Inclusion of aviation in the EU ETS

Economic and competitiveness impacts
CE Delft

- Independent, not-for-profit consultancy, founded in 1978
- Transport, Energy, Economy
- 15+ years of experience with climate policies for aviation and shipping
- Clients include UNFCCC, IMO, European Commission, national governments, NGOs, airlines, airports, aircraft manufacturers, shipping companies, ports

- Jasper Faber
- Co-ordinator aviation and maritime
Outline

- Climate policies for international transport
- How aviation is included in EU ETS
- Direct impact on airlines
- Impacts on competitiveness or airlines
- Impacts on developing countries
- International issues
- Conclusions
Climate policies for international transport

- International transport accounts for 5% of manmade CO2 emissions
  - Aviation 2%
  - Shipping 3%
- Regulation of international transport generally regulated on a non-discriminatory basis
  - Aviation ICAO
  - Shipping IMO
- UNFCCC: KP art 2.2
  - The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases (…) from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively.
- Conflicting principles of non-discrimination and CBDR
Inclusion of aviation in the EU ETS

- EU ETS
  - Cap and trade scheme for GHG emissions
  - Mainly large installations based in EU
  - Installations need to report GHG emissions annually and surrender an equivalent amount of allowances
  - Installations can obtain allowances in three ways
    - From regulator
      - For free (partly)
      - At auction (partly)
    - From other installations or intermediaries
    - JI/CDM credits (up to a limit)
Inclusion of aviation in the EU ETS

- Aviation in EU ETS
  - *Aircraft operators flying to and from EU airports* need to report GHG emissions annually and surrender an equivalent amount of allowances
    - Irrespective of nationality
    - De-minimis rule: aircraft operators with less than 729 flights per year are excluded (2 per day on average)
    - Flights from non-EU countries to the EU are excluded if non-EU countries take ‘equivalent measures’.
  - Cap: 97% of average 2004-2006 emissions (current emissions are higher)
    - 82% allocated for free based in RTKs on eligible flights
    - 15% auctioned
    - 3% reserved for new entrants
Direct impact on airlines

- Additional cost items
  - System costs: monitoring, reporting and verification of emissions, trading allowances
  - Carbon costs: allowance purchase costs and opportunity costs of freely received allowances

![Diagram showing the impact of CO₂ price on ticket prices, efficiency, demand, and profit margin.]
Direct impact on airlines

- Increase in ticket costs depends on
  - Price of allowances
  - Pass through of opportunity value of free allowances
  - If markets are competitive (full pass through)
    - 1% - 5% on average ticket prices
    - Up to EUR 10 per round trip for intra-EU flights
    - Up to EUR 50 per round trip for intercontinental flights

- Price elasticity for aviation 0.5 - 1.5
  - Demand (RTK) decreases by 1% - 3% on intra-EU routes; 2% - 5% for intercontinental routes
  - Against a rapidly increasing BAU scenario

- No impact on airlines excluded by de-minimis rule
Direct impact on airlines

- Decrease in aviation CO2 emissions slightly larger than decrease in demand
  - Efficiency improvements are possible
- Aviation emissions are projected to keep increasing
- Environmental effect stems from aviation buying allowances from other sectors
- Total emissions for all participants in the EU ETS are capped
Impacts on competitiveness of airlines

- Two arguments
  - Impact per unit of revenue
    - EU airlines impacted to a larger extent than non-EU airlines
  - Hub effect

- The higher impact on EU airlines had no impact on competitiveness
  - In aviation, markets are city pairs
  - All airlines on a city pair market are affected in the same way
Impacts on competitiveness of airlines

Hub effect
- On intercontinental flights with a transfer, passengers can choose
  - EU hub - both flights under EU ETS
  - Non-EU hub - one flight under EU ETS
- Airlines with hubs outside EU will benefit
- Results in carbon leakage
Impacts on competitiveness of airlines

Hub effect
  • Estimates for flights to and from Amsterdam

<table>
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<th>Cities</th>
<th>All carriers</th>
<th>EU carriers</th>
<th>Non-EU carriers</th>
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<td></td>
<td>Total</td>
<td>Direct</td>
<td>Transfer</td>
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<tr>
<td>Asia/Pacific</td>
<td>-5.1%</td>
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• (MVA and CE Delft, 2007)
Impacts on developing countries

- Trade
- Tourism
- Connectedness
- CDM
- Use of revenues

Trade
- Impacts depend on
  - Transport cost increase (small)
  - Share of transport costs in consumer price (small)
  - Import substitution possibilities or different sources (varies per product)
- Air freight typically high value and perishables
- High value: low share of transport costs
- Perishables: limited possibilities for import substitution
Impacts on developing countries

- **Tourism**
  - Impacts depend on
    - Transport cost increase (small)
    - Share of transport costs in tourism expenditures (small)
    - Cross elasticities for destinations (high)
  - Cross elasticities are known to be very high, so the demand for holidays to developing countries may decrease even though the transport costs only increase slightly

- **Connectedness**
  - Impacts depend on
    - Transport cost increase (small)
    - Competitiveness of own airlines (varies per airline)
    - Airline networks (varies per airline)
  - Possibly positive impacts for developing countries with alternative hubs; unknown impacts for other countries
Impacts on developing countries

- CDM
  - Impacts depend on
    - Demand for CDM (increase)
    - Projects eligible as CDM projects (varies per country)
    - Future of CDM (uncertain)
  - Positive impacts on countries with CDM projects

- Use of revenues
  - Revenues of EU ETS auction are not earmarked
  - Recommendation to spend on aircraft efficiency improvement
  - In a global context, there are many proposals aiming to use the revenues of possible global policies for compensating developing countries and climate finance (see e.g. AGF 2010)
International issues

- US airlines and others argue
  - Inclusion of aviation in the EU ETS is a breach of the Chicago Convention
  - In my opinion not true: the Chicago convention forbids:
    - Discrimination against foreign airlines - EU ETS is implemented in a non-discriminatory way
    - Taxation of fuel on board aircraft - even if one considers a cap-and-trade scheme to be similar to a tax, there is no link between emissions en route and fuel on board
- China
  - Arguments not clear
  - Probably related to CBDR
  - Probably related to ‘equivalent measures’.
Conclusions

- Aviation in EU ETS
- Non-discriminatory
- Exemption for airlines with few flights (mainly airlines from small developing countries)
- Small impact on ticket prices and demand
- Small impact on aviation emissions, but large impact on net emissions
- Competitiveness of non-EU airlines (including airlines from developing countries) increases slightly on some routes due to hub effect
- Some carbon leakage due to hub effect
Thank you for your attention!

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