Model Construction for the Multiple Objectives, Multiple Fleet Scheduling Problem with Additional Maintenance Concern

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ABSTRACT

The research regarding fleet scheduling problem of Taiwan in the past years was still focused on single fleet, which is far different from the current condition and hence these research cannot represent the actual operating conditions of airline business. Among these research, they seem to have two points in common: (1) Very few of them have ever taken the fleet maintenance requirements into account. (2) Most of the objectives of these research are the operating cost minimization, which is from airline company'ʼs view point. Yet there are some other important concerns, for instance, minimum fleet size, or maximum service level, ..., etc. Due to these two reasons, this research tries to adopt several objectives mentioned above simultaneously and hence generates a "satisfied" fleet schedule. In this research, a multiple objectives mathematical model for airline company having multiple fleet with additional maintenance constraint is first constructed and then the augmented max-min operator is used for solving the multiple objective programming model. Real data from a Taiwan based airline company is used to verify the scheduling model proposed in this research.

Keywords: airline scheduling ; multiple objective programming ; aircraft maintenance

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