MONASH University
Business and Economics

The Impact of Climate Change Policy on Competition in the Air Transport Industry

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Objectives:

- **To outline climate change policy and how it works**
- **To examine how policy impacts on airline competition, prices and profits**

Outline

- **Climate change policies and air transport**
- **Scope for reducing air transport emissions**
- **Impacts on costs and air fares**
- **Carbon taxes and sold permits**
- **Free permits**
- **International aspects**
- **Concluding remarks**

Policy Options

- **Ad hoc: travel restrictions; specific taxes on air transport; emissions standards; tax incentives; ATC reforms; airport emissions charges; limits to airport development; aviation fuel taxes**
- **Carbon taxes US perhaps?**
- **Including air transport in an emissions trading scheme (ETS) – EU, Australia, NZ**

ETS Issues

- **Air transport specific ETS or economy wide scheme (Aust, NZ)?**
- **Substitute industries (e.g. HST? motor vehicles) covered? (EU, no; Aust, NZ, yes)**
- **Direct (EU) or indirect (Aust, NZ) permit requirements?**
- **Free (EU) or sold (Aust, NZ) permits**
- **Carbon leakage effects present?**
- **Supplementary measures: helpful? Effective?**

Scope to Reduce Air Transport Emissions

- **Voluntary offsets**
- **Flight path/network optimisation**
- **Fleet renewal**
- **Alternative fuels**
- **Engine developments**
- **Overall: limited options in short/medium term**
- **Can reduce emissions by :**
- **Reducing traffic (pax km)**
- **Reducing emissions per unit traffic**

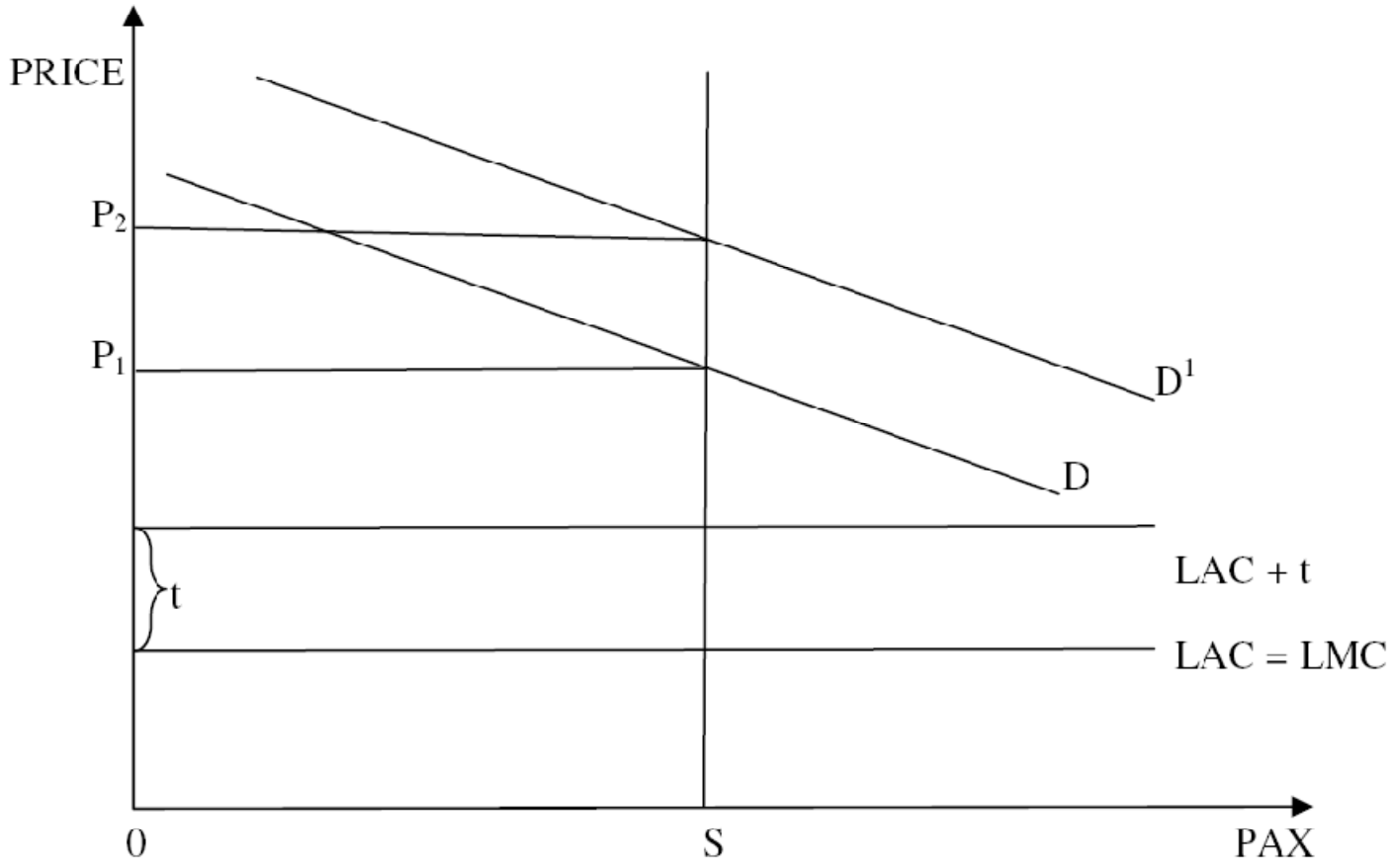
Airline	Ryanair	Lufthansa Passage	Condor	Qantas Hong Kong Sydney	Qantas London-Sydney
Aircraft	New 737/A320	New 737/A320	New 737/A320	747 400	A330
Average Ticket Price €	44	136	90	341	644
CO_2 per pax	0.088	0.107	0.163	0.470	1.600
Cost of Permits €	1.76	2.14	3.25	9.40	32.00
% of Ticket Price	4.0	1.6	3.6	2.8	5.0
Cost of permits for Direct and Indirect Emissions €	2.11	2.57	3.90	11.28	38.4
% of Ticket Price	4.8	1.9	4.3	3.4	6.0

Query

- **Many airline markets are oligopolistic or monopolistic**
- **But profits are modest over time- little scope to absorb cost increases**
- **Though airlines do adapt to higher input costs in the long run**

Carbon Taxes and Sold Permits

- **Short run: limited reduction in capacity, competition**
- **Lower profits- fares slow to adjust**
- **Long run: fewer firms/ full pass through (competition)**
- **Incomplete pass through (monopoly)**
- **Fewer firms- close to full pass through (oligopoly)**
- **Slot constrained airports with no competitors- airlines absorb cost increase, no fare increase**
- **Competitive slot constrained airports- fares can increase, and airlines absorb part of cost increase**
- **Overall: pressure on airline profits in the SR, but limited pressure in the LR**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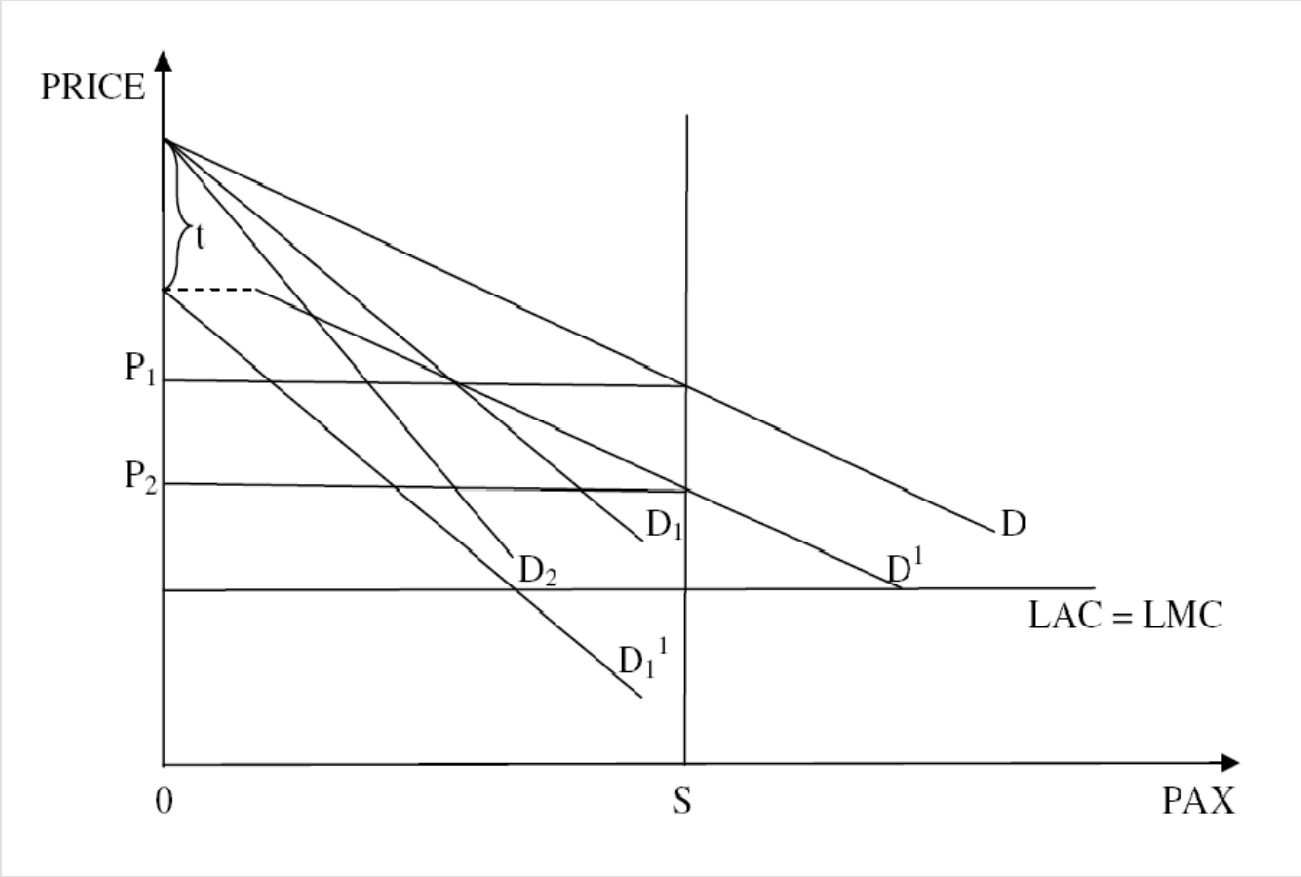
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Differential Impacts at Slot Constrained Airports

- **Long Haul pay more carbon tax than short haul**
- **Slot premium falls- by amount between two carbon taxes**
- **Air fare in SH market falls more than the carbon tax**
- **Competitive advantage to FSC in SH markets relative to LCCs**
- **But FSC profits fall (lower slot rents)**
- **Even with perfect substitutability between FSC and LCC**

Free Permits

- **Profit maximising airlines, and**
- **Allocation of permits does not depaend on airline behaviour**
- **Airlines make decisions based on market value of permits**
- **Fares as for sold permit case**
- **Airline profits in the LR**

Allocation Methods and Lock In Effects

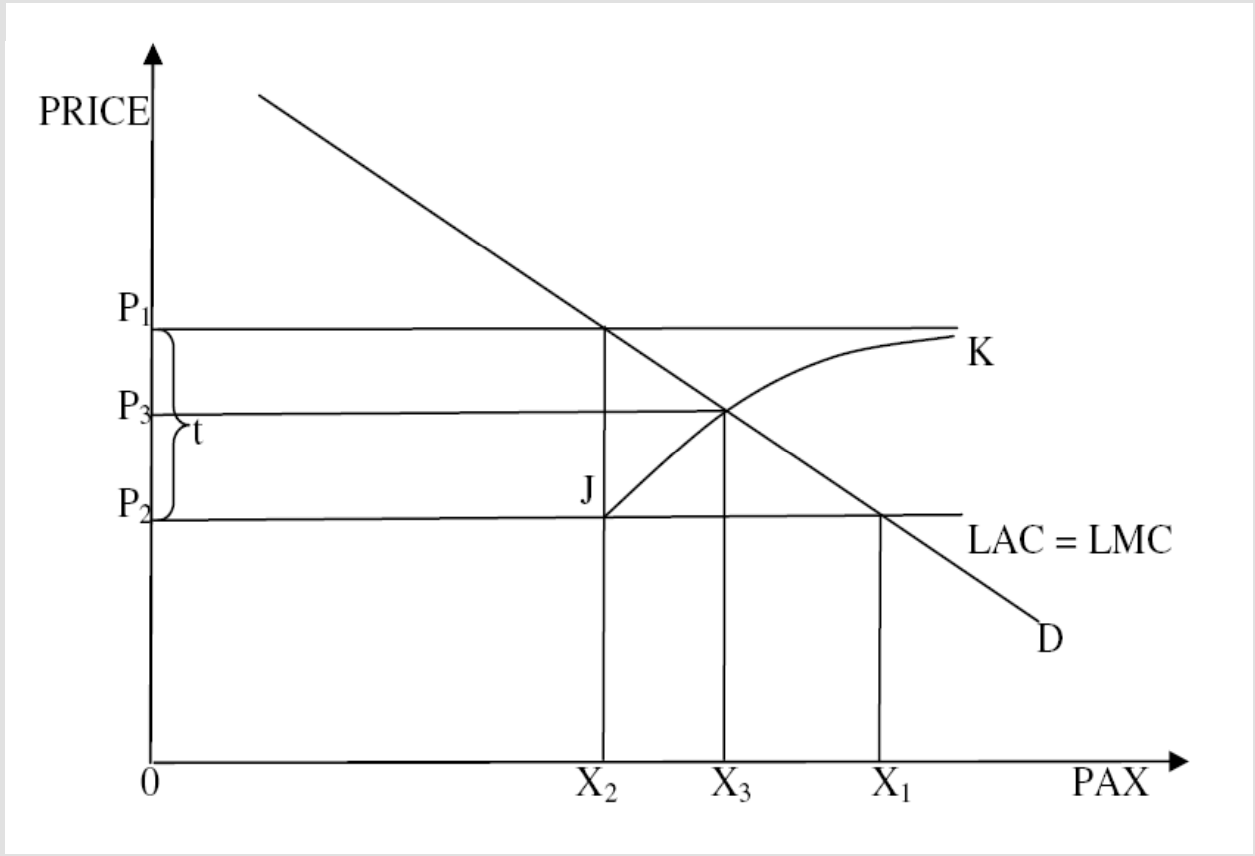
- **Eligibility for permits may depend on presence in market (no presence, no permits), and/or**
- **Allocation may depend on past output**
- **Makes airlines more keen to stay in the market**
- **More competition, lower fares, lower profits**
- **Lowers effective marginal cost**
- **More competition, lower prices and lower profits**
- **Effectiveness of policy: preserves incentive to reduce emissions per passenger, but weakens incentive to reduce passengers**
- **Pax fare: P < Social MC**

Implications

- **Profit maximising consistent with some pass through of free permits to passengers**
- **Depends on allocation rule- does it reward market presence of output?**

Non Profit Maximising Airlines

- **Airlines keep prices equal to cost (including the cost of purchasing some of the permits they need)**
- **Might maximise market share**
- **How likely are they to do this?**
- **Experience with slots (where do the slot rents go)?; hedged fuel prices and airline behaviour?**
- **More competition, lower fares and profits**
- **Again, policy less effective (P<Social MC)**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Efficiency and Effectiveness of ETS

- **Problems can arise in two scenarios**
- **Lock in effects and non profit maximisation**
- **Response in terms of GHG emissions reductions is less than optimal**
- **Worth bothering for international avaition?**

International Issues

- **Free permits in domestic markets crease profits**
- **Airlines could use these to cross subsidise international routes (but not profitable)**
- **Indirect emissions: home airlines face cost of permits for emissions created indirectly (electricity purchases etc)**
- **Foreign competitors do not pay- competitive non neutrality**
- **Probably not a large effect**

Concluding Remarks

- **Mergers; balance between LCCs and FSCs not discussed**
- **Except of slot constrained case: fares for LCCs (non slot airport) could rise by more than those for FSCs (using slot airport)**
- **If ETS is in place- do other measures (e.g. taxes) have any effects (except to raise costs)?**
- **Design of ETS impacts on how it will affect air transport**
- **Carbon taxes/ sold permits; impacts predictable**
- **Free permits: not so predictable, and may be less effective**

Merci Beaucoup!

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