



THE AUSTRALIAN NATIONAL UNIVERSITY

# Environmental Taxation and its Possible Implications for Australia

Discussant Comments

By

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# Overview

1. Key Points about Environmental Taxation (à la Freebairn and existing literature)
2. Static and Dynamic Efficiency
3. Public Policy Challenges
4. Environmental Taxes and Tax Reform:
  - (a) Border Tax Adjustments versus *ad hoc* assistance
  - (b) Wholesale versus piecemeal tax reform

# Key Points (1)

1. All else equal, preference for environmental taxes that focus on the 'bad' (such as emission charge) rather than proxies (such as output or input charges). If proxies are used then should be based on contribution to 'bad' (e.g. sulphur or carbon content of fuel source rather than energy use).
2. Environmental taxes should be:
  - (a) Environmental effective (reduce 'bads')
  - (b) Economically efficient (tax be set at appropriate level but difficult to do!)
  - (c) Cost effective (revenue generated to admin costs)
3. Mixed approaches (e.g. permits and charges) may be preferable to taxation alone.

## Key Points (2)

3. In general, revenue from environmental taxes should not hypothecated for specific purposes. Revenues should be directed to where they generate the highest pay-offs (in many cases will be reducing distortionary taxes).
4. 'No free lunch' because environmental taxes can create their own distortions. Thus so will maximise efficiency if revenues directed to reducing most costly distortions in economy.
5. Distributional issues with env. taxes often best addressed via welfare and general tax system. Regardless, important that marginal price reflect the marginal private & marginal external cost.

# Static and Dynamic Efficiency (1)

- Many forms of pollution impose both flow and stock externalities (current & cumulative emissions matter).
- Intuition is that setting a tax to correct only for stock externalities (or if set at a price lower than shadow cost of pollution) would result in too low a tax and too high a level of pollution.
- However, can obtain a 'more is less' result at steady-state if rate of pollutant decay *decreases* with level of pollution. Namely, optimal corrective tax (accounts for both flow & stock externalities) can result in lower tax payments and lower cumulative emissions.

## Static and Dynamic Efficiency (2)

- Implications for GHG externalities is that a carbon tax that ignores flow externalities (or is set too low for stock externalities) will result in initially a lower tax than optimal tax BUT at steady state the optimal carbon tax would be lower, production would be higher and cumulative emissions (less decay) would be lower. A case of 'more is less'!
- Failing to tax flow externalities optimally today can affect time paths and steady states of production, emissions and taxes.

# Overview of Environmental Taxation (1)

- Environmental taxes are compulsory, unrequited payments levied on a tax base that is environmentally “relevant”.
- In OECD (and Australia), environmental taxes that generate highest revenues levied mainly on fuels & motor-vehicle (about 90% revenues on env. taxes in OECD).
- In OECD as whole, env. taxes represent about 2.5% of GDP and about 7% of total tax revenues.
- Approx. one third of taxes in OECD are hypothecated for particular purposes.

## Overview of Environmental Taxation (2)

- Revenues from environmental taxes as % GDP (fallen from close to 3% to less than 2% in Australia) and total tax revenue (from 9% to 6% in Australia) have declined in past decade in many countries.
- Number externalities in Australia could be corrected by environmental taxes (such as water abstraction charge based on external cost) but have not been.

# Policy Challenges

(1) Reduce export & sectoral competitiveness:

Higher prices for key inputs (such as a carbon tax) reduces competitiveness of energy intensive industries (e.g. steel, aluminium) without necessarily reducing global carbon emissions (carbon leakage).

(2) Income Distribution:

Environmental taxes modify consumption and/or production and, thus, can be regressive.

## (1) Border Tax Adjustments versus *ad hoc* Assistance

- The US ozone-depleting substances tax introduced in 1989 shows how such a tax can be environmentally effective while maintaining national/sectoral competitiveness.
- By contrast the CPRS compensates by providing free permits (90% & 60%) based trade share and on emissions intensity determined by output . Net effect is to impose greater burden and larger emissions reductions on non-carbon intensive sector .

## (2) Wholesale Tax Reform versus Piecemeal Reform

- (1) Lower taxes (such as income taxes) to help compensate for regressivity of environmental taxes.
- (2) Mitigate rent seeking behaviour versus sectoral approach (e.g. CPRS)
- (3) Remove environmentally distorting taxes elsewhere in economy (such as vehicle FBT)
- (4) Opportunity to efficiently expand tax base of states.