

Air Cargo Overbooking Model under Stochastic Weight and Volume Cancellation

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Abstract : Overbooking is an approach of selling more goods or services than available capacities because sellers anticipate that some buyers will not show-up or may cancel their bookings. At present, many airlines deploy overbooking strategy in order to deal with the uncertainty of their customers. Particularly, some airlines sell more cargo capacity than what they have available to freight forwarders with beliefs that some of them will cancel later. In this paper, we propose methods to find the optimal overbooking level of volume and weight for air cargo in order to minimize the total cost, containing cost of spoilage and cost of offloaded. Cancellations of volume and weight are jointly random variables with a known joint distribution. Heuristic approaches applying the idea of weight and volume independency is considered to find an appropriate answer to the full problem. Computational experiments are used to explore the performance of approaches presented in this paper, as compared to a naïve method under different scenarios.

Keywords : air cargo overbooking, offloading capacity, optimal overbooking level, revenue management, spoilage capacity

Conference Title : ICIEOM 2014 : International Conference on Industrial Engineering and Operations Management

Conference Location : Prague, Czechia

Conference Dates : July 10-11, 2014