

THE TEMPORAL CONFIGURATION OF AIRLINE NETWORKS IN EUROPE

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The deregulation of US aviation in 1978 resulted in the reconfiguration of airline networks into hub and spoke systems, spatially concentrated around a small number of central airports or 'hubs' through which an airline operates a number of daily waves of flights. A hub-and-spoke network requires a concentration of traffic in both space and time.

In contrast to the U.S. airlines, European airlines had entered the phase of spatial network concentration long before deregulation. Bilateral negotiation of traffic rights between governments forced European airlines to focus their networks spatially on small number of 'national' airports. In general, these star-shaped networks were not co-ordinated in time. Transfer opportunities at central airports were mostly created 'by accident'.

With the deregulation of the EU air transport market from 1988 on, a second phase of airline network concentration started. European airlines concentrated their networks in time by adopting or intensifying wave-system structures in their flight schedules. Temporal concentration may increase the competitive position of the network in a deregulated market because of certain cost and demand advantages.

This paper investigates to what extent a temporal concentration trend can be observed in the European aviation network after deregulation. We will analyze the presence and configuration of wave-system structures at European airline hubs as well as the resulting transfers efficiency and transfer opportunities. We use OAG data for all European carriers with scheduled services between 1990 and 1999.

We conclude that European deregulation has resulted in the adoption or intensification of wave-system structures by airlines. These wave-system structures as well as the overall traffic growth have significantly stimulated the number of indirect hub connections. Airline hubs with wave-system structures perform generally better than airline hubs without a wave-system structure in terms of indirect connectivity given a certain number of direct connections.