Session 7:
Policy as a Driver

Mike Wilson

Smart Prosperity Institute

Policy and Market Signals: Stimulating Clean Innovation and Environmental Sustainability

AAE Canada East Seminar

Scott McFatridge, Smart Prosperity Institute

(adapted from presentation by S. Elgie)

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Why do we need to bring market forces to environmental problems

1. Serious environmental problems
2. The economy and the environment are inherently linked
3. Markets are failing the Environment

(adapted from presentation by S. Elgie)

Want to save the planet?

Fix the economy.

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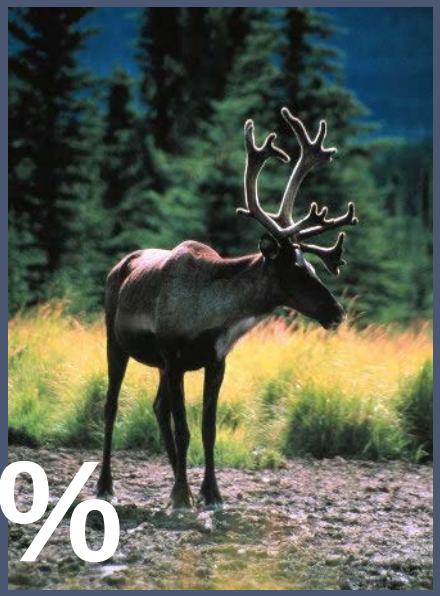
Part I:
Why we must fix the economy to save the environment (and vice-versa)

(adapted from presentation by S. Elgie)

Endangered Species



99%

human caused

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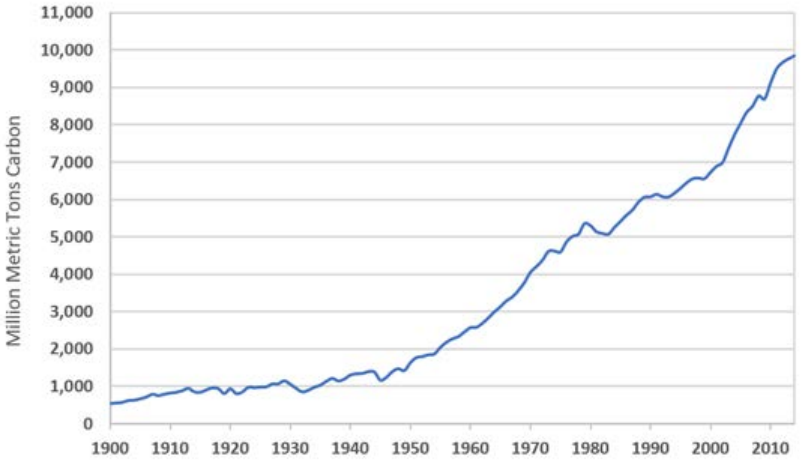
Climate Change

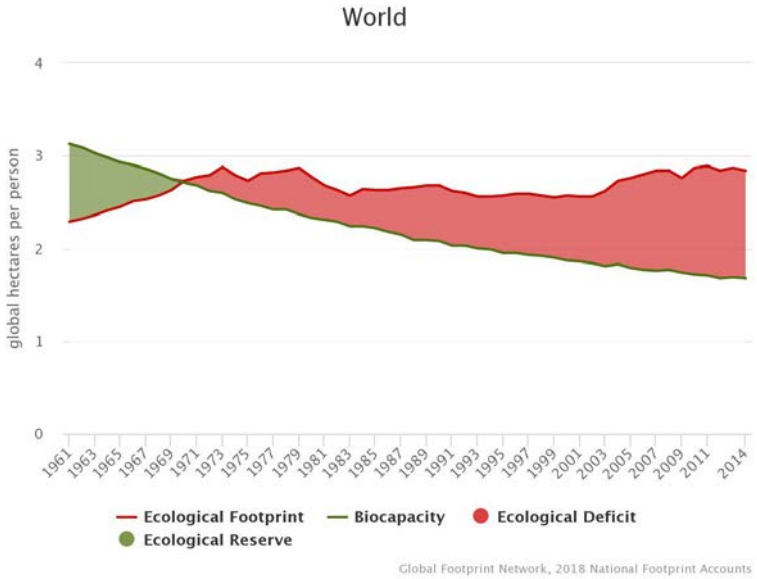
Global Carbon Emissions from Fossil Fuels, 1900-2014



(adapted from presentation by S. Elgie)

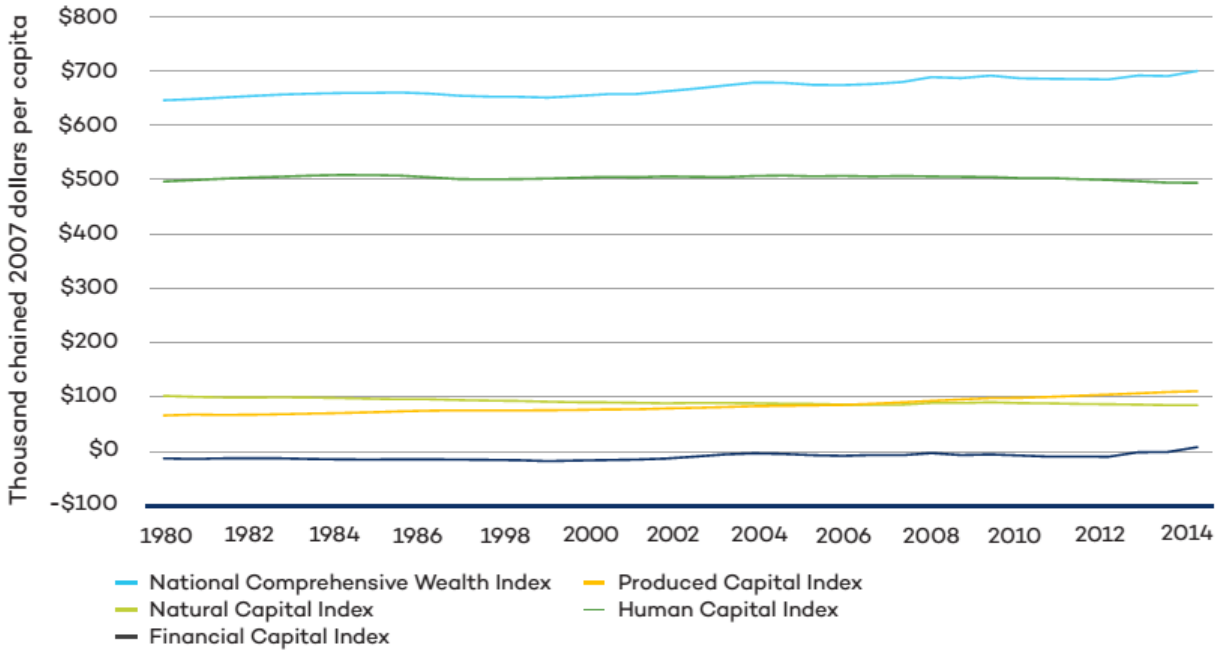
Our ecological footprint exceeds Earth's capacity

Ecological footprint



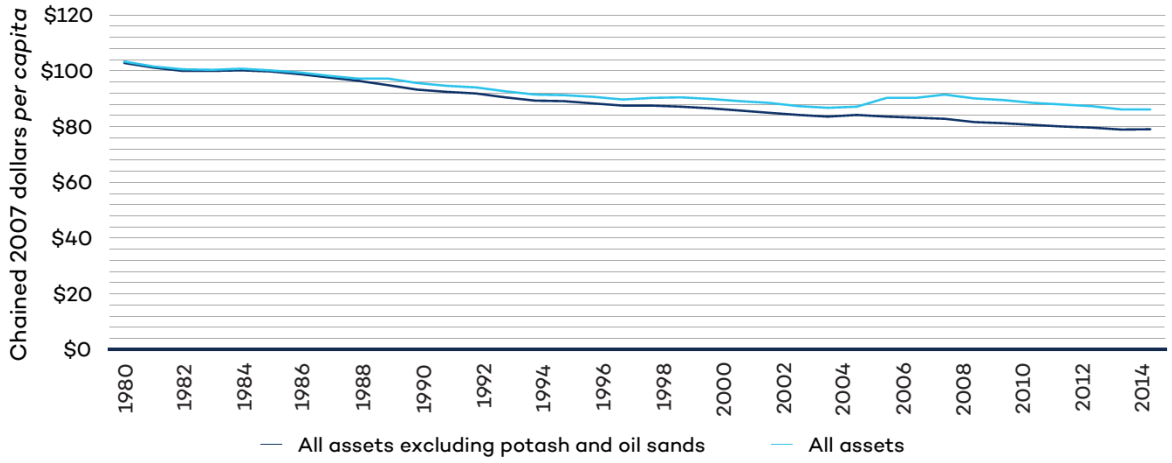
(adapted from presentation by S. Elgie)

Trends in Canada's comprehensive wealth, 1980-2015



(adapted from presentation by S. Elgie)

Trends in Canada's market natural capital, 1980-2015



(adapted from presentation by S. Elgie)

Market Failure

- The ‘Invisible Hand’
- Highly idealized, e.g.
  - Works if you count *all the costs*
- But the environment isn’t counted (usually)

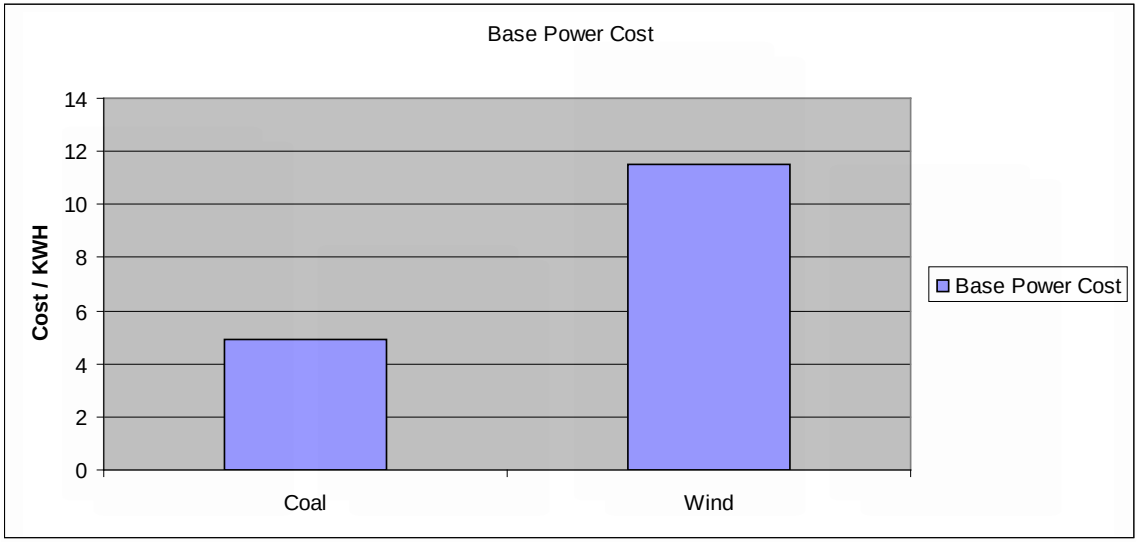
(adapted from presentation by S. Elgie)

Coal vs Wind Power

(adapted from presentation by S. Elgie)

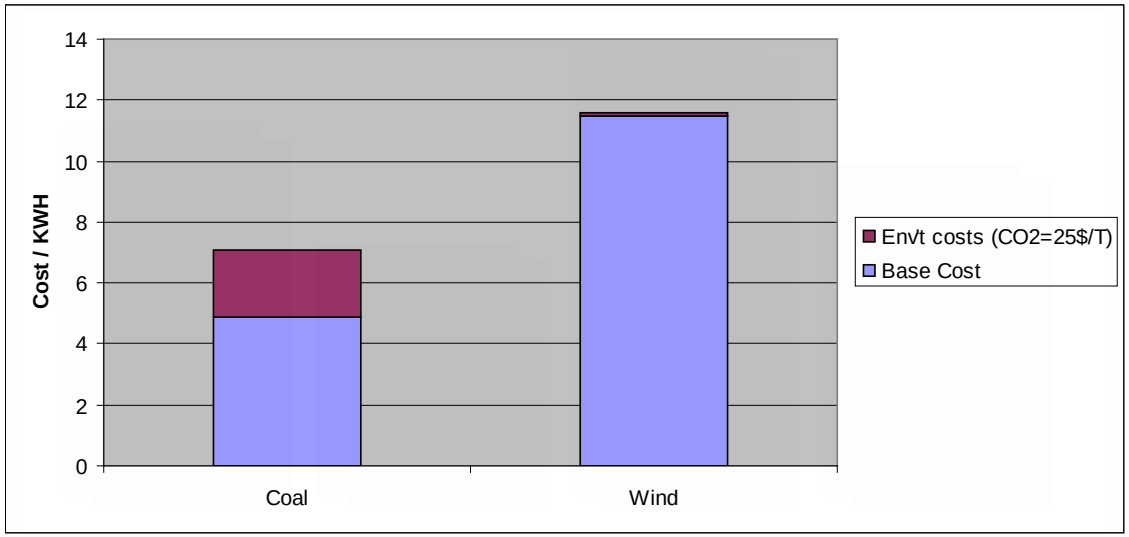
Coal vs Wind Power

Base Cost



(adapted from presentation by S. Elgie)

Coal vs Wind Power
with Environment Costs



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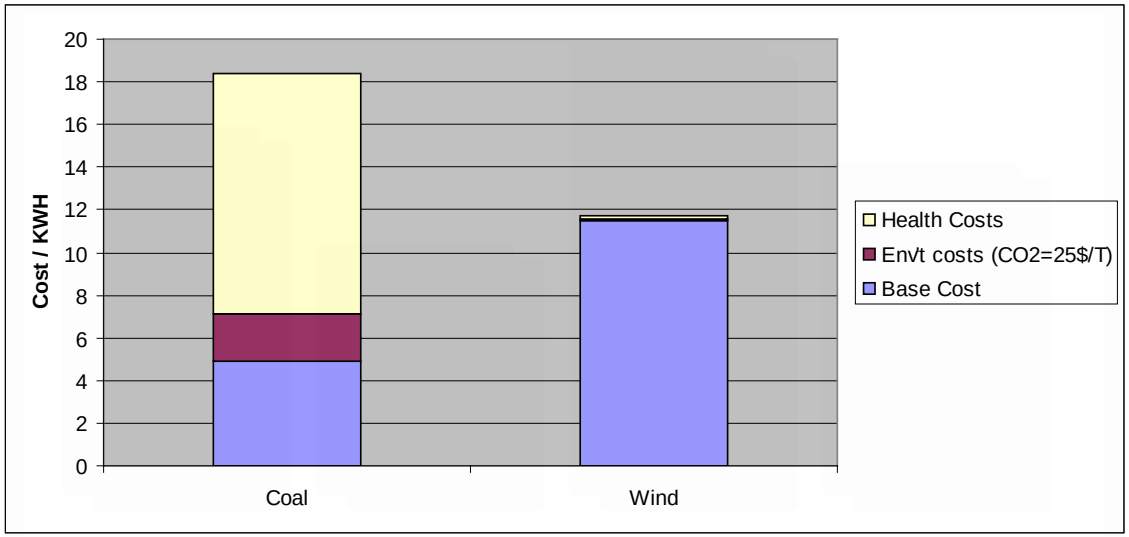
Coal vs Wind Power

with Env't and Health Costs



(adapted from presentation by S. Elgie)

Counting environmental costs makes it pay to go green.

So <u>why</u> don't markets count them?

(adapted from presentation by S. Elgie)

The environment is an

“Externality”

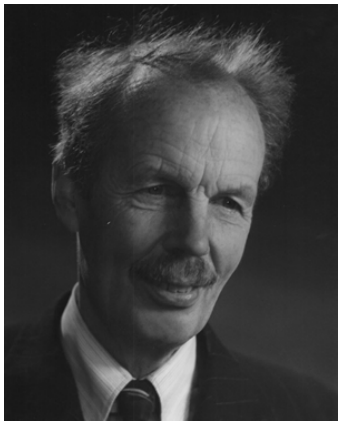
(Third parties not compensated)

(adapted from presentation by S. Elgie)

Part II: *What can we do?*
Market Based Instruments –a Solution

- *Markets do not operate as efficiently as they might, because they do not reflect actual environmental costs*
  - *inaccurate market prices encourage unsustainable, wasteful consumption and production*
- *Should move towards a "virtuous circle" by using the unique strengths of free market system*
  - *design economic policies that support the environment, and environmental policies that foster private sector innovation and economic growth*
- *Incentives and information*

(adapted from presentation by S. Elgie)



Pigou: “Tax / Fee”

Dales: “Tradeable permits”

(adapted from presentation by S. Elgie)

Emissions Trading

(adapted from presentation by S. Elgie)

Emissions Trading

- Set overall cap on emissions – *reduce* them
- Each firm gets a limit
- Can pay another firm to reduce pollution for you – i.e. ‘trade’

(adapted from presentation by S. Elgie)

‘Command and Control’

Emissions Trading:

Advantages

- *Lower cost*
- *Green innovation*

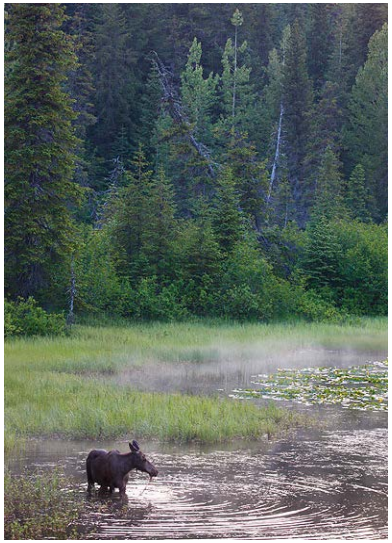
(adapted from presentation by S. Elgie)

Cap & Trade

- US Acid Rain Program
  - 25% less pollution
  - 25-50% lower cost (~$1B)
- Carbon Trading
  - EUR 60B market (2016)

(adapted from presentation by S. Elgie)

Forest Carbon Trading



- Forests store LOTS of carbon
  - but few market for it (yet)
- A carbon price could lead to
  - more forest protection
  - reforestation/forest restoration
  - more profit

(adapted from presentation by S. Elgie)

Environmental Fee / Tax

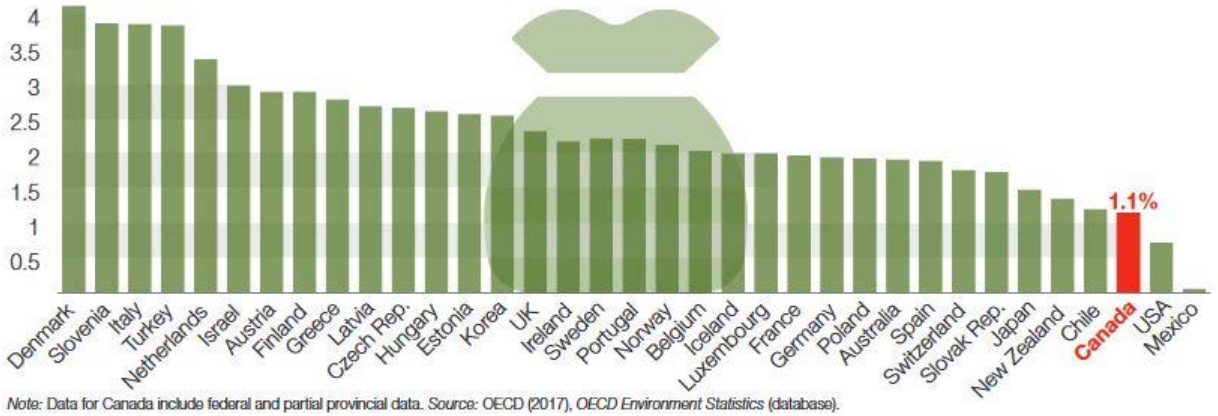
- BC Carbon tax (2008)
- AB carbon price (2017)
- QC cap and trade (2011)

- Europe: eco taxes on many things
  - Air pollutants
  - Water pollution
  - Pesticides
  - Waste
  - Carbon

(adapted from presentation by S. Elgie)

OECD: Green Tax Revenues

Figure 5. **Canada has one of the lowest environmental tax revenue across the OECD**
Environmentally related tax revenue as percentage of GDP, OECD countries, 2014.

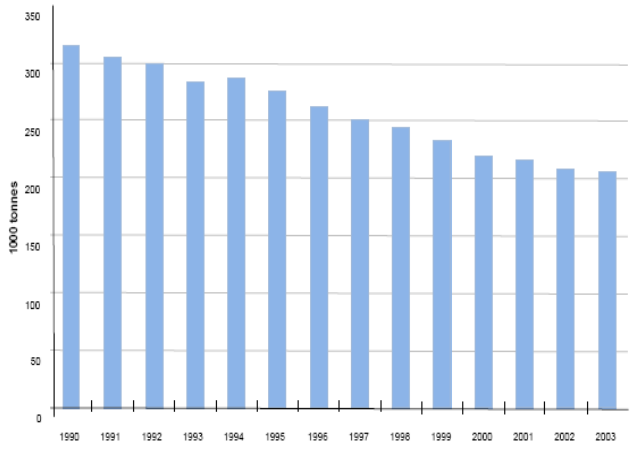


Note: Data for Canada include federal and partial provincial data. *Source:* OECD (2017), *OECD Environment Statistics* (database).

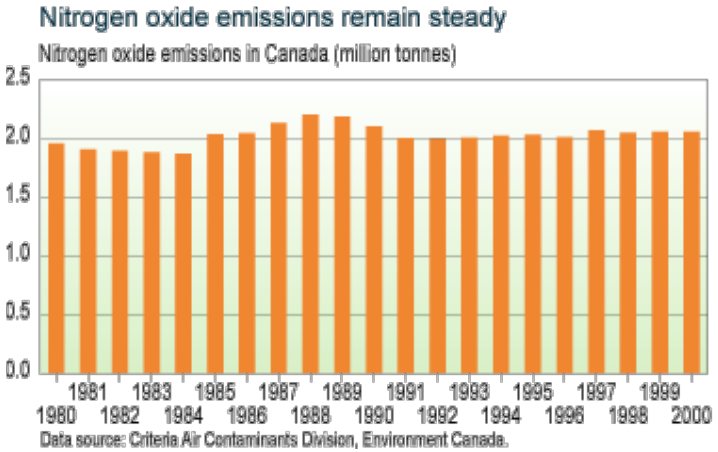
(adapted from presentation by S. Elgie)

Sweden NOx Tax (Acid Rain)

Figure 1. Total emissions of nitrogen oxides in Sweden 1990-2003, Source: Swedish EPA.



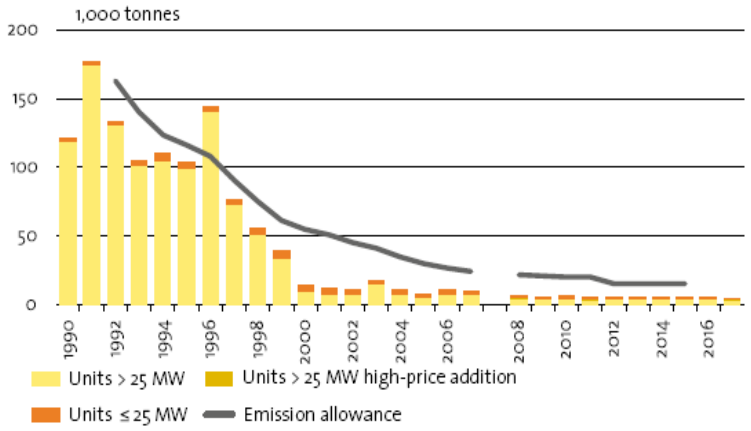
Canada emissions:



(adapted from presentation by S. Elgie)

Denmark SO2 Tax (Acid Rain)

Figure 11 SO_2 emissions from electricity and CHP generation in Denmark.



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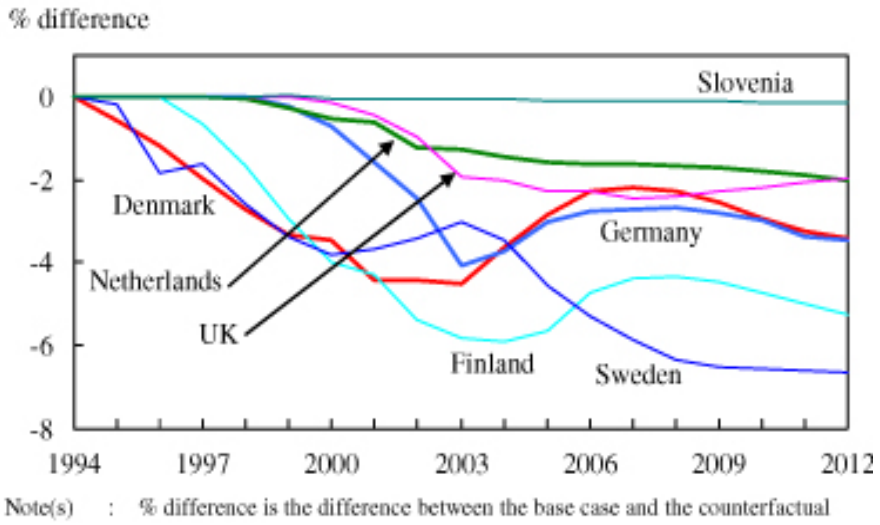
London Congestion Levy

- $15 fee to drive downtown
  - 21% less traffic
  - 16% less CO2 emissions
  - 14% more bikes
- Stockholm
  - 22% less traffic

(adapted from presentation by S. Elgie)

EU Carbon Taxes:
Effect on Emissions



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

(adapted from presentation by S. Elgie)

Eco Tax: Success Factors

- Substitutes?
- Frequent purchase?
- Fee high enough?
- Exemptions?

(adapted from presentation by S. Elgie)

Eco Tax Advantages

- *Lower cost*
- *Green innovation*
- *Easy and quick*
- *Cover lots of things*

(adapted from presentation by S. Elgie)

It’s about the

Economy

(for government)

(adapted from presentation by S. Elgie)

Eco Taxes + Emission Trading

= *Market Based Instruments* (“MBIs”)

(adapted from presentation by S. Elgie)

Emission Trading

- US Acid Rain Program
  - 25-50% lower cost
- US Carbon Trading
  - 60-70% lower cost (est.)

➢Costs less, but does it ***help*** the economy?

(adapted from presentation by S. Elgie)

Green Tax Shifting

- Tax ‘bads’ (pollution), not ‘goods’ (income, employment, investment)
- BC carbon tax shift (‘08)
  - Reduced emissions from 5-15% (2008-present)
  - No statistically significant effect on GDP growth
- Can do same with cap & trade
  - Sell permits and reinvest revenues
  - Or return as tax cuts, ‘carbon dividend’

(adapted from presentation by S. Elgie)

Green Tax *Shifting*
Invest in green public services

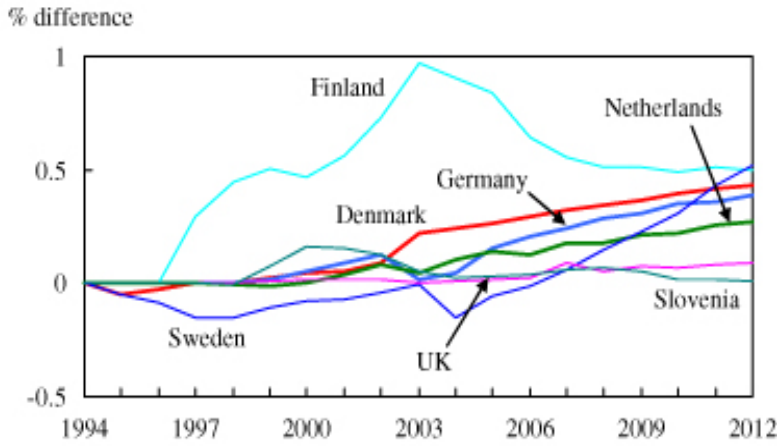
- London Congestion Levy
  - Revenues go to public transit
  - 6% more transit use

(adapted from presentation by S. Elgie)

EU Carbon Tax Shift

Helps the Environment and Economy

CHART 3: THE EFFECT OF ETR ON GDP



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Do MBIs help the Economy?

1. Hurt it *less* (lower cost) = YES
2. *Don't* hurt it (neutral) = GENERALLY
3. *Help* it = MAYBE

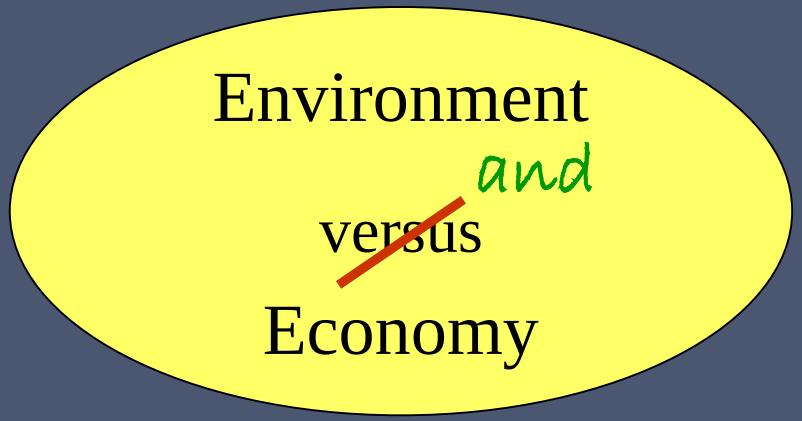
➢ 1 and 2 are enough *DO IT*

(adapted from presentation by S. Elgie)

Challenges to Using MBIs

- History. “Path dependence”
- Fairness
  - Inequities
    - *Solutions*: Transfers, tax breaks, fund alternatives
- Other political problems
  - Complicated
  - Visible (esp. a tax)

(adapted from presentation by S. Elgie)



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The most important factor in the effective pursuit of sustainable development is 'getting the price right'. *Unless prices are assigned to air, water, and land resources that presently serve as cost-free receptacles for the waste products of society, resources will tend to be used inefficiently and environmental pollution will increase.*

- World Business Council on Sustainable Development

(adapted from presentation by S. Elgie)

The Way *Forward*

How to make the necessary possible?

- Dialogue
  - from academic *to public* debate
- It *is* possible
  - Smart Prosperity Leaders Initiative
- Leadership
- Unlikely allies

(adapted from presentation by S. Elgie)