

Economic Impact of Air Cargo: A Critical Review

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The Issues...

- **What can an Economic Impact Analysis (EIA) of air cargo tell us?**
- **Should EIA be used to assess policy measures for air cargo in order to know if a region or a country gains from such a measure? For example, can EIA assess the benefits and cost of a stricter night curfew?**
- **How can we organize a rational dialogue on aviation policy? Which economic tools should we use?**



Key Message

- **Often the most popular economic impact analysis is EIA, but this cannot be correctly used to estimate impacts or net benefits**
- **Economically sound techniques, such as cost benefit analysis (CBA) and computable general equilibrium (CGE) modelling are well researched and readily available; they should guide a rational policy discourse.**



Agenda

- **The Tasks of an Evaluation**
- **Analysing the Three Techniques**
- **Catalytic Effects versus Wider Economic Benefits**
- **Conclusions**



The Tasks of an Evaluation



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Types of Assessment Problems

- **Aviation Policy Options:**

- To permit a foreign airline to fly to a new destination;
- To subsidise flights to remote places
- Imposing passenger taxes (UK APD)
- Imposing regulation of ATC
- Carbon policies, such as EU ETS
- Whether to build a new airport or terminal
- Night curfews
- Whether to build/upgrade surface access
- To close an airport



Three Evaluation Techniques

- **There has been a considerable use of three techniques of assessment-**
 - Cost Benefit Analysis (CBA)
 - Economic Impact Analysis models (EIA)
 - Computable General Equilibrium (CGE) models
- **All have been used in assessing Air Transport Policy options**
- **Have they been used as they should be used?**



Three Questions for the Evaluation

- 1. Significance: How significant or big is the investment or the effects of the policy?**
- 2. Impact: What impacts on macro and micro economic variables (e.g. on GDP, Consumption, size of tourism industry) does the investment or policy have?**
- 3. Net Benefit or Welfare: Does the country/region's economy gain or lose from the investment or policy?**



Analysing the Three Techniques



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Economic Impact Analysis

EIA has been used for three distinct purposes:

1. Measuring economic significance
2. Measuring regional economies of scale and agglomeration; and
3. As a criterion to decide on airport expansion, noise, night curfew & subsidies...



EIA

Steer (2018) Value of Air freight services to the UK

Impacts	Jobs	GVA (UK P m)
Direct	46,000	1,101
Indirect	38,000	1,067
Induced	66,000	1,891
Total	151,000	4,059
Catalytic effects	NA	87,300



EIA

York (2021) Economic Impact of Night Flying in the UK (Night Period 23:00 – 6:59)

Impacts	Jobs	GVA UK Pounds
Direct	24,200	1.4 Bill
Indirect & Induced	38,700	2.0 Bill
Catalytic	150,400	13.1 Bill
Total	213,200	16.5 Bill



EIA

York (2021) Economic Impact of Night Flying in the UK (50 % Night Period Reduction)

Impacts	Jobs	GVA UK Pounds
Direct	-4,000	-0.3 Bill
Indirect & Induced	-7,000	-0.4 Bill
Catalytic	-51,000	-4.5 Bill
Total	-62,000	-5.1 Bill



EIA

Baum et al (2007) stricter night curfew for Berlin International Airport (BBI).

- Base scenario: no night restrictions, 30 m PX in 2023:
 - 21.300 direct jobs, 9700 indirect, 13600 induced jobs and 13600 catalytic jobs. Total 79.100 jobs.
- Strict night curfew reduces PAX by 8 million:
 - - 5 300 direct jobs, - 2100 indirect jobs, - 47000 induced jobs, - 5400 catalytic jobs.
- Loss of 20.000 jobs persuaded the planning authority to keep BBI open.



EIA

Airport	Study result	Political Purpose
Vienna Fritz et al., 2007	16,031 full time workers create 52,500 indirect and induced jobs	Economic Significance
Frankfurt Bulwien et al., 1999	Additional 57,000 jobs	3 rd runway creates more jobs than alternatives
Berlin Baum et al., 2007	28.400 new direct indirect and induce jobs plus catalytic Effects of 40.600 jobs	BBI creates 40000 more jobs than the old system.



Pros & Cons of EIA

Pros

1. EIA can analyse forward & backward linkages. Hardly used.
2. EIA can quantify the economic significance. However, economic significance is a nice, but useless aviation policy

Cons

1. Direct & indirect effects of are greater the more costly and unproductive the measure is.
2. Induced effect is independent of the measure.
3. Exogenous stimulus triggers a multiplier process, in which only quantities react. Substitution and price effects are neglected.
4. EIA confuses benefits and costs. All effects are benefits.
5. Some catalytic effects are WEBs, but adding these to impact is like adding apple and pears. And this on a fantastic scale.



Cost Benefit Analysis

	NPF	CBA
Objective	Profits for Investor	Economic Welfare
Revenues	Source of profits	Important source
Operating/investment costs	Main source of costs	Main source of costs
Non-monetized user benefits	Ignored	Important
Tax	Outflow	Transfer
Externalities	Ignored	Important source of costs
Discount rate	WACC	Social Discount rate



CBA

- **Pros:**
 - Theory sorted out; rigorous
 - Strong base in practical work
 - Can handle a wide range of benefits and costs
 - Straightforward and cheap
- **Cons:**
 - What to do with general equilibrium or macro effects?
 - Handling economy wide and global externalities (CO₂), as opposed to local externalities



Airports-CBA

- **UK Commission of the Third London Airport (Roskill), 1970**
- **Second Sydney Airport 1970s**
- **Some studies of large and small airports**
- **Department for Transport (UK) study for London (2003)**
- **Boris's airport for London**
- **Second Sydney Airport (2012)**
- **Recent London Airport Commission (2015)**



CGE

- **A complete model of the economy with all all key markets and relationships**
- **The model is closed- if you need more resources, they have to come from somewhere (not like EIA)**
- **Effects can be large or small**
- **Originally used to estimate impacts, but now often used to estimate net benefit**
- **CGE and CBA can be combined**



Airports-CGE

- **Assessment of Melbourne curfew (early 2003)**
- **New runway for Brisbane (2007)**
- **Subsidies to regional airports (Forsyth, 2007)**
- **New Sydney study (2012)**
- **Western Sydney (2013)**
- **Tokyo Haneda (2005)**
- **London Airport Commission (2014)**



Evaluation Questions & Techniques

	EIA	CBA	CGE
Measuring Significance	Yes	NO	Yes
Measuring Impact	Over-estimation	No	Yes
Measuring Net Benefit	No	Yes	Yes



Catalytic Effects versus Wider Economic Benefits



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Connectivity, Catalytic Effects and WEBs

- **Valuing connectivity- an issue for CBA and CGE**
- **If connectivity is valuable, should we not be evaluating it and incorporating it in the analysis?**
- **Traveller gets benefit from connectivity/ already factored into consumer surplus**
- **But there may be positive externalities- similar to telecoms**
- **How large? It depends. Tourism: In Australia and the UK, about 5-10% of expenditure**
- **Some catalytic effects are WEBs, but adding these to impact is like adding apple and pears. And this on a fantastic scale.**



Conclusions



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Conclusions - the Way Ahead

- **Several main ways of evaluation airports: CBA, CGE and EIA**
- **CBA traditional, EIA popular now, CGE emerging**
- **CBA rigorous- but some limitations- macro and GE effects, unemployment, global externalities, tourism benefits**
- **CGE- can handle many of the limitations of CBA**
- **CBA & CGE can be combined if need be.**



Conclusions-The Wrong Direction

- EIA is very popular, but
- Has fatal flaws as an *evaluation* tool
- Results not plausible, and provides exaggerated estimates of impact and net benefit
- Should never be used to assess impact or net benefits of a policy
- If aviation industry uses EIA it avoids a rational dialogue on the benefits & costs of policy measurers. How to deal with it?

Thank You!

