The Best Strategy in Using an Option-based Mechanism to Reduce Overbooking Risk for Allied Airlines

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Abstract
Although overbooking is a risk-hedging strategy, the ex ante optimal overbooking level may end up in ex post risk of oversale or undersale. In the context of parallel alliances, we incorporate the concept of call options in finance and propose an option-based mechanism that allows an airline to transfer bumped passengers to its alliance partner’s flight. The objective of this mechanism is to reduce the overbooking risk borne by the allied airlines. Based on an analytical model built to calculate the net benefit that the airlines can obtain from the proposed mechanism, simulation-based algorithms are developed to derive the best strategy in using the mechanism. We provide scenario analysis to show the effectiveness of the proposed mechanism as well as the simulation-based algorithms.

About the Speaker
Wang Xiaojia received her B. Eng (Hons) in Industrial and Systems Engineering and B.B.A. (Hons) in Accounting and Finance from the Hong Kong Polytechnic University in 2011. She is currently a Ph.D. student in the Department of SEEM, City University of Hong Kong, supervised by Dr. Richard, Y. K. Fung. Her research interests are primarily in the revenue management problems and mechanism design in airline industry, as well as simulation.
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