Influencing air connectivity outcomes

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Outline

- **What is air connectivity and how to measure it?**
- **Determinants of connectivity**
- **The connectivity toolkit for policymakers**
- **A market-based or administrative approach?**

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What is connectivity and how to measure it?

- **"Extent to which nodes in a network are connected to each other"**
- **Many models available to measure air connectivity. Two branches:**
  - **"Physical" connectivity models:**
    - Count number of direct and indirect travel options from origin to destination or number of steps/ travel time needed to reach all destinations in a network
      - Indirect connections are 'built' using flight schedule data, using certain predefined criteria (e.g. MCT, maximum detour, which connections are 'online')
    - Some models: weighting procedure for indirect and multi-stop direct travel options based on their quality relative to a theoretical direct flight
    - Simple, easy to explain, useful for consistent benchmarks

  - **Generalized Travel Cost models/ utility based models:**
    - Measures inconveniences air transport user faces when travelling from A to B for available travel options
    - Converts inconveniences (in-flight time, transfer time, airport access and egress time, ticket price) in monetary terms (using values of time)
    - More complex, but can be used for pax choice modelling and welfare analysis

Distinction between 3 types of connectivity
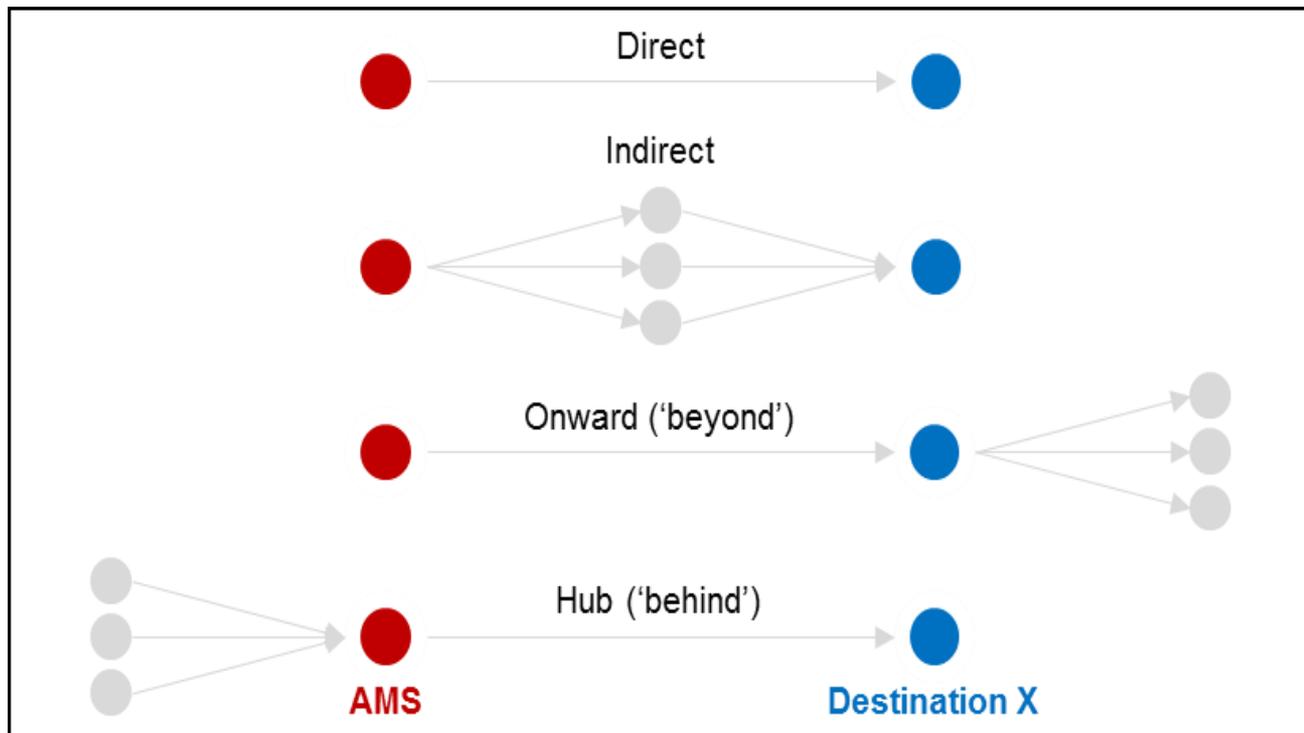
Examples of connectivity analysis

Sao Paulo and Mexico best connected airports in LATAM in 2014

Source: SEO NetScan

Amsterdam 2nd highest ranked European airport in terms of hub connectivity in 2017, after Frankfurt

Source: SEO NetScan
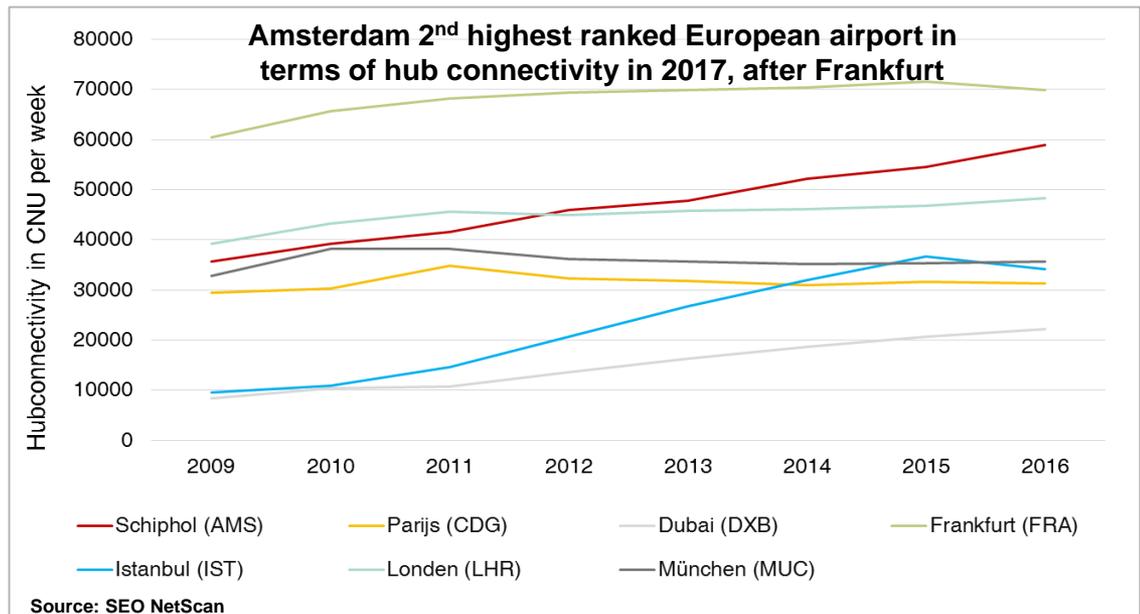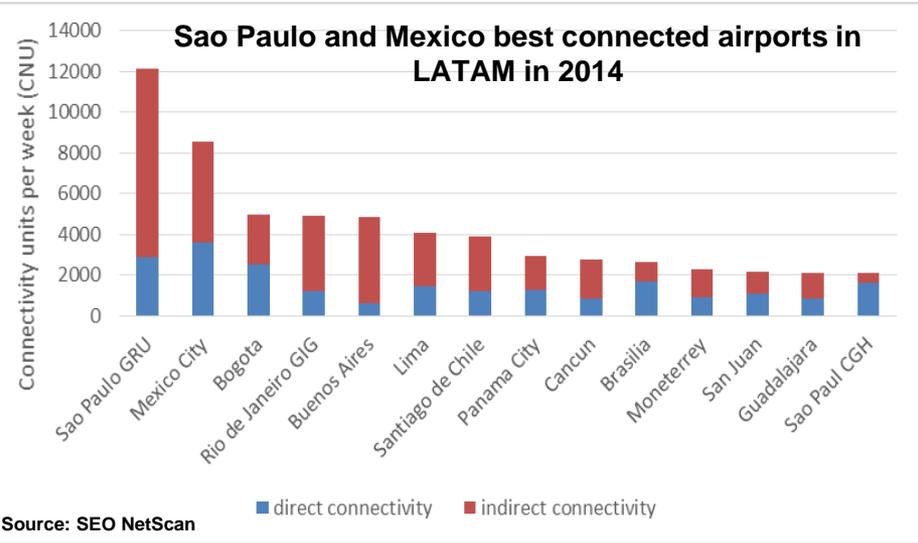
Main determinants of air connectivity levels at airports

- **Size and strength of local origin-destination market**
- **Presence of sizeable airline hub operation**
  - **Airline hub operation provides airport with connectivity premium, mainly on long-haul**
- **Airport and airspace capacity**
  - **Competition from other airports in the region**
- **Airport visit costs**
  - **E.g. airport charges, taxes, noise levies, ATC charges, costs for third partly provides**
- **Airport service levels and quality**
- **Market access**
  - **E.g. traffic rights, restrictions on airport use**

Hub airports benefit from connectivity premium
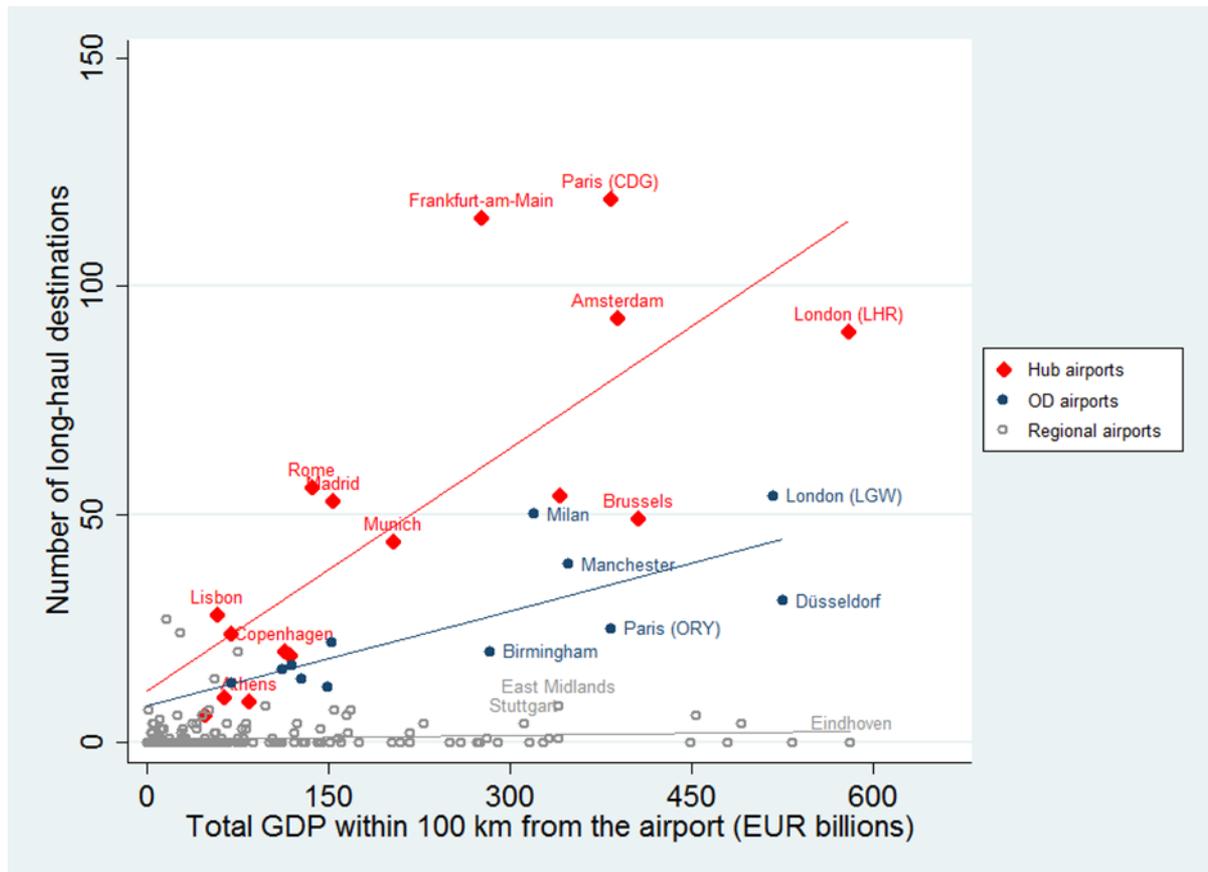
Source: OAG, SEO Airport Catchment Area Database

Why governments care about connectivity

- **Economic arguments**
  - **Direct user benefits, wider economic benefits, jobs and GDP**
- **Optimize connectivity outcomes give scarce airport capacity**
  - **Which connections best meet society's needs?**
- **Socio-political objectives**
  - **Accessibility of peripheral regions, domestic connectivity**
- **Protect national champions**
- **Reduce environmental externalities (noise, emissions)**

Which options do governments have to influence air connectivity outcomes? (I)

Size and strength of local market	Airport and airspace capacity/ efficiency	Airport visit costs
Investments in landside accessibility	Allow for (timely) availability of sufficient airport capacity to accommodate foreseen traffic growth through planning permissions, investments etc.	Regulation of airport charges/ ensure competitive constraints on airport pricing behavior
Remove barriers to entry to allow for (low-cost) airline competition/ entry	Regulate restrictions on infrastructure use (e.g. night bans, noise quota) and type of infrastructure (e.g. runway length and facilities)	Government related taxes (e.g. air travel taxes and charges (security fees))
Soften visa requirements to stimulate inbound travel	Ensure efficiently organized airspace	Benchmarking of visit costs
	Should be subject to careful evaluation of costs and benefits	Liberalization of certain airport markets (e.g. ground handling)
		Start-up aid and incentives
		Covenant with airport operator for coordinated tariff strategy in multi-airport system

Which options do governments have to influence air connectivity outcomes? (II)

Airport service levels and quality	Market access
May be influenced via regulatory framework on airport service levels (if applicable)	Air transport liberalization Negotiation of traffic rights under bilateral air service agreements
Ensure capacity and efficiency of border control and customs	Impose Public Service Obligations to guarantee air services to peripheral regions
	Impose Traffic Distribution Rules
	Introduce local rules in the slot allocation
	Facilitate more efficient use of scarce capacity, e.g. by facilitating secondary trading of slots

Public Service Obligations

- **To guarantee air services considered to be vital for social and economic development of the region but unprofitable for any airline to operate under competitive market conditions**

- **In Europe: governed by EU Regulation 1008/2008. Equivalents in other parts of the world (e.g. US EAS)**

  - **Tendering process grants route monopoly for certain period of time with or without financial compensation**

  - **Quite some discretionary power for Member States as no approval by European Commission is needed**

  - **Compatible with European slot regime: slots can be reserved for PSO routes**

  - **Only between Community airports or within territory of Member States**

Traffic Distribution Rules

- **Traffic Distribution Rules are used to distribute traffic between airport serving the same metropolitan area**
- **In Europe: Regulation 1008/2008, but equivalent policies elsewhere in the world (Tokyo, Incheon, LaGuardia)**
  - **To reduce airport congestion or stimulate use of newly created airport capacity**
- **Approval by European Commission needed**
- **Discrimination by nationality, identity of carrier or destination not allowed**

- **Experience with TDRs in Europe (Milan, Paris) showed drawbacks of the TDRs:**
  - **Airlines search for loopholes in the system and find their way around the TDRs**
  - **TDRs in Milan contributed to dehubbing of Malpensa by Alitalia**
  - **Court cases due to de jure or de facto discriminatory nature; EC enforced revision of the TDRs**

Incentive programs and start-up aid

- **Airlines are not always prepared to run the risk of opening new routes. Incentive packages/ start-up aid can be important decision factor. Many airports have incentive programs, but also governments can play a role.**

- **Example: UK Regional Air Connectivity Fund**
  - **UK government initiative for start-up aid to airline to stimulate connectivity at UK regional airports (<5 mln pax/year)**
    - in line with EU guidelines on state aid
  - **Bids need to come from route promoter consortia (airline, airport, local authority). New routes need to create net economic benefits to the region**
  - **Funding can cover up to 50% of aeronautical charges. Only available for routes within the European Common Aviation Area**
- **Example: bilateral agreements between authorities and airlines**
  - **Airline commits to opening route(s) and agrees to incorporate tourism advertising in its marketing campaigns**
  - **Government pays for the marketing costs or grants funds for route openings (e.g. between regional Spanish governments and airlines)**
  - **Bilateral government-airline agreements at 26 out of 200 European airports according to Malina et al. (2012)**

A market-based or administrative approach?

- **In particular in case of capacity constrained airports, we see that it is tempting for governments to use an administrative approach to achieve certain desired connectivity outcomes**

  - **Traffic Distribution Rules (e.g. Milan, Paris, Tokyo, potentially Amsterdam) to limit certain types of traffic at one airport and stimulate it at others**
  - **Covenant with airport operated for coordinated (tariff) strategy for airports in a single system to achieve certain objective**
  - **Public Service Obligations: slots can be earmarked for PSO use**
  - **Bilateral air service agreements can be used to regulate airline market access to airports in a system/ country**
  - **Steering of connectivity through restrictions on infra use:**
    - Runway length: short runways do not allow for long-haul traffic
    - Airport opening hours: will influence likelihood of airport being used as a (LCC) base
    - Restrictions on border control: e.g. need for 100% controls on Caribbean flights by Military Police used as argument not to allow Caribbean flights at Eindhoven Airport (Netherlands)

Administrative approach has some important drawbacks

- **Administrative instruments focused on status quo, but industry very dynamic. Risk is that governments lags behind the market and policy does not result in desired changes**

- **Governments have incomplete information: difficult to determine which connections are most valuable to society**

- **History shows that direct intervention (e.g. using TDRs) has not been very successful (see Milan case) and can lead to inefficient outcomes**

- **Risk of discrimination and court cases: difficult to design TDRs that are non-discriminatory towards nationality/ identify of airlines and effective.**

- **But: instruments such as PSOs may be warranted to achieve certain social/ political objectives, e.g. accessibility of peripheral regions**

Market-based approach likely to deliver more efficient outcome

- **Allow for (timely) realization of airport capacity to meet future demand, subject to careful evaluation of benefits and costs (project, external)**

- **Remove barriers to entry/ ensure market access**

- **Intervene when the market fails (e.g. market concentration, environmental externalities) or when there are important social objectives/ distribution issues, e.g. through PSOs or start-up incentives**

- **When capacity is scarce, ensure that capacity is used by those airlines that attach the highest value to it**
  - **Facilitate secondary slot trading (or some other form of rationing mechanism)**
  - **Provide alternative airport capacity to airlines if possible**
  - **Stimulate airport competition**

Conclusions

- **Increased focus in policy circles on connectivity, mostly because of its perceived economic value/ positive externalities**

- **Various instruments are available to government that can potentially be used to influence connectivity outcomes**

- **We argue that policy makers should be modest about the possibilities for and effectiveness of policies to directly influence/steer connectivity outcomes through regulatory interventions**

- **An approach that creates conditions to let the market do its work likely to deliver more efficient outcome**