An airline revenue management pricing game with seat allocation

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Abstract: This paper studies a horizontal fare-pricing competition between two airlines having a single flight leg. Two distinct scenarios are considered. First, the two airlines price competition for the pre-committed booking limits is analysed. The problem is studied under deterministic price sensitive demands. The existence of unique pricing strategies at Nash equilibrium is shown. In the second scenario, a joint seat allocation and fare-pricing competition model for stochastic demand is proposed. A numerical analysis is presented to demonstrate the impacts of various market conditions on the payoffs, booking limits and pricing strategies of the competing airlines.

Keywords: airline revenue management; game theory; Nash equilibrium; pricing; seat inventory control.

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