



ICAO

DEVELOPMENT OF AIR TRANSPORT SETTING THE COURSE, MONTREAL 7-8 MAY, 2014

THE IMPACT OF LEVIES ON AIR TRANSPORT SUSTAINABILITY

Dr. Andreas Kopp

World Bank, TWI



OUTLINE

1. The fiscal argument for levies on aviation
2. The environmental argument for levies on aviation
3. The quantitative importance of a global charging regime
4. Wider development benefits at risk (?)



Fiscal arguments for levies on aviation

- Argument alludes to optimal commodity and services taxation
 - The best achievable tax regime is one that is based on commodity taxation (Ramsey)
 - Tax the sales of commodities and services according to the inverse of the price elasticity of demand!
 - Tax rates should be the higher the lower the demand elasticity.



Fiscal arguments for levies on aviation

- Domestic aviation is often taxed in line with such considerations.
- International aviation is exempt: Concern over international aviation being “subsidized”, using too many resources that should better be used elsewhere.
- Estimated demand elasticities for aviation are considerably higher than for road transport.
- There are vast differences between elasticities for different classes of travel (>1 for long-haul tourism and lowest for long-haul business travel, < 0.3)



Fiscal arguments for levies on aviation

- The argument breaks down without a global tax authority.
- Tax competition at the national level makes inclusion of international aviation into commodity taxation very difficult. For most countries global demand elasticities are irrelevant as national elasticities would be far higher.
- In the absence of a delegation of national tax authority to a global institution taxation of international aviation services appears to be theoretical.



Environmental arguments for levies on aviation

- Environmental effects of aviation are a mix of global and local effects.
 - Substantial contribution to GHG concentration in the atmosphere (4-5 percent), with particular dangers from flights in high altitudes.
 - Health costs from local air pollution and noise.
 - The latter are local effects, should be and are often mitigated by local taxes, regulation and land use planning.
 - Some local “mitigation” happens by excessive airport fees.



Environmental arguments for levies on aviation

- This leaves the problem of aviation contributing to a global negative external cost, global warming.
- The often heard argument that transport in general and aviation in particular should contribute to an emission reduction path in accordance with its contribution to GHG concentrations is flawed.
- Across sectors adjustment burdens should be allocated according to their costs.



Environmental arguments for levies on aviation

- There is a evidence that GHG emission reduction in transport is far more expensive than in other sectors:
 - Under a carbon price regime that curbs global warming to $< 2\text{ C}$, transport would expand GHG emissions by > 40 percent by 2050, 'subsidized' by larger savings in housing, energy and industry. (US Dep. of Energy)
 - CDM has allocated mere 0.4 percent of all cap and trade revenues to transport.



Environmental arguments for levies on aviation

- Carbon prices are derived from expected global damages from global warming.
- They are determined in Integrated Assessment Models with carbon prices differing substantially with assumptions for discounting (intergenerational fairness, future income developments).
- Usually discussed carbon prices are too small to have an impact on the aviation industry.



Quantitative importance of a global charging regime

- Carbon pricing effects will be hard to discern by consumers (IMF, World Bank)
 - A price of \$ 25 per ton of CO₂ leads to a fuel price increase of 8 percent.
 - A fuel price increase of 8 percent would lead to a change in the ticket price of 2-4 percent.
 - With a demand elasticity of 1 (median value in the literature) it would result in international aviation reduction of 2-4 percent.



Quantitative importance of a global charging regime

- The incentive may be weak given the general market volatility.
- If the industry achieves the targets in increased fuel efficiency it removes the incentive effect.
- Developing countries may demand compensation referring to the 'polluter pays principle'.
- The economic argument notwithstanding, would OECD countries in fiscal crisis mode be able to organize even the modes transfer of about \$ 1 billion?



Wider development benefits of aviation

- Narrow view on the costs of aviation
 - Loss in consumer benefits, particularly in tourism
 - Loss in economic activity in lagging regions, depending on tourism.
- Recent research in economic geography suggests larger indirect losses for development, which may be new and not discernable in historical evidence.

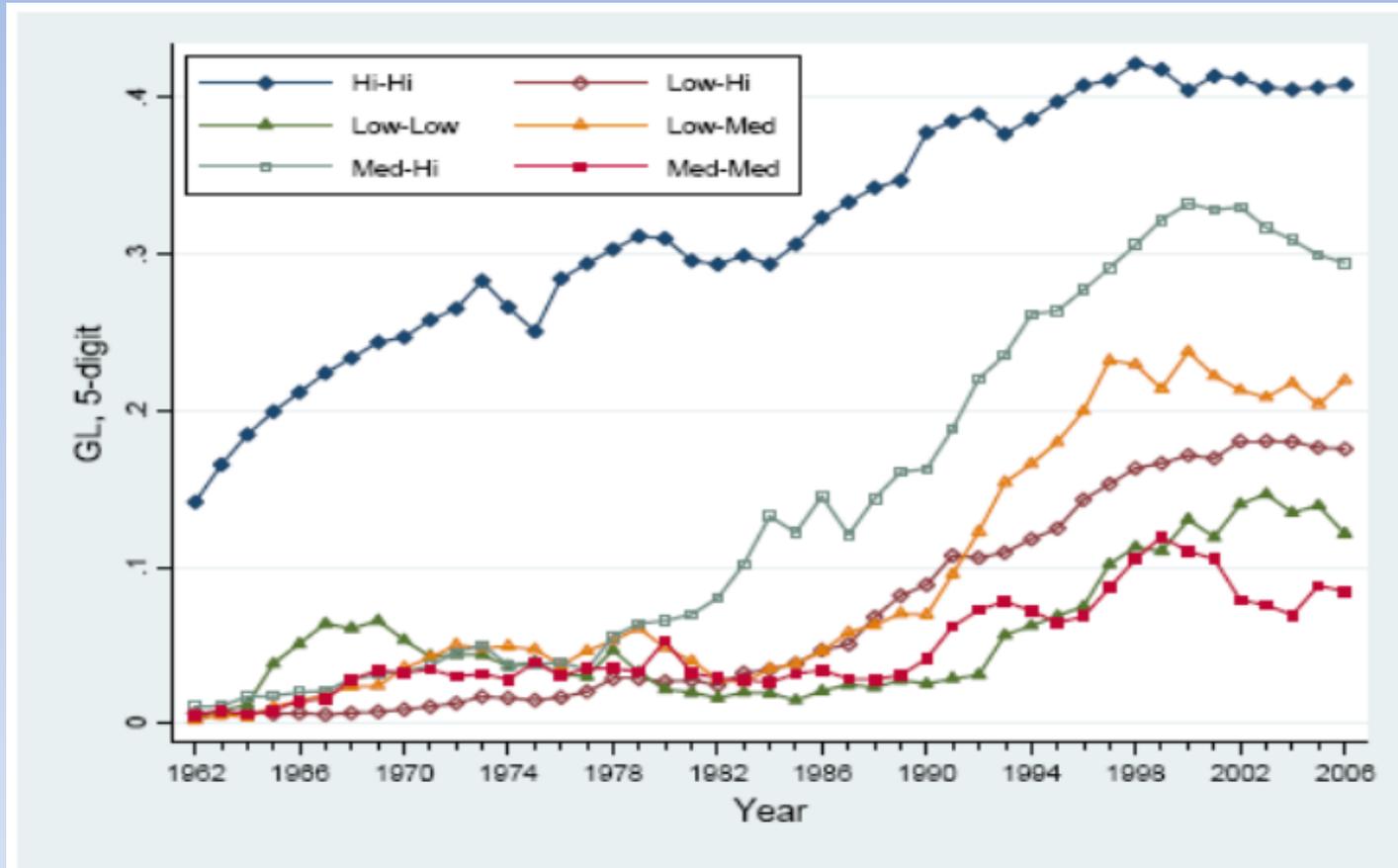


Wider development benefits of aviation

- Pre-crisis wave of globalization has integrated developing countries in intra-industry trade, trade in close substitutes.
- Differentiated goods are more knowledge intensive than basic goods, are associated with knowledge transfer to developing countries.
- A higher knowledge intensity of production increases the long-term growth prospects of countries.



Wider development benefits of aviation



Notes: Country grouping according to World Bank categorization (see Table 1); "long coverage" data set



Wider development benefits of aviation

- With a higher knowledge content
 - speed becomes much more important in transport, as innovation shortens product and fashion cycles,
 - the value-weight ratio of goods transported increases strongly.
- Both trends make aviation for cargo transport much more important.



Wider development benefits of aviation

- Organizational and technical knowledge transfer make passenger transport more important.
- Knowledge production and management networks depend on face-to-face communication, which has been largely unaffected by electronic means of communication ('silicon valley', low price elasticity for business travel).

Reductions in cargo and business travel may have substantial development costs.



Summary

- Levies on aviation are rationalized with very different arguments.
- Fiscal arguments are justified by global resource allocation but face the lack of a global fiscal regime.
- Environmental arguments have to distinguish between local and global costs. GHG emissions provide an argument for a global levy.
- The quantitative effect of the appropriate carbon price can hardly change the course of the industry.
- Levies should take account of important secondary development effects.



Thank you!

Please send questions or suggestions to
akopp@worldbank.org

