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An alternative proposal for airport capacity allocation at congested eu airports. London-Heathrow airport case study

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Summary

This thesis introduces in what way different airport slot allocation approaches can be applied to handle scarce capacity at airports and its focal point is modelling reallocation of slots at the strategic level. It proposes a new approach to slot allocation, based on market mechanisms, specifically "Slot Auctions". With this research, a new, innovative airport slots allocation auction model (ASAM) was developed and conceptualized and proposed as a useful model to be used around the world. This newly developed auction model was inspired by Internet Keyword Search Auctions. The goal of this model is allocating slots efficiently, generating social surplus maximization, transparency, price discovery and fairness in a competitive environment where all buyers are in the game.

Aside from model development and simulation, airline strategies and airline learning mechanisms that were developed for airlines to be used during the phases of decision-making are brought out by addressing important matters and challenges related to airlines' bidding behavior in goal-oriented experimentation. This research contributes to the literature by proposing a new model for airport slots auctions. For the first time, airline bidding behavior was investigated throughout the decision-making phase by identifying the components of bid prices and bid increments. The results show that the auction of airport slots is a robust instrument that promotes competition and market entry.

Keywords

Airport capacity management, airport slots allocation, airport slot auctions, auction mechanism design, airline bidding behaviour.