden, UK
- The outcomes – environmental and economic – have been broadly positive: energy demand and emissions are reduced; employment is increased; effects on GDP are very small
- Effects on industrial competitiveness have been minimal
- See Andersen, M.S. & Ekins, P. (Eds.) *Carbon Taxation: Lessons from Europe*, Oxford University Press, Oxford/New York, 2009

UK Green Fiscal Commission research, 2006-2009

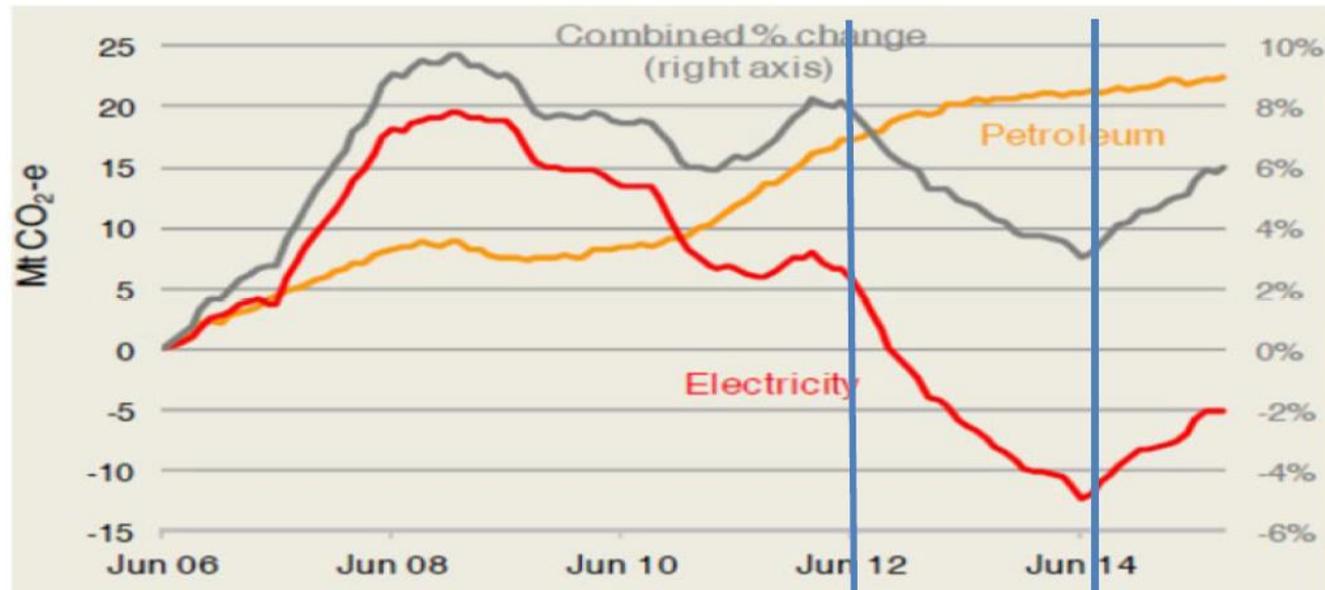
- 8 Briefing Papers, see http://www.greenfiscalcommission.org.uk/index.php/site/about/publications_and_presentations/) on:
 - Public opinion; modelling of economic, environmental and social implications of a major tax shift; distributional issues; international comparisons on the effectiveness of economic instruments; ETR and innovation; ETR and competitiveness; border tax adjustments; ETR and transport; revenue stability
- Canada's Ecofiscal Commission: 10 Myths about Carbon Pricing (<https://ecofiscal.ca/wp-content/uploads/2019/03/Ecofiscal-Commission-10-Myths-about-carbon-pricing-March-2019-FINAL.pdf>)

UK Green Fiscal Commission – Summary of Findings

- Environmental taxes work: they reduce environmental impacts
- Environmental fiscal reform is economically neutral or beneficial
- Environmental taxes are efficient: they improve the environment at least cost
- Environmental taxes can raise stable revenues
- The public can be won round to Environmental Tax Reform (ETR)
- ETR would stimulate investment in energy and environmental efficiency, and the low-carbon industries of the future
- ETR can mitigate the impact of high world fossil fuel prices by stimulating energy efficiency, and of low fossil fuel prices by including external costs : unlike ETR, high world energy prices are bad for the economy; low fossil fuel prices make low-carbon sources less competitive
- The impacts of ETR on competitiveness can be mitigated: concerns of relatively few economic sectors can be addressed.
- Low-income households need special arrangements, perhaps utilising some of the revenue from ETR
- Green Fiscal Commissions: can explore options, build consensus and work out the details (modelling)

Environmental taxes work

Acknowledgement to Kurt van Dender, OECD



Australia Institute. 2015. "CEDEX December 2015." Canberra, Australia: Pitt & Sherry.

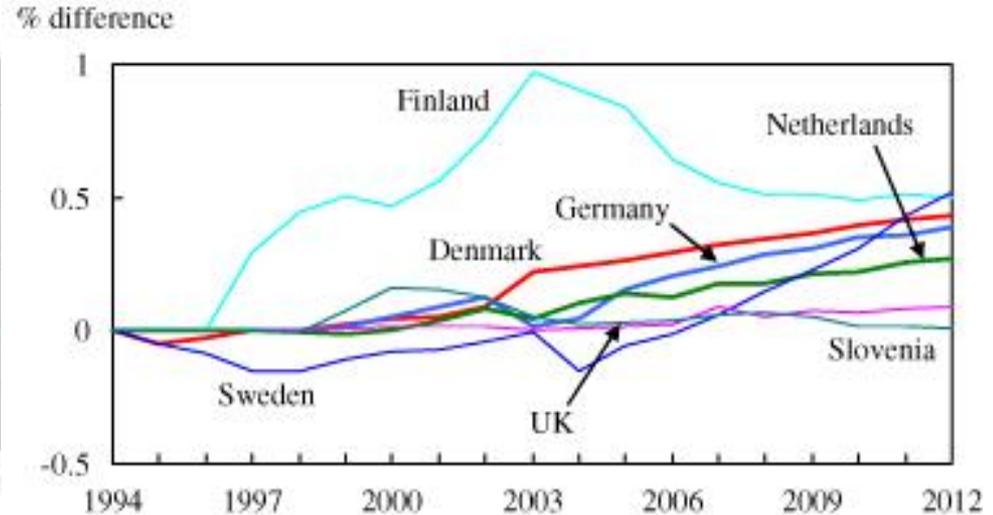
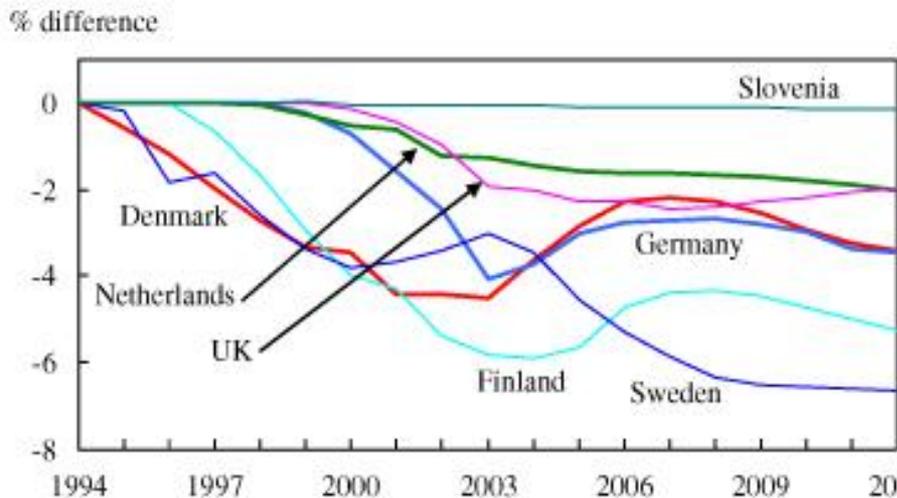
Australia introduced a carbon tax in June 2012 and removed it in July 2014. It applied to electricity generation but not to petrol.

Environmental taxes work and are economically neutral

Environmental and economic impacts of ETR, from COMETR study, 2007

CHART 2: THE EFFECT OF ETR ON GHG EMISSIONS

CHART 3: THE EFFECT OF ETR ON GDP



Note(s) : % difference is the difference between the base case and the counterfactual reference case.
 Source(s) : CE.

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Environmental taxes are efficient

Source: OECD 2017 'Environmental Fiscal Reform: Progress, Prospects and Pitfalls', Working Document, May 2017

Figure 1: Estimated effective carbon prices in the electricity sector, by instrument category

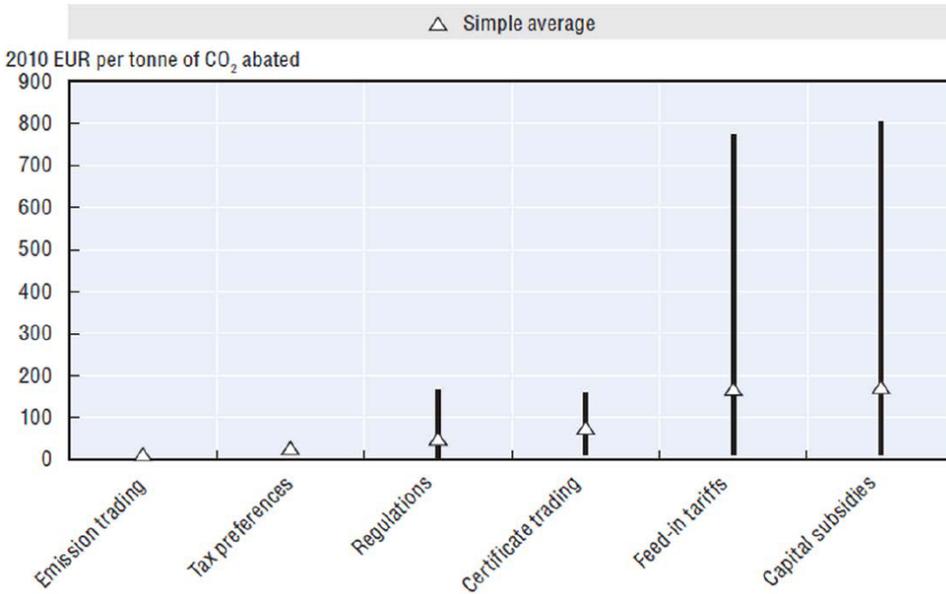
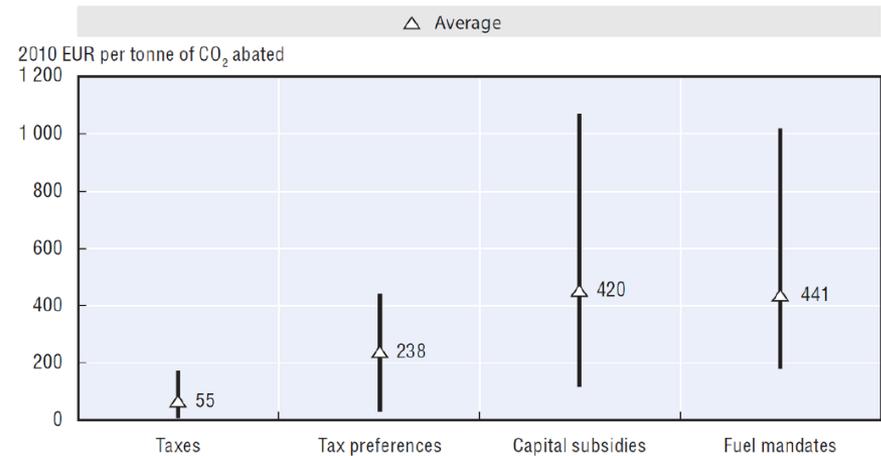


Figure 2: Estimated effective carbon prices in the road transport sector, by instrument category



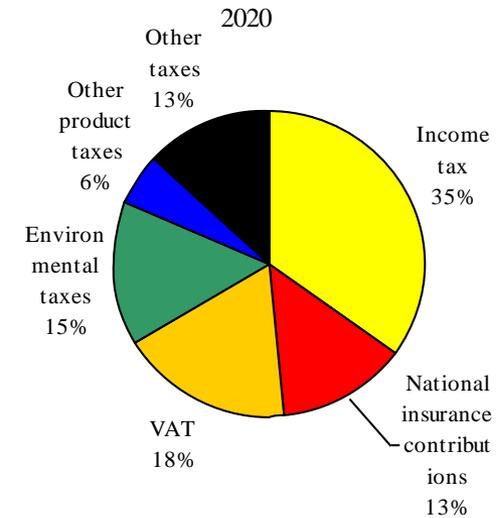
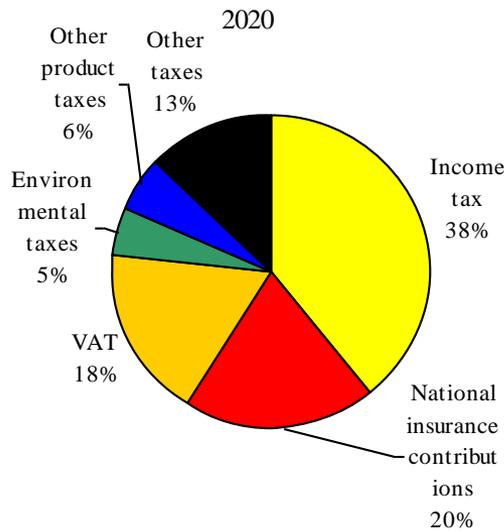
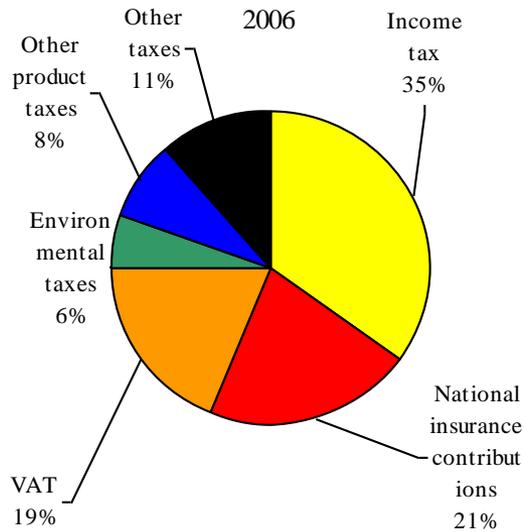
Source: OECD (2013), *Effective Carbon Prices*,
 OECD Publishing, Paris. DOI:
<http://dx.doi.org/10.1787/9789264196964-en>

Environmental taxes can raise stable revenues

cf Taxes on tobacco and alcohol
 Source: Green Fiscal Commission Final Report, 2009

COMPOSITION OF TAX REVENUE IN S1

COMPOSITION OF TAX REVENUE IN B1



Source(s) : ONS and Cambridge Econometrics.

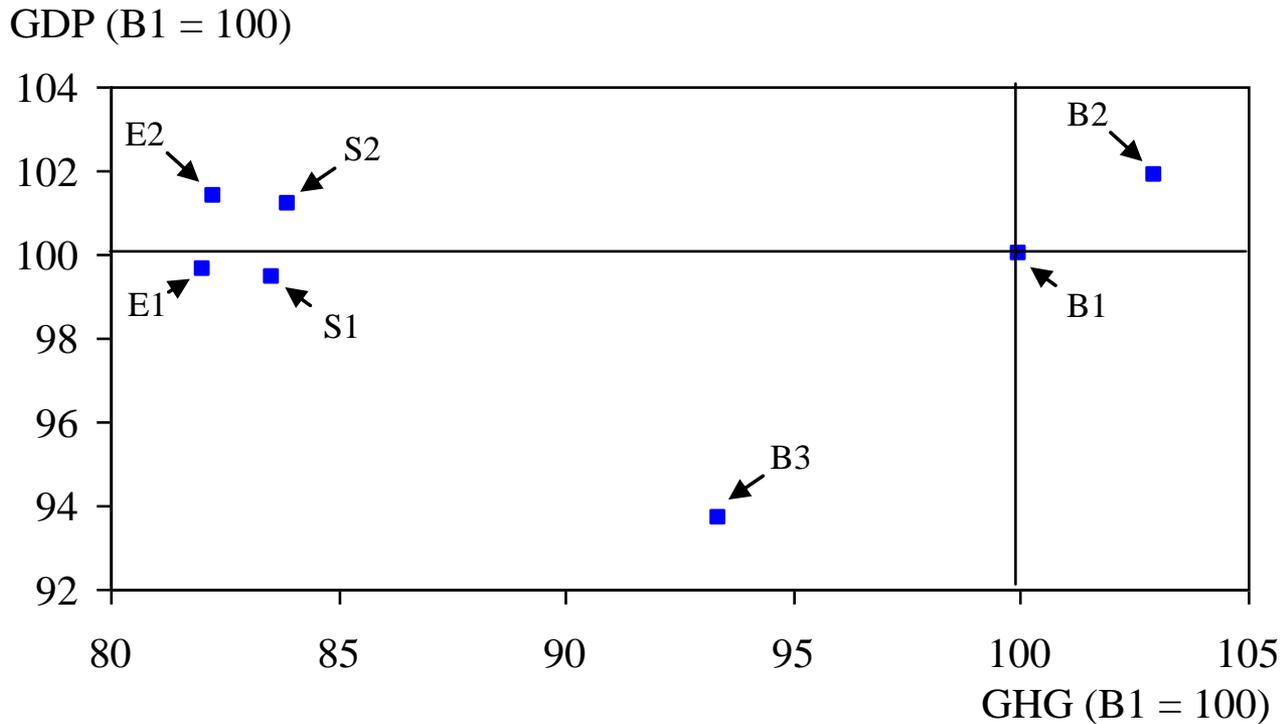
UK Green Fiscal Commission – Summary of Findings

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High world energy prices are bad for the economy, ETR is not

Source: Green Fiscal Commission Final Report, 2009

COMPARISON OF GDP AND GHG EMISSIONS IN 2020



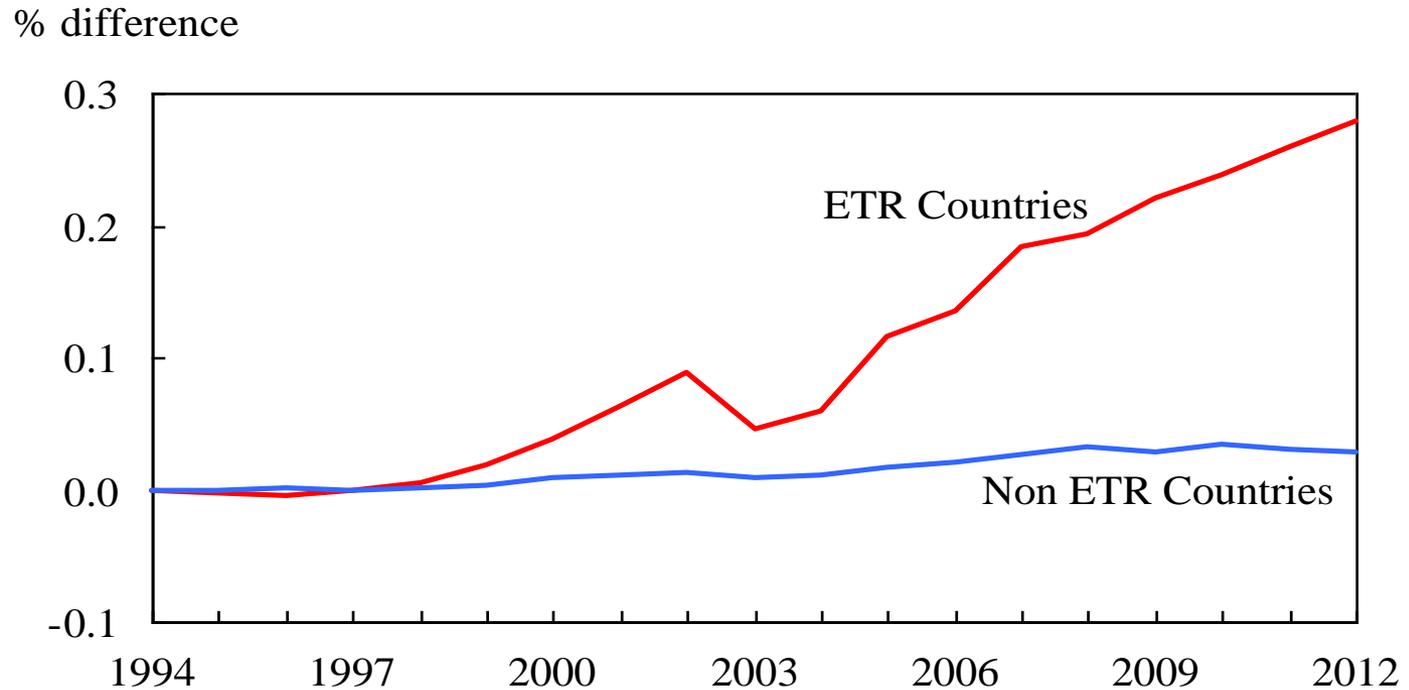
Note(s) : GHG figures have been calculated on a net carbon account basis in MtCO₂e.

Source(s) : ONS, NAEI, Cambridge Econometrics.

The impacts of ETR on competitiveness can be mitigated

Source: COMETR, Andersen and Ekins Eds. 2009

CHART 7.28: THE EFFECTS OF ETR: GDP IN ETR AND NON ETR COUNTRIES



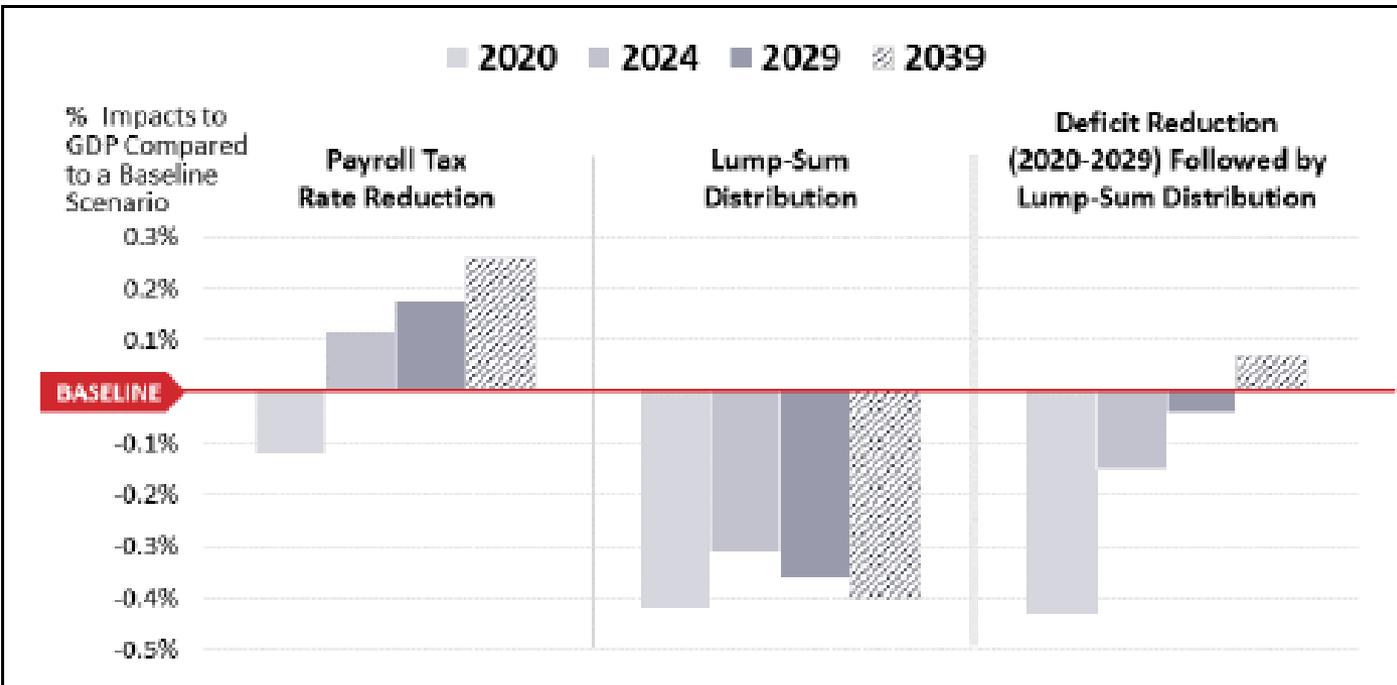
Note(s) : % difference is the difference between the base case and the counterfactual reference case.

Source(s) : CE.

GDP impacts depend on use of the revenues

Figure 1. Estimates of GDP Impacts from a Carbon Tax with Selected Applications of Carbon Tax Revenue

Based on a Carbon Tax of \$50/mtCO_{2e} Increasing by 2% Each Year



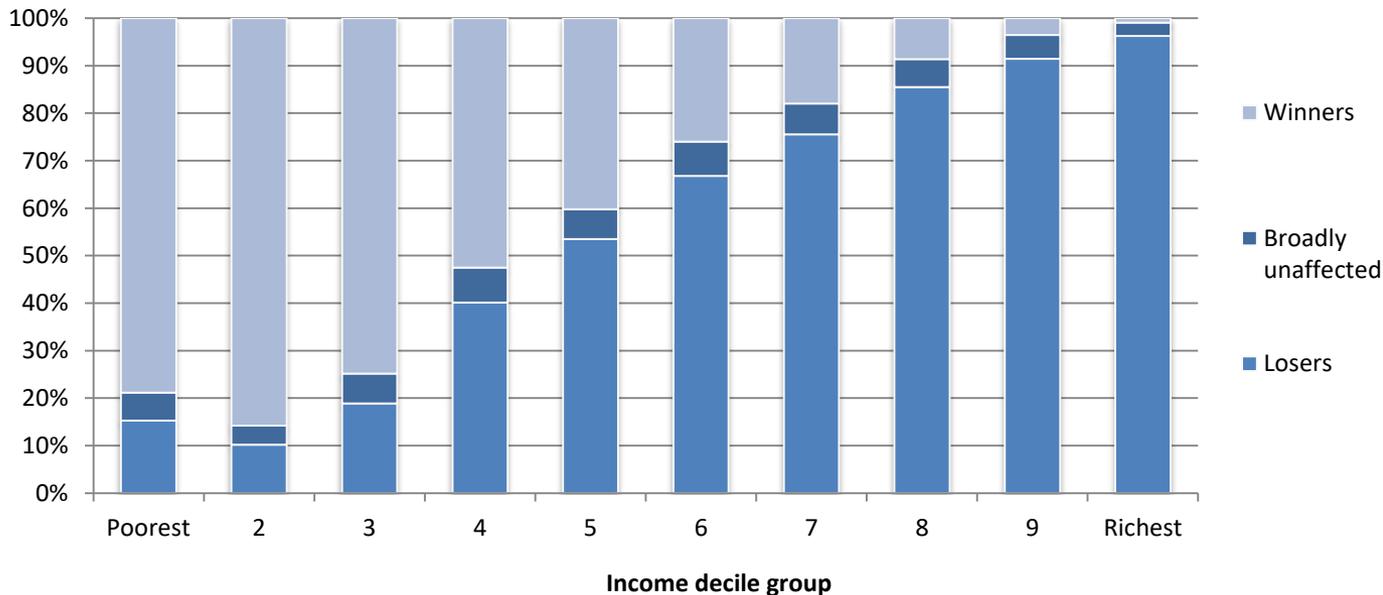
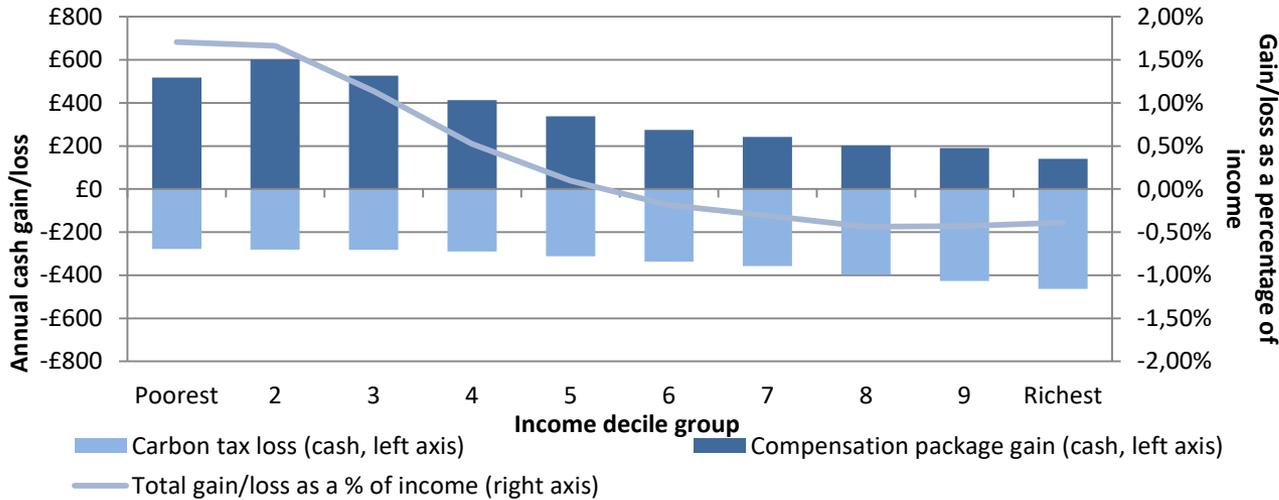
Source:
 Congressional Research Service
 Attaching a Price to Greenhouse Gas Emissions with a Carbon Tax or Emissions Fee: Considerations and Potential Impacts
 March 22, 2019
<https://crsreports.congress.gov/product/pdf/R/R45625>

Cf Climate Leadership Council 2017 'The Conservative Case for Carbon Dividends', February
 NB Carbon pricing is not a left-wing issue!

Source: Data from Prepared by CRS with data from John D. Diamond and George R. Zodrow, *The Effects of Carbon Tax Policies on the U.S. Economy and the Welfare of Households*, Columbia University, SIPA Center on Global Energy Policy, 2018.

Notes: The four years included in the study and the above figure are not linear. The 2039 column has a unique color pattern to highlight the time difference between 2039 and the earlier years.

Low-income households need special arrangements



Source:
 Ian Preston, Vicki White, James Browne, Simon Dresner, Paul Ekins and Ian Hamilton
 2013 'Designing Carbon Taxation to Protect Low-Income Households', Joseph Rowntree Foundation, York

Green Fiscal Commissions

Green Fiscal Commissions: can explore options, build consensus and work out the details (modelling)

Green Fiscal Commissions have played a role in analysis, recommendation and public engagement in respect of Green Fiscal Reform in:
Austria, Belgium, Denmark, France, Germany, Ireland, Netherlands, Norway, Sweden, UK

For details see Ekins, P. and Shaw, B. 2013 'Green Fiscal Commissions in Europe', in Mori, A., Speck, S., Lee, S. and Ueta, K. Eds. 2013 *The Green Fiscal Mechanism and Reform for Low Carbon Development*, Routledge, London/New York, pp.152-186

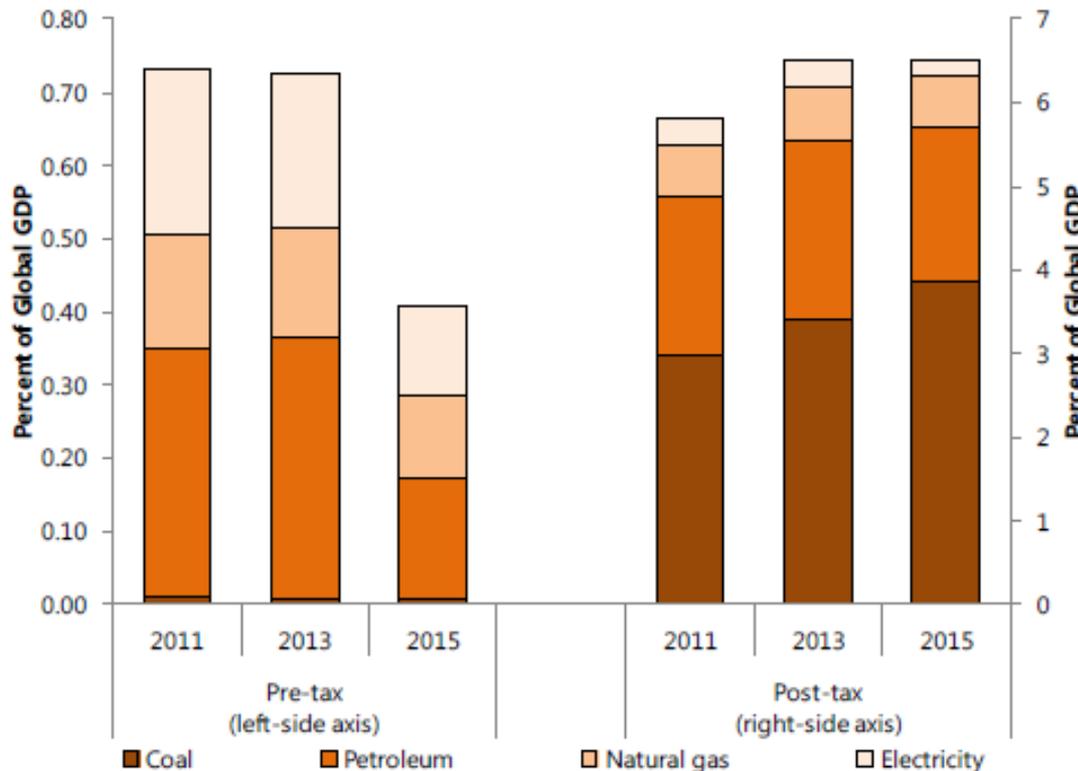
UK Green Fiscal Commission: Final Report 2009; Introduction of Carbon Support Price 2011

Canada's Ecofiscal Commission: est. 2014; Federal Carbon Tax pledge 2015, implemented 2019

How large are subsidies for fossil fuels?

Figure 5. Global Energy Subsidies by Energy Product, 2011–15

(Pre-tax in percent global GDP left axis; post-tax in percent global GDP right axis)

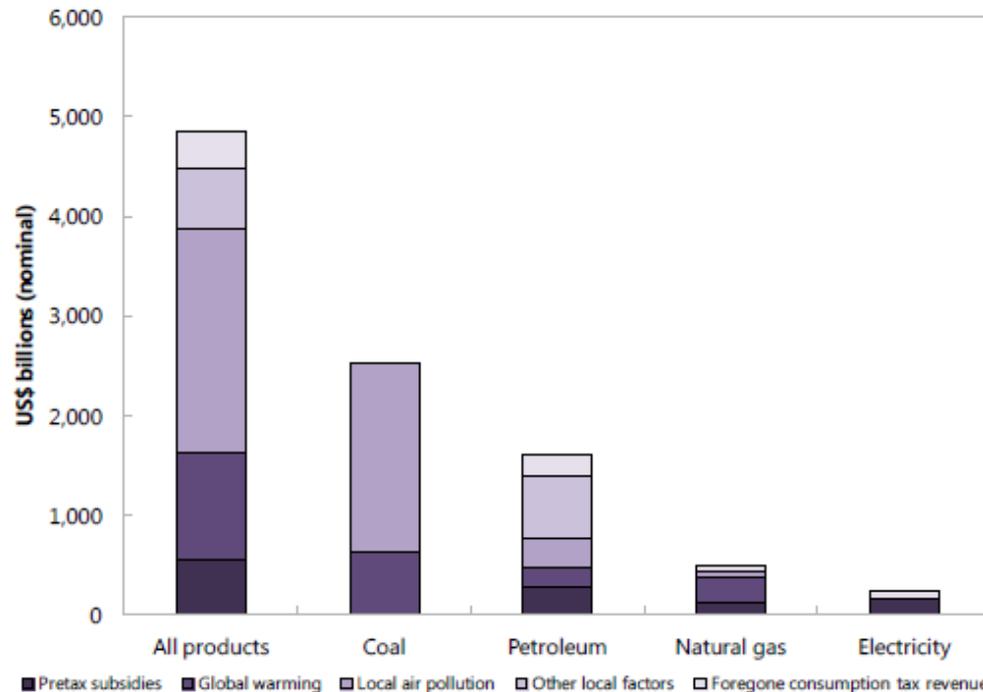


(Source: IMF 2015 ‘How Large Are Global Energy Subsidies?’ Prepared by David Coady, Ian Parry, Louis Sears, and Baoping Shang), IMF Working Paper WP/15/105)

Source: Authors’ calculations, based on sources in Appendix Table 2.

How large are subsidies for fossil fuels?

Figure 6. Global Post-Tax Subsidies by Product and Subsidy Component, 2013



(Source: IMF 2015 ‘How Large Are Global Energy Subsidies?’ Prepared by David Coady, Ian Parry, Louis Sears, and Baoping Shang), IMF Working Paper WP/15/105)

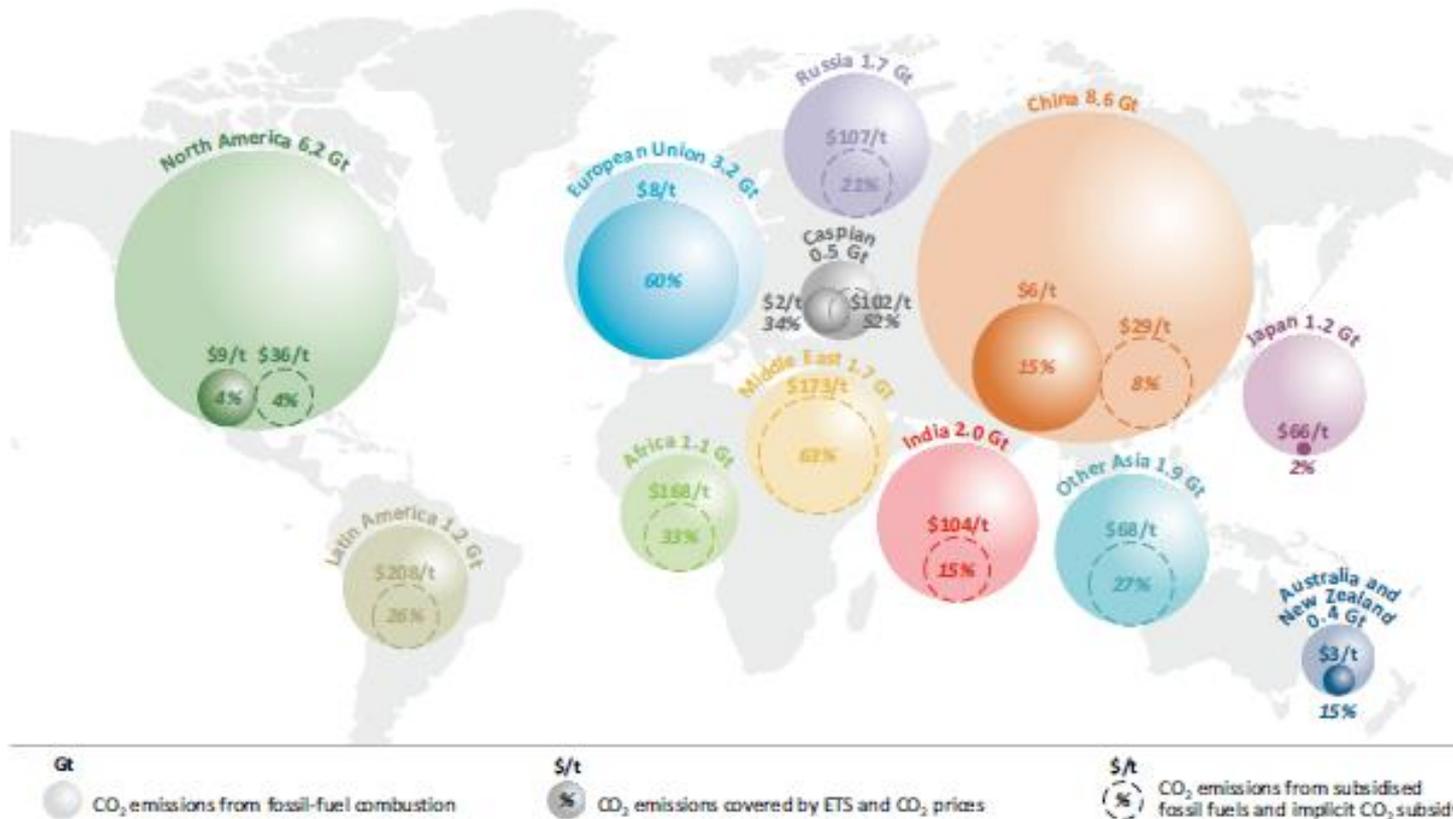
Source: Authors’ calculations, based on sources in Appendix Table 2.

Note: Other local factors apply only to petroleum products and refer to non-internalized externalities from congestion, accidents, and road fuels.

Carbon subsidies and carbon pricing

["The average price was around \$7 per tonne of CO₂ (Figure 1.2). In contrast, 4.2 Gt (13%) of global energy-related CO₂ emissions from the use of fossil fuels receive consumption subsidies, with the implicit subsidy amounting to \$115 per tonne of CO₂, on average." p.23]

Figure 1.2 Energy-related CO₂ emissions in selected regions, 2014



(Source: WEO Special Report on Energy and Climate Change, IEA, 2015)

Notes: The implicit CO₂ subsidy is calculated as the ratio of the economic value of those subsidies to the CO₂ emissions released from subsidised energy consumption. ETS = emissions trading scheme.

What are the benefits from removing subsidies for fossil fuels?

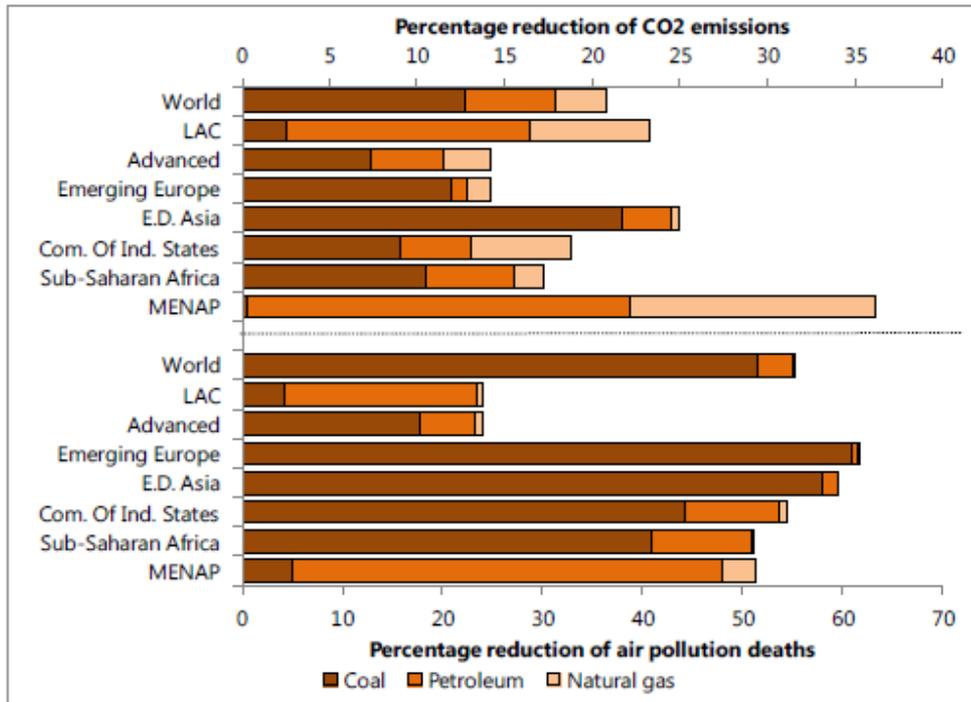
(Source: IMF 2015)

- Fiscal/revenue gain: \$3.0 trillion (nominal) in 2013 (4 percent of global GDP), more than 10 percent of government revenue [accounts for the price-induced reduction in energy use and implicitly assumes tax rebates are used to promote adoption of emission control technologies for coal]
- Welfare gain [from eliminating post-tax subsidies - the benefits from reduced environmental damage and higher revenue minus the losses from consumers facing higher energy prices]: globally more than \$1.4 trillion, or 2.0 percent of global GDP, in 2013; greatest in Emerging Europe (4.4 percent of regional GDP), Emerging and Developing Asia (6.9 percent), CIS (5.0 percent), and MENAP (4.7 percent).

What are the environmental benefits from removing subsidies for fossil fuels?

Figure 11. Environment Gain from Removing Energy Subsidies, 2013

(Percent reductions in CO₂ emissions on top axis; percent reductions in air pollution deaths on bottom axis)



Source: IMF, 2015

Source: Authors' calculations, based on sources in Appendix Table 2.

Note: CIS = Commonwealth of Independent States; ED Asia = Emerging and Developing Asia, LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan.

Live issues (1)

- Tax rate: Pigovian tax; standards and pricing; investment incentive
 - Was the EU ETS a success? (covered emissions reduced at 1.74% p.a. from 2013))

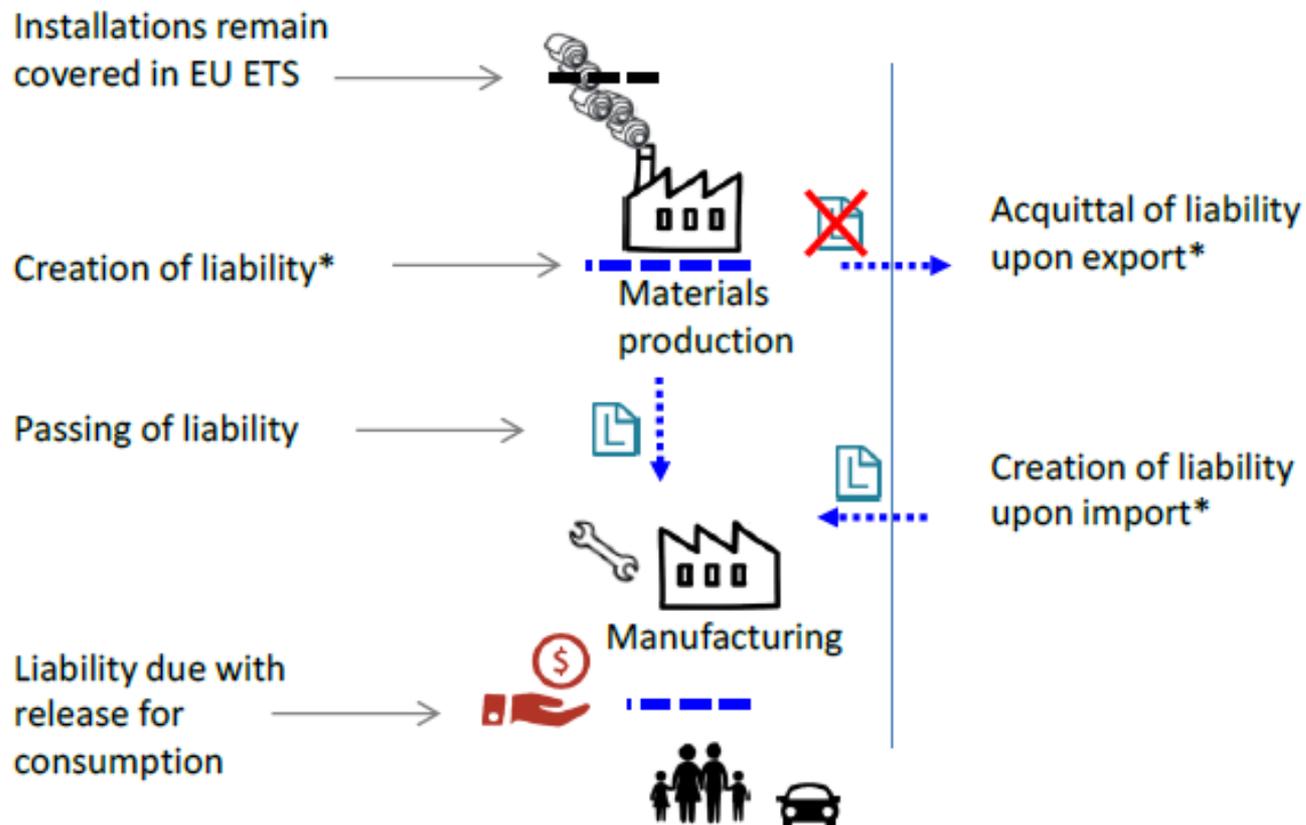
EU CARBON PRICES RECOVER AS LEGISLATION TIGHTENS SUPPLY



Graph shows EU Allowance (EUA) carbon prices under EU Emissions Trading System.
Source: S&P Global Platts, European Energy Exchange

Live issues (2)

- Border tax adjustment/Consumption tax (Source: Neuhoff et al. 2016 'Inclusion of Consumption of carbon intensive materials in emissions trading – An option for carbon pricing post-2020', Climate Strategies)



* Based on weight of material times benchmark for material (e.g. steel, clinker)

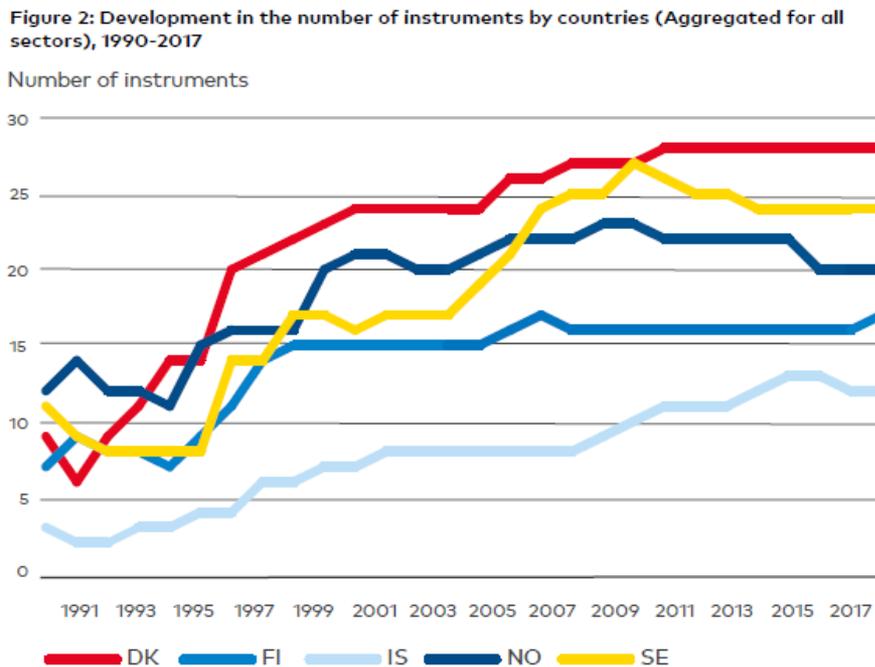
Live issues (3)

Hypothecation

- There are good public finance reasons to resist calls for hypothecation; however
- Hypothecation of part or all of the revenues may be considered in order to:
 - Accelerate innovation or emission reduction through low-carbon investment (e.g. in low-carbon supply or energy efficiency)
 - Compensate low-income or other vulnerable or disadvantaged households (e.g. through an eco-bonus)
 - Reduce impacts on competitiveness (e.g. the Swedish NOx tax)
 - Increase political support for the environmental tax

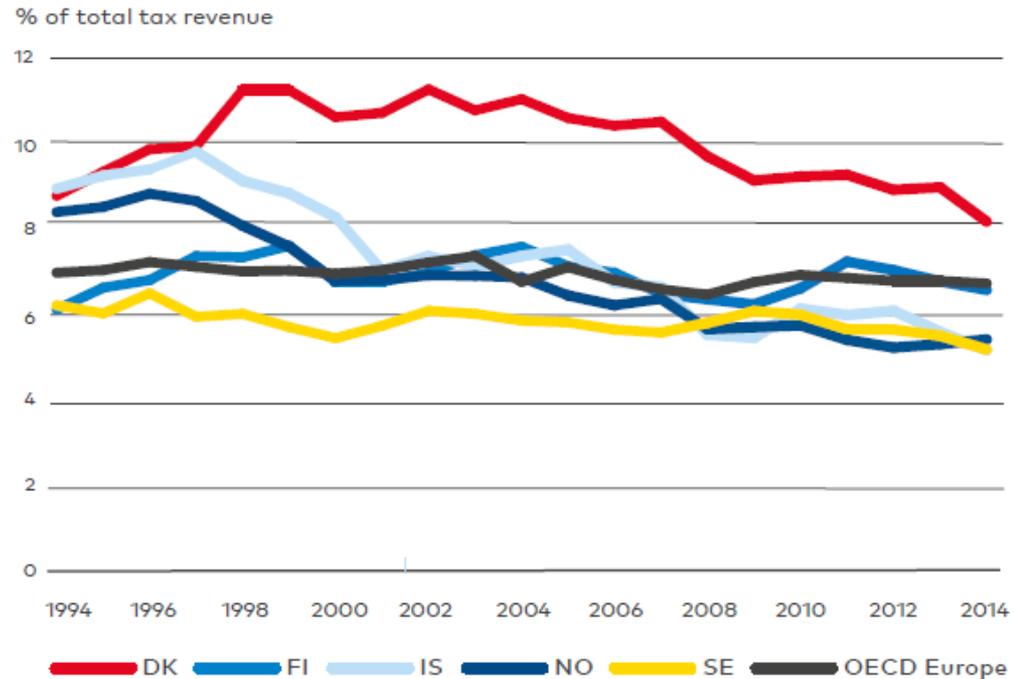
Time to restore the momentum

Source: Nordic Council of Ministers 2018 'The use of economic Instruments in Nordic Environmental policy 1990-2017' Policy Brief, <https://www.norden.org/en/publication/policy-brief-0>



Source: The report series on The use of economic instruments in Nordic environmental policy published by the Nordic Council of Ministers (1991-2018) and adjustments by COWI (2018).

Figure 5: Share of environmental tax revenue of total tax revenue, 1994-2014



Source: OECD (2018).

Lessons on carbon and environmental taxation

- Carbon taxes are not a magic bullet for reducing GHGs; they need to be supplemented with regulations (e.g. especially for energy efficiency) and innovation support BUT
- Carbon taxes are an essential component of a cost-effective emissions reduction strategy
- National and fiscal contexts are important for implementation – but general rules about good practice in public finance (e.g. in respect of hypothecation) apply
- The broad lessons from experience with carbon taxes can be read across to other environmental taxes – but these also need to be analysed, designed and implemented on a case-by-case basis to consider the issues discussed here



Thank you

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www.bartlett.ucl.ac.uk/sustainable