Key issues in the design of an emissions trading system for New Zealand

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Outline

- Basic emissions trading system design
  - Cap
  - Measurement of emissions and 'Point of obligation'
  - Distribution of economic burden
- Managing price risk
- Controlling 'leakage'
- Maintaining simplicity
- Future work

Climate change policy dialogue

Thanks to our funders

- Tindall Foundation
- Gareth Morgan
- Fletcher Building
- Meridian Energy
- Foundation for Research, Science and Technology

Aims of the dialogue process

- Provide technical solutions to technical problems.
- Combine economic experts' knowledge of emissions markets with the expertise and experience of private sector participants from a range of perspectives.

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Greenhouse gas emissions cap

- The NZ government has a certain allocation of Assigned Amount Units under our Kyoto obligations.
- These can be supplemented through carbon sequestration.
- If NZ wants to emit more than this, it must buy additional units from the international market.

Measuring emissions

- New Zealand generates a 'National Inventory' each year which measures all greenhouse gas emissions and sequestration based on international rules.
- New Zealand must surrender enough assigned amount units to match net emissions as measured in this inventory.

Devolution of obligations and emission units

- A domestic emissions trading system issues emission units to the private sector by sale or gift.
- It makes private actors responsible for
  - Reporting information that can be used to model greenhouse gas emissions from their chain of production
  - Surrendering emission units that match the inferred emissions
  - Claiming emission units to match sequestration

In an all-sources, all-gases system, the total units surrendered will match the national inventory and New Zealand compliance will be assured.

Points of obligation

- The points of obligation should
  - Obtain comprehensive coverage
  - Minimise transaction costs
  - Provide clearly targeted incentives to maximise flexibility in reducing emissions

The point of obligation does not affect:

- The ability of any party to mitigate
- Parties' incentives to respond
- How the economic burden is shared
- The parties to which any free allocation occurs

If accurate targeting of GHGs cannot be achieved at all points, there may be a trade off between efficiency and simplicity

- Agricultural emissions are affected by on-farm mitigation options.
- Carbon sequestration depends on actions in forests.

Maintain simplicity

- Lower transaction costs
- Less scope for manipulation and opportunism
- Less risk
- Greater responsiveness

‘Simple’ monitoring/measurement

- A point of obligation at a ‘squeeze’ point in the production chain automatically reduces complexity.
- Where accurate data about emissions can only be reported at a point in the production chain where there are many actors, for example agriculture and forestry, accuracy of targeting must be traded off against cost.

Agriculture and forestry

- Emissions must be modelled in both cases.
  - The model should be fixed at each point in time (not property specific) so emissions can be anticipated.
  - Legal challenges should be minimised to reduce uncertainty and transaction costs.
- The models should evolve as new science develops.
- Data requirements for small farmers and foresters and the interface they deal with should be simple.
- On-site inspections and the need for third party involvement should be minimised for small players.

Perfection should not be the enemy of good.

Distribution of economic burden

- There are one-off costs/benefits for 'stranded assets'.
- In the long run all costs are borne by consumers.
- Free allocation of emission units transfers wealth – this could partially compensate for stranded assets.
- If done, emission unit transfers should be based on historical data and never renegotiated.
- Freely allocated emission units impose a cost on the tax payer.

Managing price risk

- This is a problem until international markets become more stable.
  - Sufficient countries need to establish their own stable rules for trading emission units.
  - The number of countries engaging in international trade becomes more stable and only shifts in relatively predictable ways.
- Currently there are multiple 'international markets'.
- The prices in some (e.g. the EUETS) are higher than New Zealand may want to bear, at least while we are establishing our trading system.

Two options to reduce domestic price risk

1 Limit international sales
  - Price will be lower of two things
    - Price in NZ-only market
    - Price at which we can buy international units

2 Provide a 'safety valve'
  - Government offers unlimited emission units for sale at a fixed price
  - Government meets international commitments by buying on international market
  - Fiscal risk involved

No banking for outside period when sales are limited

- If people can carry forward emission units to a period when international sales are unlimited, they will save them when the market price is low.
  - This will increase prices in the domestic market, which defeats the purpose of the limitation.
- Banking can be used within the period.
- Could allow limited banking – e.g. for foresters anticipating future liabilities.

No international sales while safety valve is used

- People would buy from the government at one price and then sell internationally at a higher price.
- The government would have to buy them back at the higher price.

Limiting sales is necessary and possible

- New Zealand is required to maintain a certain level of emission units in its registry by international rules.
  - This restriction aims to avoid unlimited selling and international non-compliance.
- This would allow us to allow international sales while prices are ‘acceptable’ and then close them with limited loss if prices rise and the safety valve is widely used.

Any limitations have economic and distributional effects

- A ‘safety valve’ would impose fiscal cost.
- Limiting sales benefits buyers at the expense of sellers.
- A domestic price lower than the international price has costs to NZ Inc.
- If the safety valve is set optimally, these costs will be offset by the reduced costs of rapid adjustment.
- Any limitation or ‘safety valve’ should be a short term option only.

Controlling ‘leakage’

- ‘Leakage’ is an environmental issue.
- Leakage arises when, as a result of carbon regulation, production and emissions fall in New Zealand and rise in a country with no or weaker regulation.
- The emission rises in other countries are a net global environmental loss because they are not constrained by Kyoto.

Significant leakage?

- Significant leakage will occur only when
  - Domestic supply is elastic – i.e. can change easily
  - NZ is competing with unregulated countries
  - The GHG intensity of production is high

Leakage makes compliance easier

- If New Zealand's emissions intensive production falls, we will meet our formal international obligations more easily.

But

- Production losses resulting from leakage may become long term losses – we may have 'regrets'.

Addressing leakage

- It's complex so will be imperfect.
- Have to first identify products/processes that are likely to contribute to 'significant leakage'.
  - Make this list short!
- Policies should be designed to phase out as international conditions change.

Two options

- Output-based allocation
  - Set intensity level per unit of production
  - Allocated emission units for each year are based on intensity times production in previous year
- Border tax adjustment (BTA)
  - Require imports of chosen products to surrender emission units
  - Rebate emission units to exports of chosen products

Incentive effects

- No incentive to reduce production of chosen products
  - Except for domestic consumption under BTA
- Incentive to improve emissions intensity of chosen products

Costs to taxpayer

- Any free allocation of emission units is a direct cost to the taxpayer and hence the economy.
- Under BTA revenue is received on imports so the cost is much lower than output-based allocation.

Are border tax adjustments possible?

- Developing countries might claim that these are a trade protection measure especially when they are parties to Kyoto
- International law is somewhat unclear
- Other countries are exploring this option
- May be acceptable because domestic producers face the same regulation

Future work

- Simulation of mitigation policy options

Sectors
  - Agriculture
  - Forestry
  - Stationary energy
  - Interactions among sectors

Options
  - Complexity of monitoring
  - Different international policies

Modelling Outputs

- Costs by sector, region and income group
- Effects on electricity markets
- Effects on other environmental objectives: water use, water quality

Policy Development

- New Zealand and post 2012 policies
- Fine tuning domestic policies
  - Optimal levels of accuracy in monitoring/measuring
  - Use of 'offset' policies (e.g. CDM, JI, PFSI)
  - Facilitating carbon sequestration on Maori land
  - Effects of controlling agricultural emissions on the rural sector
- Adaptation
  - Electricity governance in an increasingly uncertain world
  - Value of flood protection: managing increased flooding risks
  - Value of irrigation

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MOTU ECONOMIC AND PUBLIC POLICY RESEARCH

Local Impacts of Immigration David C. Mare

Thursday 11 October, 12.30–2.00pm Ground Floor Theatrette, BP House, 20 Customhouse Quay, Wellington

Abstract

Dave will discuss emerging findings from a programme of research that he and Steve Stillman are undertaking on the local impacts of immigration.

The work examines where migrants choose to live, and how the arrival of immigrants in an area affects the location choices of NZ-born residents and earlier migrants. It also estimates the impact of immigrant inflows on the wages and employment prospects of local workers. Dave will also discuss upcoming projects on the impact of immigrants on housing markets, on firm performance and innovation, and on education and occupational mobility of immigrants.

The research that will be discussed has received funding from the Marsden Fund, the Department of Labour's 'Economic Impacts of Immigration' work programme, and Motu's FRST-funded programme on 'Understanding Adjustment and Inequality'.

Biography

David completed his PhD in Economics at Harvard University in 1995, specialising in labour and public economics. His current research interests include issues of economic geography, particularly the role of agglomeration, and the ways that local markets adjust over time; the economics of migration; and the dynamics of labour market outcomes for workers, firms, and for the aggregate labour market. David is an applied econometrician with particular interests in panel data methods and approaches to causal inference. Prior to joining Motu, David held various positions in the New Zealand Department of Labour, including research manager and adviser, and policy analyst. He is the research leader of Motu's FRST-funded project "Adjustment and Inequality".

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