



## Article Title

Optimal room charge and expected sales under discrete choice models with limited capacity.

## Citation

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## Abstract

In this paper, researchers introduce a model that incorporates features of the fully transparent hotel booking systems and enables estimates of hotel choice probabilities in a group based on the room charges. Firstly, the authors extract necessary information for the estimation from big data of online booking for major four hotels near Kyoto station.<sup>1</sup> Then, they consider a nested logit model as well as a multinomial logit model for the choice behavior of the customers, where the number of rooms available for booking for each hotel are possibly limited. In addition, they apply the model to an optimal room charge problem for a hotel that aims to maximize its expected sales of a certain room type in the transparent online booking systems.

## Methods

This study has applied a quantitative revenue management model for estimates of choice probabilities of hotels by customers in online booking systems, which depend on room charges and types of a check-in date of hotels.

## Results

Authors have predicted optimal room charges and expected sales of the hotels when the other hotels' room charges are fixed or the other hotels also simultaneously maximize their expected sales, which is clearly useful for hotel managers.

## Conclusion

This paper has analyzed online booking data of Kyoto, a city of international tourism that has 17 World Heritage Sites, for the first time in the literatures of hotel revenue management. The revenue management model used in this study reflects unique features of Japanese booking websites, fully transparent booking systems and limitation of the numbers of room available for booking.