

ANALYSING CUSTOMER SATISFACTION IN THE AIRLINE INDUSTRY

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The Analysis of Consumer Satisfaction in Airlines Industry

ABSTRACT

This study examines the factors that determine an airline's customer satisfaction rating according to Skytrax, which is a world airline audit with 26 years experience, that leads product and service quality improvement programs for the airline industry. Skytrax audits the performance of airlines using customer reviews and rates them on a 1 to 5 and 1 to 10 interval (Likert) scale. This study uses only three variables from Skytrax: food and beverages, seat comfort and staff service but uses a number of reviews that act as a control variable. An ordered probit regression model is used because the data are cross-sectional and the dependent variable is a discrete variable (on a 1 to 10 Likert scale). The number of airlines observed is 128. The result reveals that food and beverages, seat comfort and staff service have positive and significant effects on increasing the probability of an airline getting a higher rating, which means more satisfied customers.

Keywords: Airline studies, Airline ratings, Skytrax, Airline industry, Customer satisfaction, Ordered probit model

JEL Code: D11, D12, L93

ABSTRAK

Tulisan ini bertujuan untuk mengetahui faktor-faktor apa saja yang mempengaruhi kepuasan konsumen maskapai penerbangan melalui rating dari konsumen, data dari Skytrax. Skytrax merupakan badan yang bertugas menilai kinerja pesawat terbang dengan pengalaman lebih dari 26 tahun. Skytrax menilai kinerja maskapai penerbangan melalui penilaian dari penumpang menggunakan *interval Likert scale* 1–10 untuk rating dan 1–5 untuk variabel-variabel yang mempengaruhinya. Tulisan ini hanya menggunakan 3 variabel *independent* dari Skytrax, yakni *food and beverages*, *seat comfort*, *staff service* dan jumlah *reviews* sebagai *variable control*. Tulisan ini menggunakan *ordered probit* model, karena data yang digunakan merupakan data *cross-section* dengan variabel dependent berupa *discrete variable* (rating 1–10 *Likert scale*). Jumlah perusahaan yang diamati sebanyak 128 maskapai penerbangan. Hasilnya menunjukkan, bahwa *food and beverages*, *seat comfort* dan *staff service* berpengaruh secara positif dan signifikan dalam meningkatkan peluang maskapai penerbangan berada di rating yang tinggi (konsumen merasa puas).

Keywords: Maskapai penerbangan, Kepuasan konsumen, Skytrax, *Ordered probit model*

JEL code: D11, D12, L93

1. BACKGROUND

Nowadays, many people travel domestically and internationally by air,

whether for business or pleasure. With economic globalisation and openness, there are many people who do not

work at a desk or in one region but must move from one place to another to attend meetings or deal with clients. Their mobility is required because they have little time, every second counts and they have much to do. On the other hand, people who travel for pleasure want to be satisfied with their transport. Because they spend a lot of time in sedentary occupations, they want to escape from them temporarily. Also, they are willing to allocate a special budget for travelling just for pleasure and they want to make the most of it.

Understanding the factors that influence business travellers in their selection of an airline is fundamental for achieving growth in this market—for full-service carriers (FSC) and for low-cost carriers (LCC). According to Park et al. (2004), the key variables normally considered when modelling passengers' decision-making processes include service expectation, service perception, service value, passenger satisfaction and the reputation of the airline. Park et al. (2004) and Mason (2000) contend that the consumption of low-cost airline services is contrary to traditional perception of business travellers as a group that puts a high value on frequency of flights, flexibility, frequent-flier program awards and on in-flight comfort.

Passengers' perception of an airline through a rating system will determine that airline's financial condition. The article by Ji-Woo Park et al. (2007) from the department of tourism management, Cheongju University,

explains that most air passengers are sensitive to ticket price and airlines thus use pricing to differentiate market segments based on elasticity of demand (Stern, 1989). Prices are set based on different fare sensitivities of business and leisure passengers, although modern yield management practices also allow for much more sensitive dynamic price discrimination. Service quality also affects passengers' choices but is in many ways subjective, often being seen as referring to passengers' overall impressions of the relative quality of airlines and their services. The quality of an airline's service can influence its competitive advantage (Morash and Ozment, 1994) and can be a significant driver of passenger satisfaction, loyalty and of a passenger's choice of airline (Ostrowski et al., 1993).

All in all, this study examines the factors that determine the rating of airlines according to Skytrax, which is a world airline audit that provides product and service quality improvement programs for the airline industry and has 26 years experience in this. Skytrax audits the performance of airlines through customer reviews and rates them on a scale of 1 to 5 and 1 to 10 intervals (Likert scale). (Skytrax data is graded on a 10-point Likert scale: 1 is for the lowest and 10 for the highest rating of customer satisfaction.) Skytrax uses five indicators: food and beverages, in-flight entertainment, seat comfort, staff service and value for money. However, this study uses only three variables (food and beverages, seat comfort and staff service)

because there are insufficient data from airlines for an econometric model. Furthermore, this study chooses those three independent variables because the correlation matrix of the independent variables shows a high correlation among some independent variables, known as multicollinearity. The result from the correlation matrix indicates that the variables in-flight entertainment and value for money have a strong correlation with the other independent variables.

1.1 Problem statement

Knowing the relation between passenger loyalty and an airline's customer rating is extremely important because the competition between airlines is getting tougher. Research by Akamavi et al. (2011) explained that passenger loyalty is one of the key indicators that influence competitive advantage (for example, share-of-wallet, and market share) in the fiercely combative airline marketplace (Cooil, Keiningham, Aksoy and Hsu, 2007; Meagi, 2003; Wirtz, Mattila and Lwin, 2007). An airline's sustainable market share may predominantly depend on passenger loyalty (Chang and Hung, 2013; Dierickx and Cool, 1989; Kumar and Shah, 2004; Reichheld, 2003). Therefore, this study is to work out the determinants of customer satisfaction in the airlines industry because if passengers remain satisfied, the industry will be more competitive and this will help ensure its survival.

2. LITERATURE REVIEW

2.1 Previous studies on the determination of airline customer satisfaction

An article in the *Journal of tourism management* by Akamavi, Mohamed, Pellman and Xu (2011), explains the key determinants of passenger loyalty to low-cost airlines. These are service employees, price, service recovery, passenger trust and satisfaction.¹ This research also explains that loyal passengers, that is, passengers who continue to patronise an airline are essential for its success. The most effective way for low-cost airlines to create passenger loyalty is to attain highly efficient passenger service by ensuring employee self-efficacy, by improving service recovery processes and by charging prices that increase passengers' trust in the organisation's actions.

This study provides useful insights into the behaviour of low-cost airlines' passengers. The results here should help improve the efforts of any public-contact staff seeking to ensure that passengers receiving service recovery effort obtain high satisfaction. The results indicate efficacious service employees not only positively influence service recovery but also further passengers' trust. Service employees' efficacy mitigates bad service experiences; primarily however, it boosts passenger satisfaction. The findings of structural

¹Service recovery can be defined as 'the action taken to retain customer loyalty by a timely and appropriate response to a customer complaint'.

equation modelling also support the hypothesis that service employee self-efficacy, service recovery and passenger trust have a dramatic effect on passenger satisfaction. Passenger satisfaction is the foremost driver of increased passenger loyalty.

Fourie and Lubbe (2006) investigate the determinants of selection of full-service airlines and low-cost airlines in South Africa. Research into business travellers' choice of airline that distinguishes full-service and low-cost airlines has been done for the UK (Mason, 2000, 2001) and Brazilian markets (Evangelho et al., 2005). Fourie and Lubbe (2006) used primary data from their fieldwork that was gathered over a number of days throughout one month at the Johannesburg international airport. A structured questionnaire was used to elicit responses in face-to-face interviews with business travellers who were classified into two groups: business travellers using a particular type of airline (full-service or low-cost) according to which airline they were using on the day of the interviews. Because structured questionnaires were used to interview respondents over a restricted time period, the goal was to achieve at least 100 responses, 50 travellers using a low-cost carrier and 50 business travellers using a full-service airline. The goal was to include similar sized groups from both types of carrier and to generate results that could be correlated across two distinct groups. The results showed similarities

with studies in the UK and Brazil on a number of service elements, confirming that the two groups of business travellers (those who appear to prefer low-cost airlines and those who appear to prefer full-service carriers) in different countries view service attributes similarly, attributes such as frequent flyer programs, the schedule or frequency of flights; in-flight service and business lounge options.

2.2 Determination of airlines customer satisfaction

This study uses evidence from Skytrax to determine airlines' customer satisfaction ratings in terms of food and beverages, in-flight entertainment, seat comfort, staff service and value for money. To the best of the author's knowledge, there is no study that uses these variables together as this study does. However, there have been several previous studies to determine passenger loyalty. Akamavi et al. (2011), used service employee self-efficacy, price, service recovery, passenger trust and satisfaction as key determinants and looked at how these affect passengers' loyalty. Fourie and Lubbe (2006), investigated the factors that might influence selection of full-service and low-cost airlines in South Africa, factors such as, seat comfort, frequency of flights, price, pre-seating options, high cancellation charges, airport lounge facilities, frequent flyer programs, business-class options, in-flight meals and drinks, and methods of payment. These previous studies are mentioned often in this

study because there are many similarities in terms of content and objectives of the research. In addition, this study uses reviews as a control variable that represents the number of reviews from customers in each airline observed.

3. RESEARCH AND METHODS

3.1 Type and source of data

The data used in this research are cross-section data. The data were obtained from Skytrax and are from 128 airlines observed, of which 51 are low-cost carriers (LCC) and 77 are full-service carriers (FCC). The idea behind establishing this data is that, after passengers had experienced an airline, they might want to give a review of what they felt and Skytrax provides an opportunity, whether the review be favourable or not. Passengers can give a rating from 1 to 5 (Likert scale) on the quality of the food that they ate, the comfort of their seat, how the staff treated them, how effective the in-flight entertainment had been in diminishing the boredom of their flight and whether the flight had given value for their money. As a conclusion, they can give a rating (on a 1 to 10 scale) of their general or overall impression of their flight. Based on more than 100 reviewers, Skytrax will audit and provide a conclusion on the extent of customer satisfaction. However, because of the limited number of observations and a multicollinearity problem, this study uses only three of Skytrax's five variables.

As already mentioned, this study uses cross-section data obtained from Skytrax, which has 26 years of experience as a world airlines audit that can bring about product and service quality improvement programs for the airline industry. Skytrax audits the performance of airlines through customer reviews and rates them on a 1 to 5 or 1 to 10 interval Likert scale. The data were retrieved on 23 August 2015.

3.2 Variable description

The rating is the dependent variable in this model, which is used as a proxy for customer satisfaction with an airline. This study uses a binary variable which equals to 0 for a rating of 0 to 4, 1 for a rating of 5 to 6, and 2 for a rating of 7 to 10. Rating 0 to 4 is a low rating, shown by the reviews from customers who were dissatisfied with their experience of an airline. Furthermore, a rating of 5 to 6 is a medium rating: the average rating is 5.46 in all categories for each airline observed. A rating of 7 to 10 in contrast is a favourable rating, which is proved by the reviews from customers. An airline's rating enables passengers to better choose which airline to patronise; it represents the degree of customer satisfaction. Customer satisfaction leads to passenger loyalty; people tend to remain loyal once they are satisfied and loyal passengers will ensure the commercial survival of an airline (Akamavi et al., 2011).

3.2.1 Food and beverages

A rating of airline food and beverages shows the degree of satisfaction by customers of the meals and drinks that the airline offers. Food and beverages are rated using a 5-point Likert scale: a rating of 1 means the least satisfactory and 5 is for the most. After a passenger reviews an airline's food and beverages for Skytrax, Skytrax will collate the reviews, calculate an average value for the airline and publish it for the public.

3.2.2 Seat comfort

Seat comfort is defined as the degree of passenger satisfaction in terms of comfort while sitting in an airliner. The measurements of seat comfort are based on legroom, seat recline, seat width, aisle space and ease of video viewing. After customers have given reviews (in terms of values from 1 to 5), Skytrax will audit them and present them to the public.

3.2.3 Staff service

Staff service is a measure of the satisfaction of passengers with the service they have had from an airline's cabin and ground staff, that is those who, for example, serve meals in flight, answer inquiries about luggage or schedules and more. Staff service is very important for ensuring customer satisfaction because staff service connects to passengers directly. Passengers will give their review based on how they feel they have been treated by the staff and they grade their response on a Likert

scale from 1 to 5. Skytrax will audit and present their assessments to the public, just as it does for the other variables.

3.2.4 Reviews

Reviews is a variable that represent the aggregate of reviews recorded from customers in each airline. Every airline observed will have a different number of individual reviews from its passengers, and this causes a different effect on an airline's rating. The numbers of reviews that this study uses is more than 100. This variable also acts as control variable to avoid bias on passengers' ratings (that is, extreme values or outliers).

3.3 Ordered probit model

An ordered probit regression model is a model for binary responses where the response probability standard normal cumulative distribution function is evaluated as a linear function of the explanatory variables (Wooldridge, 2012). Considering that this study uses a binary variable as the dependent variable that takes three values, an ordered probit regression model is the most suitable method to analyse the effect of the independent variable on the dependent variable. To estimate the ordered probit model, a maximum likelihood method is used to estimate the parameters. Therefore, maximum likelihood is a method that gives a technique to estimate the parameters with characteristics of a certain distribution (Setiawan and Effendi, 2013). How-

ever, the ordered probit model needs to be supported by marginal effects, to see the comparison of effects on the dependent variable, which in this study is a low, medium or high rating. A low rating indicates that the customer is not satisfied, a medium rating indicates that the customer rated an airline as adequate, and a high rating indicates that the customer is satisfied.

4. RESULTS AND DISCUSSION

4.1 Statistical description

Table 1 shows the description of the statistical data for the numbers of all airlines observed.

Table 1. Statistical description

Variable	Mean	Std. deviation
Rating	5.46	1.24
Food and beverages	2.89	0.775
Seat comfort	3.14	0.628
Staff service	3.32	0.626

Table 1 is to show the indicator of the interval data that lies within the variables. It can be seen from Table 1 that the average rating from airlines observed is 5.46 out of 10. Take an example, Emirates, which has a rating of 6 out of 10: this indicates that Emirates is above the average for all airlines observed and can be categorised as a medium-rating airline. But the differences of number of review from customer could be affecting the outcome.

For instance, Garuda Indonesia gets an 8 out of 10 rating according to Skytrax from 672 reviewers, but KLM gets a 6 out of 10 rating from 1446 reviewers. The average of the numbers of ratings for all airlines observed is 736, therefore, it can be said that the numbers of reviews on Garuda Indonesia are still below the average and potentially it affect the measurement of the rating that Garuda Indonesia has.

4.2 Ordered probit model regression result

Using STATA 12, the ordered probit regression model result can be seen in Table 2.

Table 2. Regression result

Variable	Coefficient	P-value	Standard error
Food and beverages	0.6907	0.000***	0.1748
Seat comfort	0.7515	0.001***	0.2309
Staff service	0.6630	0.005**	0.2362
Reviews	-0.0002	0.030**	0.00012

Pseudo R² = 0.3409

LR Chi² (4) = 81.48

Prob>F = 0.0000

*** Significant $\alpha = 1\%$, ** Significant $\alpha = 5\%$, * Significant $\alpha = 10\%$

Based on Table 2, the value of probability F is 0.000. Based on the F-test, it means that there is a minimum of one independent variable that significantly affects the dependent variable at the significance levels of 1 per cent, 5 per cent and 10 per cent. The conventional measure of goodness of fit, R²,

is not particularly meaningful in binary regression models. Because the regress in the probit model takes a value of 1 or zero, if the predicted probability is greater than 0.5, it can be classified as 1, but if it is less than 0.5, we classify that as 0 (Gujarati and Porter, 2009). Because this study uses an ordered probit model, the pseudo R^2 is measured by how exactly the data can be fitted into the model estimation. If the rating of an airline is 6, which is categorised medium, but is in fact based on the estimation, the airline gets a rating of 4, which is categorised as low (under estimation), then the estimated model does not fit the actual data. On the other hand, if the estimate is 5 or 6, the model correctly estimates the actual data. Using this method, 74 out of 128 data in this study are correctly estimated (equivalent to 0.578 R^2).

To give a proper analysis of the ordered probit regression model, this study uses marginal effect to interpret the coefficient regressors. As mentioned previously, the model has three categories; low, medium and high rating. The result from each category can be seen in Table 3.

4.3 Statistical analysis

This model cannot be interpreted directly without using marginal effect, therefore the marginal effect interpretation using examples from the third column from the model in the Table 3 can be interpreted as follows.

- 1) An increase in 1 index food and beverages out of 5, will increase the probability of the airlines to be rated higher by 8.41 per cent, *ceteris paribus*.
- 2) An increase in 1 index seat comfort out of 5, will increase the probability of the airlines to be rated higher by 14.27 per cent, *ceteris paribus*.
- 3) An increase in 1 index staff service out of 5, will increase the probability of the airlines to be rated higher by 7.04 per cent, *ceteris paribus*.
- 4) An increase in 1 person, individual or reviewer of hundreds or thousands, will decrease the probability of the airlines to be rated higher by 0.003 per cent, *ceteris paribus*.

Table 3. Classification of low, medium and high

Variable	Low rating	Medium rating	High rating
Food and beverages	-0.09	-0.0026	0.0841
Seat comfort	-0.154	-0.0044	0.01427
Staff service	-0.0761	-0.0021	0.0704
Reviews	0.0000418	1.20E-06	-0.00003

4.4 Economic analysis

All the variables in the econometric model have a significant effect in determining customer satisfaction in the airline industry. Food and beverages and seat comfort are significant at a 99 per cent level of confidence, and staff service is significant at 95 per cent. Together, all the variables have a significant effect on determining customer satisfaction in the industry.

4.4.1 The effect of food and beverages on airline customer satisfaction

The coefficient of the effect of food and beverages on airlines' customer satisfaction rating is positive and significant at the 99 per cent level of confidence. For every increase of one step in the (1 to 5) index of food and beverages, the probability of an airline to be given a higher rating will increase 8.41 per cent, *ceteris paribus*. This result is similar to the results of research by Mikulic and Prebazac (2010). They stated that food and beverage service has a strong influence on the experiences of passengers of full-service carriers, but not that of the passengers on low-cost carriers, which is to be expected because low-cost carriers typically charge passengers for food and beverages. The regression result of this econometric model shows a positive effect on ratings also because the food and beverages in every airline affects the passengers sensuously. Pas-

sengers definitely will give a high rating to an airline if they feel that the airline gave them satisfaction.

4.4.2 The effect of seat comfort on airline customers' satisfaction

The coefficient of seat comfort on airlines' customer satisfaction rating is positively significant at the 99 per cent confidence level. Hence, for every increase of one step in the (1 to 5) index of seat comfort, the probability of a higher rating will increase by 14.27 per cent, *ceteris paribus*. Seat comfort has a similar effect on airlines customer satisfaction rating as does food and beverages because both of them affect passengers' physical comfort. Passengers will give good reviews if their seat is adjustable and quite comfortable for long-distance flights. For low-cost carriers (LCC), the seat comfort might be not as important as for full-service carriers because the flights are short to medium distance. Therefore, because most of the data apply to full-service airlines (FSC), they mostly represent the result from FSC with the coefficient of food and beverages and for seat comfort are high and have significance at 99 per cent confidence level. This result is similar to the results of Fourie and Lubbe (2006). They found that seat comfort is among the most important of service factors, along with frequency of flights and ticket price.

4.4.3 The effect of staff service on airlines' customer satisfaction

The coefficient of staff service on airline customers' satisfaction rating is positively significant at 90 per cent confidence level. Therefore, for every increase of one step in the (1 to 5) index of staff service, the probability of a higher rating will increase by 7 per cent, *ceteris paribus*. The quality of staff service will affect customer satisfaction as already mentioned previously. The quality of staff service has a major effect, especially for LCCs because they do not offer food and beverages or in-flight entertainment to any great extent. This result is similar to that of Saha (2009), which discussed the importance of an airlines' service to the airlines and revealed that the quality of staff service is a significant determinant of customer satisfaction.

4.4.4 The effect the number of reviews on airlines customer satisfaction

The coefficient for reviews from customer is -0.003 per cent, which means more reviewers of an airline will decrease the probability of an airline getting a higher rating. This might be because the higher number of reviewers can indicate more passengers and it is more difficult to please everyone. Furthermore, a higher numbers of reviewers, indicating more passengers, might imply that an airline has been established for a longer time (an older airline).

5. CONCLUSION AND RECOMMENDATIONS

All in all, this study concludes that food and beverages, seat comfort and staff service are positively significant in increasing the possibility of airlines customer satisfaction to be rated higher. Seat comfort is the strongest factor for all rating to determine the probability of an airline to be rated higher. This could be because this variable affects passengers physically. On the contrary, passengers will give a low rating if they find their seat is constricted or if it does not recline sufficiently.

Food and beverages has a similar effect on customers as does seat comfort, because these variables affect passengers physically, especially because flights with full-service carriers (FSC) are long-haul flights. This result has a similarity with the research by Mikulic and Prebazac (2010). They stated that food and beverages services have a strong effect on the experiences of the passengers. However, the passengers will give bad or low rating for food and beverages when it comes to the LCCs, which normally do not provide food and beverages freely and charge extra for passengers. According to the reviews given by the passengers, they possibly feel that they deserve, at a minimum, a free snack during short-haul travel. Therefore, the passengers tend to give a good or high rating if they at least have a free snack (bread or peanuts perhaps) on their flight.

Staff service is in third place because it directly affects the passenger, mentally. This result is similar to that

of Saha (2009). This research revealed that staff service includes ground staff, cabin crew and flight attendants and was found to be very important in explaining behavioural intentions of customer and which leads to passenger satisfaction. If passengers feel dissatisfied with their experience, they tend to change to other airlines but not give feedback.

This study estimates the effect of the numbers of reviewers on determining the possibility of the airlines to be rated at a high or low rating. The result indicates the number of reviewers (from the customers) will decrease the probability of an airline being rated higher. Therefore, of the three factors that determine customer satisfaction in the airlines industry, seat comfort is the most significant factor that affects customer satisfaction, following by food and beverages, and staff services respectively. Therefore, this study hopes to provide recommendation for airlines company to improve their facilities.

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