Economic instruments for aviation GHG emissions

David Newbery

Aviation: Post Kyoto Control Structures

Wilton Park 27 June 2008

http://www.electricitypolicy.org.uk
Questions

• What are the implications on carbon pricing?
  – Impacts at different C price levels
• How would cap-and-trade work?
• How would allocations be made?
• What are potential conflicts and distortions?
• What is the international prognosis?
GHG emissions


- US-UK flight in 747 80% full uses 328 kg fuel producing 1.02 t CO₂ or 3.06 t CO₂e for 4278km (economy) = 0.7 t CO₂e /’000km

- at 20 euros/t CO₂e = 14.3 euros/’000 km
  - not a lot, unlikely to discourage air travel

- Amsterdam-Rome: 1.3 t CO₂e /’000km = 34 euros for the 1,300 km
How to charge aircraft

• aircraft files flight and fuel log on landing
  – compute GHGe for time, height etc
  => compute cost for flight

• aircraft charged (in addition to landing fee)
  => airlines plan cost-minimising trajectory

• predict cost, charge included in ticket
  => encourages efficient planes, routings
  => encourages airports to improve ATC
Cap and trade allocations

- no need to allocate any EUAs
  - tradeable, hence included in ticket prices
  - allocating permits grants extra windfall and risks perverse incentives

=> solves the problem of which country is debited with GHG emissions - EUAs bought in relevant market (EU, US?)
Conflicts and distortions

• conflicts over treaties with those outside ETS
  – Is it a tax or a charge?
  – Does the charge reflect infrastructure cost?
• Would it encourage diversion to neighbours?
  – Not if they are within ETS
• Would it encourage over-flying?
  – To escape transit carbon charge?
International prognosis

• easy if EU imposes once treaties resolved
  – eliminates unfair competition between MSs
  – Easyjet, Ryanair support
  – airlines buy in carbon market
    • adjust for GHG quota if GHGe > GHG ?

• Critical to gain US and OECD support
  – does not require them to agree to reciprocate
  – merely to accept higher prices to access EU
Conclusions

• Window of opportunity with US election
• Simple to operate post 2012
  – when electricity faces full auctioning
  – could be introduced earlier on CO₂ emissions
    only based on distance and average fuel consumption of aircraft on that route
  – with discounts for better flight plans
• Removes complaint that aircraft untaxed
• cost is modest, gain considerable