

A convenient regression formula for predicting Skytrax's Official World Airport Star ratings

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***Abstract.** Skytrax audits and ranks airports internationally in its yearly 'Official World Airport Star Ranking'. Unfortunately, its activity is severely restricted, at most covering just 3% of those airports listed by Skytrax as open to review by passengers in its website in 2010. This research article explored the possibility of using a readily available variable as predictor, as an alternative way of ranking the remaining 97% of airports in a simpler and more straightforward manner. The regression formula retained correlated highly with the criterion variable, accounting for 45% of its variance, thus supporting the viability of using customer reviews as a possible way of predicting ranking scores for airport not officially audited by Skytrax.*

Introduction

Skytrax is a consultancy firm based in London (UK), which does research and advisory consultancy mostly with the aviation sector (Skytrax, 2011a). It is probably better known for its yearly airline and airport ratings, and customer-choice-based 'World Airline Awards' and 'World Airport Awards' (Wikipedia, 2011). The former rating ranks airlines and airports according to quality, after auditing done by Skytrax itself (2011b). The second recognises the best airlines and airports as chosen after an international passenger survey (Skytrax, 2011c).

Skytrax claims to be the world largest airport review site, with over 700 airports [reviewed or open for review] and "customer airport reviews for almost every destination you can think of!" (Skytrax, 2011a). Yet, only 703 airports were listed as opened for customer review in 2010 (or about 0.05% of airports and airfields in the world, as per the CIA, 2010), only 135 of these airports had been in the "star ranking programme" (or 3% of the airports opened for review), and only up to 21 of these airports had been audited and obtained a ranking in 2010 (or 16% of the 135 airports in the rating programme) (Pérezgonzález & Gilbey, 2011).

However, the ratings and awards, whatever their limited coverage, give useful information about the quality of an airport, especially for those passengers in transfer or transit, which are probably the ones in the best position to notice it. A small proportion of passengers may indeed opt for a different travel itinerary according to the airport where they must stop for a number of hours (e.g., Hong-Kong, Singapore, Malaysia, Los Angeles or Dubai).

As it is the passenger who ultimately decides which way to go and where to stop and, thus, ascertains the perceived quality of an airport, we conducted a research to estimate a regression formula which allowed predicting Skytrax rating scores from customers' reviews instead of formal audits. We reported the best regression formula in Pérezgonzález & Gilbey (2011), which showed a relatively large multiple correlation with the actual ranking given by Skytrax ($R = .761$). This formula included all four variables which a passenger could use for rating different aspects of an airport for each

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reported experience: an overall ‘Customer rating’, ‘[Satisfaction with] Queuing’, ‘[Satisfaction with] Cleanliness’, and ‘[Satisfaction with] Facilities’.

The aim of this research now is to further expand that analysis and ascertain how well Skytrax ranking can be predicted from a single variable: the summary customers’ reviews offered by Skytrax as ‘Customer Review scoring’.

Methods

For this research, we investigated the population of 20 airports which obtained a Skytrax rating for 2010. From the airport data available at the Skytrax website, we selected two variables, readily available in the website, per airport.

The first variable acted as our criterion (or dependent) variable. This was the ‘Skytrax official rating’, a score on a five-anchor ordinal scale running from “1, Very poor”, to “5, Excellent”).

The second variable acted as our predictor (or independent) variable. This was the ‘Customer review scoring’, an average score on an ordinal scale running from 0 to 10 – although there is no information of how this average was obtained, it plausibly represents the average ‘Customer review scoring’ for all reviews, including those of previous years).

SPSS-v16 was used for all analyses. A pre-screening data analysis showed that both variables were normally distributed and suitable for analysis using a linear model. Therefore, we used parametric tests for all subsequent analysis.

Results

Results show that it is possible to retain a model for predicting Skytrax rankings from the ‘Customer review scoring’ supplied by Skytrax. This model is statistically significant ($F = 13.140$, $p < 0.01$), and its correlation with the criterion is relatively high ($R = .672$).

The regression model was the following:

$\text{Predicted Skytrax Ranking} = .686 + (.417 * \text{Customer review scoring})$

Conclusion

Skytrax rates airports according to quality. It also aims to be the leading institution in doing so thanks to its “Official World Airport Star Ranking”. Unfortunately, its activity is severely restricted, at most covering just 3% of those airports which customers have reviewed in its website. The regression model obtained in this research may help in covering a portion of the remaining 97% of airports which are not audited by Skytrax. The model presented here is potentially less useful than another predictive model presented elsewhere (see Pérezgonzález & Gilbey, 2011), as the predictor variable includes all customer reviews, not just reviews for 2010, and, therefore, it reflects less contemporary opinions. However, it is much simpler (one predictor variable instead of four) and straightforward (the score is readily available in Skytrax’s website, instead of needing the compilation of a database of individual experiences and the computation of averages), and what it loses in representativeness may be gained in convenience without necessarily affecting the underlying prediction.

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