

TICKET BOOKING BEHAVIOR UNDER SEVERE CAPACITY PROBLEMS:  
SEQUENTIAL CHOICES DURING CHINESE NEW YEAR

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**ABSTRACT**

Transport systems in China face extreme capacity shortages during the Spring Festival travel season. This study therefore explores traveler's decision making behavior when booking tickets during this season. With the purpose to establish a sequential choice model that reflects people's decision making behavior, a mixed RP/SP survey is conducted that reflects the ticketing policy in China. Loop questions are programmed inside the questionnaire to investigate changes of the behavior after people experienced failure in ticket booking. Our sample consists of 452 respondents from different age levels and occupations. The ticket booking process is assumed as a chain of sequential choice. A sequential discrete choice model is built based on the survey data. This study models the first two levels of individual choice sequence. In the second level of the sequential choice model, a generalized choice set that is able to simplify the complex joint choice set is introduced. Two simulations are conducted based on the estimation results of the sequential choice model. The result of first simulation suggests that under fixed total railway capacity, the over-expansion of HSR has a negative impact on low-income people, and this negative impact may decrease the total social utility. The second simulation shows the possibility of creating more capacity for the low-income group by guiding others to book their less preferred tickets. We suggest the methodology introduced in this study can support the development of socially optimal ticketing policies under severe capacity shortages.