Publication Alert October 2006 – Amsterdam is one of the most "central" global cities.

In this paper, the position of airports in the global air travel system is analyzed by examining the differences in travel costs, travel distances, and travel times. The findings of the study show that although physical distance between cities remains constant, time and particularly cost distances depend on the configuration of the global airline system. Some cities may be centrally located in a physical-geographical sense, but are remotely located when actual travel times or travel costs are taken into consideration (so-called "travelscarps"). Other cities may be physically distant from the rest of the major cities in the world, but closely connected to the global city system when travel times or travel costs are taken into consideration (the so-called "wormholes").

The authors conclude that Amsterdam has the shortest *physical* distance from hub cities in the world. The cities that can be reached in the shortest amount of *time* distance are all located in Europe. Amsterdam is ranked fourth behind Frankfurt, London and Paris. In terms of *costs*, in that cities more distant from others are often the most expensive to which to travel, Amsterdam is not ranked in the top 5 of lowest cost cities. The least expensive cities to travel are London and Los Angeles, followed by New York and San Francisco-Oakland.

Research Project

The authors examine the positionality of global airline connections by measuring the distances between a number of continental and world cities, the costs of moving between them, and the time required to travel between them. They seek to answer the questions:

- What are the most and least accessible cities, as measured by amount of time and cost to reach them?
- What are the fundamental factors that affect global airline structures?

Data and measure

The data used in this article are based on information obtained from a global distribution system (GDS), a consolidator and distributor of information on air travel, such as schedules and price. The data are based on flights from twenty-five global hub airports, which consists Amsterdam, to 241 destinations. Destination cities were selected if they had a 2000 population of more than 2 million inhabitants or they were the capital of a country.

The queries were conducted with the hub city as the departure airport (n=25) for round-trip travel to each destination city (n=241), excluding trips from and to the same hub city. Queries were constructed for flights leaving 9 March 2004 and returning 16 March

2004. From these flight data the minimum cost and time between the hub and destination cities were identified. Also the distance between each hub and destination city was calculated.

The analysis is based on three interlocking measurements of distance (physical, cost and time) between the twenty-five hub cities and the 206 destination cities. Physical distance is expressed in kilometers. Cost distance (expressed in dollars) represents the least expensive flight between city pairs, and time distance (expressed in minutes) represents the minimum amount of time required to fly back and forth between city pairs.

Results

All cities with the smallest average physical and time distances are European capitals and those cities with the largest average distances are generally in the southern hemisphere. For example Amsterdam has the world's least physical distance, while Wellington, New Zealand, has the greatest.

Four variables are added that are negatively related to the effect on time and cost distance. *Population* is considered a good proxy for the size of the air travel market, but there are large segments, particularly in developing countries, which are disconnected from air travel. The *number of flights* represents the supply side of air travel. *Government effectiveness* measures bureaucratic and institutional efficacy. Finally, a measure of a place's or city's positionality in the global economy is represented by the level of *international Internet bandwidth* available.

Physical distance was positively associated with long travel times and higher costs; larger populations, a large number of flights, more effective governmental institutions, and stronger connections to the global Internet were associated with shorter travel times and lower costs.

The findings show that although physical distance between cities remains constant, time and particularly cost distances depend on the global airline system, which in turn relies on the dynamic structure of globalization. In particular:

- European cities are closer to both Asian and North American cities than Asian and North American cities are to each other.
- The cities that can be reached in the shortest amount of time are all in Europe. Amsterdam is listed fourth behind Frankfurt, London and Paris.
- Those destinations cities more distant from others are often the most expensive to which to travel. The highest costs are large cities in the former Soviet Union, western, central and southern Africa, and southern Asia.
- The destination cities with the lowest average time per kilometer are Frankfurt, Paris, London, Tokyo, New York and Amsterdam.

Source:

Title: From Podes to Antipodes: Positionalities and Global Airline Geographies
Authors: Matthew A. Zook and Stanley D. Brunn
Source: Annals of the Association of American Geographers, 96 (3), 2006, p. 471-490.