



Article Title

On revenue management and the use of occupancy forecasting error measures

Citation

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Abstract

This study aims to draw the attention of the revenue management academic community to inherent problems in forecasting accuracy measurement, and to initiate a critical discussion about forecast quality assessment in hotels.

Methods

An exhaustive, literature-based set of seventeen forecasting accuracy measures was applied to hotel daily occupancy forecasting data of 2043 pairs of computer and human forecast/actuals, across multiple forecasting horizons. The data was provided by a large international chain hotel in the Netherlands. It includes daily room night forecasts at six segment levels for a two-year period, from January 2011 to December 2012.

Results

The empirical analysis demonstrates endemic inconsistencies across the accuracy measures, and a plethora of theoretical and practical challenges with regard to total hotel, as well as customer segment level forecast accuracy assessment. The analysis illustrates the difficulty of interpreting conflicting results, as well as issues like level of data aggregation and multiple forecasting horizons.

Conclusion

By using a large data set of machine generated forecasts, together with human predictions and the actual hotel figures, this paper demonstrates how detrimental this lack of knowledge and understanding might be. The data and analysis demonstrate that when applied to the basic typical questions that often confront revenue managers, different error measures generate contradictory answers. This emphasizes the need to better understand the mechanisms behind the evaluations of forecasting outcomes.