Emergence of No-frill Airlines to Increase the Tourists: An Empirical Study of Eastern India

Dr. Prosenjit Ghosh*

Abstract
Tourism is all about travel and the role of transportation in its process is vital. Air transport has a major role to play in promotion of tourism in a big country like India where tourists and tourism destinations are located far away. Air transport helps tourists both domestic and foreign in saving time who want to witness as many places as possible within stipulated period of time. This paper aims to reveal the emergence of no-frill airlines or low cost carriers (LCCs) for increasing the tourists in eastern India. Simple regression analysis is carried out with uses of SPSS version 16.0 based on secondary data of four financial years (2007-08 to 2010-11). The research identified that, there is very positive impact of no-frill airlines on tourists’ enhancement in eastern India. This research work will help the stakeholders’ of tourism industry in general, including those of the concerned state tourism organizations, to understand their key areas of strength comparatively and accordingly frame their strategies for decision making in order to improve accessibility and gain competitive advantage.

Keywords: No-frill airlines, Tourism destination, Tourist, Eastern India.

*Dr. Prosenjit Ghosh, Assistant. Professor, Dept. of Travel & Tourism Management, NSHM Knowledge Campus, Durgapur, West Bengal, India. E-mail: prosenmba@rediffmail.com.
Introduction

Many studies show that travel time, travel costs, frequency of service (and therefore flexibility), convenience, reliability and familiarity with a given mode are among the best descriptors for the explanation of preferences with regard to a transport mode (Fowkes et al. 1986; Algers et al. 1995; Jara-Diaz & Guevara 2003).

However, a number of relativisations have to be applied. The role of travel time is very much dependant from the rationale of a trip, with business travel being more time-sensitive than leisure travel (Hensher 1997; Mackie et al. 2003). A study shows that past frequency of mode use does not necessarily produce resistance to goal-related cues to change a given travel mode. Moreover, neither past behaviour nor a direct habit measure was able to predict future travel behaviour (Bamberg et al. 2003). Another study shows that when there is a choice of a destination to travel to, mode choice is rather driven by the destination with transport costs not playing a determining role (Laesser 2004).

The experiences from America, Europe and other regions of the world, where air transport has been liberalized, show that low-priced airlines have major impact on the development of region and competition on traditional airlines. The experience from Europe has shown that competition among traditional carriers did not increase immediately after the liberalization of the market, which meant that the benefits from liberalization in the beginning were small. The emergence of no-frill airlines and their dynamic development significantly affected the degree of competition in the market. Furthermore, the competition also stimulates the introduction of new products and reaching out to segments that were not properly supported before. According to Graham and Shaw (2008) the no-frill airlines allow more people to fly, promoting social inclusion. They claim that there is little evidence of any major change, especially in the leisure market, in the type of people flying compared to the mid-1990s and despite the significant increase in the total number of people flying, it is still the middle and higher-income socio-economic groups, who are flying more often, than in the past, and on shorter trips (Civil Aviation Authority 2006; Graham and Shaw, 2008, p. 1442).
Air Deccan gave India its first no-frill airline in 2003 and has bought revolution in the Indian aviation industry. Air traffic growth since then has witnessed tremendous growth rates. Presently, no-frill airlines’ market share in the schedule domestic airline is more than 60 percentage (Directorate General of Civil Aviation report, March 2012). Tourist numbers in eastern India have increased for last few years and government is looking at ways to promote and develop the tourism in this region. From 2003, no-frill airlines or Low cost carriers (LCCs) started their operation eastern India also. Presently, four no-frill airlines are operating in the region and connected with other regions of India. The aim of this research is to examine the impact of no-frill airlines (LCCs) for increasing the tourists in eastern India.

**Objective of the study**

The explicit determination of the regression equation is the most important product of the analysis. It is a summary of the relationship between $Y$ (the response variable) and the predictor variable $X_1$. The equation may be used for several purposes. It may be used to evaluate the importance of individual predictors, to analyze the effects of policy that involves changing values of the predictor variable, or to forecast values of the response variable for a given set of predictors. Although the regression equation is the final product, there are many important by-products. Here regression analysis as a set of data analytic techniques that are used to help understand the interrelationships among variables in this study. Therefore, the research objective is to evaluate the impact of no-frill airlines to increase the number of tourists in eastern India.
Literature review
Air transport plays a vital role in facilitating economic growth of regions. No-frill airlines by stimulating the air traffic are conducting the benefits in many areas. These impacts go far beyond the direct effect of an airport’s operation on its neighbors to the wider benefits that air service accessibility brings to regional business interests and to consumers.

*European Low Fares Airline Association (ELFAA, 2004)* claim that low fares airlines contribute to the development of sustainable tourism and environmentally efficient travel through Europe. *Sonia Huderek* (2009) opines, in Europe, Poland is very good example with high air transport potential which was stifled by national regulations. Thanks to liberalization of air transport market and emergence of no-frill airlines and Poland has one of the biggest in the world air traffic growth rate. For the first time in 2007 more than 50% of all passengers in Poland traveling by plane in regular flights were carried by LCCs. *Huderek* (2009) again highlighted on the expansion of no-frill airlines have significant effect on the development of airports. Advantage of dynamic passenger traffic stimulated by LCCs takes mainly regional airports whose potential was unfulfilled. Growing air traffic has led to increase airports income, acceleration of investment and creation of employment.

The emergence of no-frill airlines gave passenger greater choice of destination and service providers. The reduced fares offered both by LCCs and full service carriers increased the number of passenger who can afford to travel by plane. The air mobility index has increased and profile of typical passenger has changed. *Frawley* (2004) explain, LCCs generally operate short haul flights between one and two hours in length and this enables LCCs to gain more operating cycles and achieve a higher number of flying hours per day than most full service airlines. *Dobruszkes* (2006) gave explanation, the no-frill airlines are significant for the development of weekend, city or short-break tourism and in effecting a radical expansion of potential destinations. Many routes of low-cost airlines were clearly designed to carry travelers to the tourist destinations of Mediterranean Europe. This caused networks to be roughly North-South, mainly from the United Kingdom, Germany, Belgium, Scandinavian countries etc., to Spain, Italy, south of France and so on. *Doganis* (2010) noticed two results of the entrance of LCCs to the tourist destinations. The first result is the development of the markets and the second concerns the fact that low-cost
squeeze out charter airlines. Lukasz Olipra (2010) presented in his paper, no-frill airlines are vital factor boosting tourism in the city or a region, and similarly the lack of LCCs is perceived as a main barrier in the development. European Travel Commission Report, the biggest success among tourist destinations in 2005 was announced Valencia, Barcelona (Spain) and Dubrovnik (Croatia). The main reason for a very dynamic increase in the number of tourists was mentioned a massive increase in low-cost airline services which doubled arrivals from the UK. Lukasz Olipra (2010) again enlighten, the LCCs can positively influence less famous destinations and can help to promote and increase the number of tourists.

**Statistical Methods**

The purpose of the research is to investigate the emergence of no-frill airlines (LCCs) in tourists’ enhancement in eastern India. The research is carried out on the use of simple regression analysis with uses of SPSS version 16.0. The regression analysis is done on the basis of secondary data sources. In this research, regression Analysis observed on number of tourists visited in eastern India as dependent variable and number of passengers travelled by no-frill airlines (LCCs) as independent variable during the four financial years (2007-08 to 2010-11).

* A. Regression analysis

Regression analysis is a conceptually simple method for investigating functional relationships among variables. The relationship is expressed in the form of an equation or a model connecting the response or dependent variable and one or more explanatory or predictor variables. This is the essence of regression analysis is to fit a model to the data and use it to predict values of the dependent variable or response variable from one or more independent variables. In other words, regression analysis is a way of predicting an outcome variable from the predictor variable. This tool is incredibly useful because it allows going a step beyond the data that collected. Here denote the response variable by Y and the predictor variables by X₁. The true relationship between Y and X₁ can be approximated by the regression model.

\[ Y = \beta_0 + \beta_1 X_1 + \varepsilon \]

Where \( \beta_0 \) and \( \beta_1 \) called the regression parameters or coefficients, are unknown constants to be determined (estimated) from the data. Here, the commonly used notational convention of denoting unknown parameters by Greek letters. The predictor or explanatory variable is also called by other name such as independent variable, covariate, repressor’, factor, and carrier. The
name independent variable, though commonly used, is the least preferred, because in practice the predictor variable is rarely independent of each other. Also assume that the error terms ε have a mean value of 0.

If it is possible to describe a line knowing only the gradient and the intercept of that line, then it can use these values to describe the model (because in linear regression the model is straight line). So, the model fit to the data in linear regression can be conceptualized as a straight line that can be described mathematically by equation. With regression analysis, here strive to find the line that best describes the data collected, and then estimate the gradient and intercept of that line. Having defined these values, it can insert different values of our predictor variable into the model to estimate the value of the outcome variable. Finally, Regression analysis is one of the most widely used statistical tool, because of it provides simple method for establishing a functional relationship with variable.

B. Sample Selection and Period of the Study

The data for this study has collected from Ministry of Civil Aviation (MCA), Airport Authority of India (AAI), Ministry of Tourism, Govt. of India. In this research, annual data of total number of passengers travelled by LCCs (no-frill airlines) in eastern India and total number of tourists visited annually in eastern India have been used. The eastern region of India is very wide including four states (West Bengal, Bihar, Jharkhand, Orissa) which are situated in eastern part of India and eight states are situated in north-east India (Assam, Meghalaya, Arunachal Pradesh, Manipur, Mizoram, Nagaland, Sikkim and Tripura). The sample period of the study is four financial years (2007-08 to 2010-11) used to evaluate the position of no-frill airlines (LCCs) to increase the number of tourists in eastern India.

C. Hypotheses formulation

Hypotheses are utilized to fulfill the objective of the study. These hypotheses are expressed as follows:

$H_0$: There is positive impact of no-frill airlines (LCCs) on increase the number of tourists in eastern India.
H$_1$: There is no impact of no-frill airlines (LCCs) on increase the number of tourists in eastern India.

D. Empirical results and analysis

Table I. Descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourists</td>
<td>5.98E7</td>
<td>7578545.326</td>
<td>4</td>
</tr>
<tr>
<td>Passengers travelled by LCC</td>
<td>7.43E6</td>
<td>2069922.187</td>
<td>4</td>
</tr>
</tbody>
</table>

The table of descriptive statistics tells the mean and standard deviation of each variable in our data set. It also provides the total number of year’s data for the study. In this study, tourist is the dependent variable and passenger travelled by LCCs is the independent variable. Here enter method is used to employ the regression analysis.

Table II. Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Passengers travelled by LCC</th>
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</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tourists</td>
<td>Passengers travelled by LCC</td>
</tr>
<tr>
<td></td>
<td>1.000</td>
<td>0.959</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tourists</td>
<td>Passengers travelled by LCC</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>.021</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tourists</td>
<td>Passengers travelled by LCC</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Correlation matrix of the study shows three things. First, the table shows the value of Pearson’s correlation coefficient between every pair of variables (e.g. can see positive correlation). Second, the one-tailed significance of each correlation is displayed (e.g. the correlation above is significant, $p < .001$). Finally, the number of cases contributing to each correlation ($N = 4$ years) is shown.
The model summary table provides the value of $R$ and $R^2$ for the model that has been derived. For these data, $R$ has a value of .959 and there is only one predictor, this value represents the simple correlation between tourists and passengers travelled by LCCs. The value of $R^2$ is 0.919, which tells that passengers travelled by LCCs can account for 91.9% of the variation in record tourists. In other words, it can be explained that, there might be many factors that can be explained this variation, but in this model, which includes only passengers travelled by LCCs, can explain approximately 92% of it. This means that 8% of the variation in tourists cannot be explained by LCCs passengers alone. Therefore, there must be other variables that have an influence also.

The analysis of variance (ANOVA) table shows the various sums of squares described and the degrees of freedom associated with each. From these two values, the average sums of squares (the mean squares) can be calculated by dividing the sums of squares by the associated degrees of freedom. The most important part of the table is the $F$-ratio, which is calculated using below equation

$$F = \frac{M_{SS}}{M_{SR}}$$

(2)
[F= mean squares for the model/ residual mean squares], and the associated significance value of that $F$-ratio. For these data, $F$ is 22.68, which is significant at $p < .05$ (because the value in the column labeled Sig. is less than .05). This result tells us that there is less than 5% chance that an $F$-ratio this large would happen if the null hypothesis were true. Therefore, it can conclude that the regression model results in significantly better prediction of tourists visited than if used the mean value of tourists. In short, the regression model overall predicts tourists significantly well.

Table V. Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>1</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.37E7</td>
<td>5.63E6</td>
<td>5.99</td>
<td>.027</td>
</tr>
<tr>
<td>Passengers travelled by LCC</td>
<td>3.510</td>
<td>.737</td>
<td>.959</td>
<td>4.763</td>
</tr>
</tbody>
</table>

The table of coefficients provides details of the model parameters (the beta values) and the significance of these values. In the equation ($Y = \beta_0 + \beta_1X + \epsilon$), $\beta_0$ was the $Y$ intercept and this value is the value $B$ (in the SPSS output) for the constant. So, from the table, can say that $\beta_0$ is 3.371, and this can be interpreted as meaning that when no passengers travelled by LCCs (when $X = 0$), the model predicts that 3.371 tourists will be visited (unit of measurement was thousands of tourists). It can also read off the value of $\beta_1$ from the table and this value represents the gradient of the regression line. It is 3.510. Although this value is the slope of the regression line, it is more useful to think of this value as representing the change in the outcome associated with a unit change in the predictor. Therefore, if the predictor variable is increased by one unit (if the passengers travelled by LCCs increased by 1), then the model predicts that 3.510 extra tourists will be received. Our units of measurement were thousands of numbers, so it can be said that for an increase in passengers by LCCs 1000, the model predicts 3510 (3.510 $\times$ 1000 = 3510) extra tourist received. It might be imagine, this is very good for the tourists enhancement: LCCs carry 1000 passengers and eastern India gets 3510 extra tourists. Fortunately, as already mentioned by the researchers, no-frill airlines (LCCs) is very vital for increasing the number of tourists in certain destination.

In general, values of the regression coefficient $\beta$ represent the change in the outcome resulting from a unit change in the predictor and that if a predictor is having a significant impact on the
ability to predict the outcome then this $\beta$ should be different from 0 (and big relative to its standard error). It also shows that the $t$-test whether the $\beta$-value is different from 0. SPSS provides the exact probability that the observed value of $t$ would occur if the value of $\beta$ in the population were 0. If this observed significance is less than .05, then scientists agree that the result reflects a genuine effect. For these two values, the probabilities are .027 and .041. So it can be said that the probability of these $t$-values or larger occurring if the values of $\beta$ in the population were 0 is less than .05. Therefore, the $\beta$s are different from 0 and it can conclude that the LCCs make a significant contribution ($p < .05$) to predicting increase tourists.

So far the discovered a useful model, that significantly improves the ability to predict number of tourists. However, the next stage is often to use that model to make some predictions. The first stage is to define the model by replacing the $\beta$-values in equation with the values from SPSS Output. In addition, it can replace the $X$ and $Y$ with the variable names so that the model becomes:

$$\text{Number of tourists (} Y \text{)} = \beta_0 + \beta_1 \text{ LCCs passengers}$$

$$Y = 3.371 + (3.510 \times \text{LCCs passengers}') \quad (3)$$

The impact of no-frill airlines on passenger numbers in air transport in eastern India has been a significant growth in the last few years. Given that the LCCs have important repercussion for number of tourists. The aim of this study was to evaluate the role of no-frill airlines (LCCs) to increase the number of tourists in eastern India. Using regression analysis, number of tourists is the dependent variable and passenger travelled by LCCs is the independent variable and result shows that $R^2$ value is 0.919, which tells that passengers travelled by LCCs can account for 91.9% of the variation in record tourists. Therefore, it can conclude that the regression model is statistically good and significant for the study.

**Conclusion**

It seems reasonably clear that the no-frill airlines services, which have been encouraged by the government, have been partly responsible for increasing tourist numbers during the four financial years (2007-08 to 2010-11). Through the Regression Analysis, result got the value of $R^2$ is 0.919, which tells that passengers travelled by LCCs can account for 91.9% of the variation in record tourists. In other words, it can be explained that, there might be many factors that can be explained this variation, but in this model, which include only passengers travelled by LCCs, can
explain approximately 92% of it. Here also got F value is 22.68, which is significant at \( p < 0.05 \), which are statistically significant. Therefore, it can be said that, there is very positive impact of no-frill airlines (LCCs) in tourists’ enhancement in eastern India. The findings of this study will help the executives of tourism development corporations to understand the position no-frill airlines to enhance tourists in this region and accordingly frame their strategies for decision making in order to improve modes of transportation and gain competitive advantage.

References


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