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# **Carbon pricing: have we got the right model and when will we know?**

Economic and Social Outlook Conference 2008

Melbourne Institute

The University of Melbourne

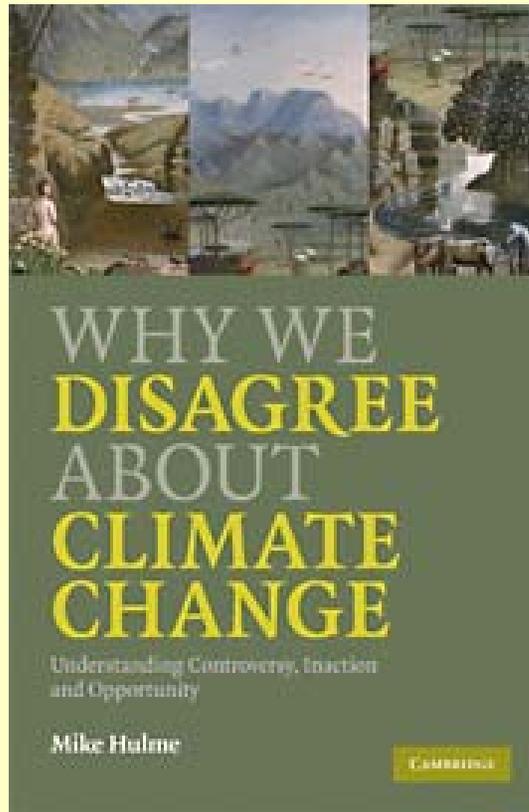
6 November 2009

David Pearce



# 4 propositions

- This is a hard job because it really is a difficult problem
- We are making it a little harder than necessary
- This is the easy bit
- The policy challenges will keep coming – two illustrations



***Why we disagree about climate change***  
**Mike Hulme**  
**Cambridge University Press 2009**

# We're trying to do something really hard

## Long term

“ These headline indicators of climate change will resist our interventions for at least another generation, if not longer irrespective of our success in slowing global greenhouse gas emissions ”

## Big change

“ ...the imposition of a price signal to reflect the negative externalities of greenhouse gas emissions is intended to cause a significant shift in the structure of the Australian and global economies over coming decades; *quite possibly the largest structural adjustment in economic history.* ”

# **There are some significant, and legitimate differences between economists**

- No empirical 'rules of thumb'
- Except:
- 'Establish a price before regulating'
- Credible price for marginal emission decisions

# 'Easy' and hard questions

More radical alternatives

Negotiations on the  
'start-up'

EITE definition

Compensation

Coverage

Should be  
susceptible to  
analysis

Long term credible  
price formation

McKibbin:  
Get pricing right  
to deliver long  
term signals  
today

Nordhaus and  
others: simple  
carbon tax

Incentive compatible  
participation

McKibbin: lock  
in with long term  
assets

Carmody:  
eliminate trade  
disincentives

# General understanding not high

- 'Counterintuitive' aspects of emissions trading
- Some objections are misunderstandings of these

**It's going to get harder**

**Atmosphere/biosphere physics,  
chemistry and biology**

**The  
observations**

**The climate  
models**

# Illustration 1: 'adding up of different gases'

## Greenhouse gases

- > carbon dioxide (CO<sub>2</sub>)
- > methane (CH<sub>4</sub>)
- > nitrous oxide (N<sub>2</sub>O)
- > perfluorocarbons (PFC)
- > hydrofluorocarbons (HFC)
- > sulphur hexafluoride (SF<sub>6</sub>)

## Global warming potential

1

25

298

# Improved Attribution of Climate Forcing to Emissions

Drew T. Shindell,\* Greg Faluvegi, Dorothy M. Koch, Gavin A. Schmidt, Nadine Unger, Susanne E. Bauer

30 OCTOBER 2009 VOL 326 **SCIENCE** [www.sciencemag.org](http://www.sciencemag.org)

- How to compare the impact of different gases
- Accounting for aerosol interactions significantly changes relative effects
- Big implications for policy

## Illustration 2: local effects

- Aerosol/GHG/pollution interactions along with land use change may effect local or regional outcomes – especially rainfall
- May not be entirely a ‘global public good’ issue.

# What to do?

- Strengthened and coherent analytical capacity
- Strong ongoing empirical review

**Thank you**

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