Price Disparities in Air fare of Mumbai-Delhi Route

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ABSTRACT

KEY WORDS:
Marketing, price Dynamics, price disparity

Civil aviation industry can be regarded as an industry where demand and supply forces determine the prices. Since there are product substitutes, customers may shift to other travel options, if their perceived value is less than the quoted price. Yet market segmentation and effective utility management helps the airline companies to maximize their revenues. Companies collects demand data for previous years and expected to set minimum booking rate based on their estimation. Hence there are chances of decreased disparities in fare during a day of expected high demand. The present study examines the extent of price disparities in Mumbai-Delhi route on a comparatively expected high demand day.

INTRODUCTION

Price discrimination is a prevailing phenomenon in the established travel industry of Indian economy. This discrimination is generally imposed by the government, generally in the form of fare concessions to certain priority sector like students, blinds, senior citizens, etc. But the price dispersion is an entirely different phenomenon, which has been emerged in the civil aviation sector as a result of deregulation of fares. Deregulation is effectively carried out by dividing the customer on the basis of price elasticity. Price elastic customers may not choose flight or may cancel their trip, if the prices go beyond a level of expectation. On the other hand, the customers who give importance to time, will quit the travel, but only if goes beyond their perceived value of time. Tapping the customers' willingness to pay is the major challenge for an aviation company.

A market generally will not provide adequate number of time perspective customers for an airline to run economically. Price dynamics of airline industry in a deregulated

economy helps to develop the market potential. A potential market is one which has interest in buying the product. In a country like India, aviation is still considered as a luxury mode of travel, even for a one who can easily afford it. Hence it's potential for development is yet to be explored. So the concept of target market is much broader in civil aviation. Creation of interest for air travel in the minds of a population who consider it as a luxury is really a great challenge for the industry. Least fares are an interesting tool to widen the potential market.

Historical background

Indian civil aviation industry has been showing a continues and steady growth ever from the beginning of the first commercial civil aviation flight in 1911 (Chakravarty, 2011), which was so close to the global history of aviation. After 42 years, this industry was nationalized with the enactment of the Air corporation Act, 1953(Air corporation Act, 1953). Again in 1990, the industry was opened for private carriers for non-scheduled operations and in 1994 for scheduled operations. The year 2003 witnessed the emergence of Low Cost Carriers (LCC)in the market. Deregulation of airfare and air services, along with LCCs changed the pricing concepts of Indians. The socialist economy of India has witnessed the price dynamics with wide discrimination, purely on the market forces. Even though India's aviation history starts with global aviation history, deregulation reforms were started very late. US had deregulated it's civil aviation market in 1978 (Goetz & Vowles, 2009), which has ultimately provided the concept of LCCs to the industry.

Literature framework

Price dispersion in airline industry is substantial.The expected absolute difference in fares between two passengers on a route is 36 percent of the airline's average ticket price(Borenstein & Rose, 1994). Companies change their pricing policies according to different circumstances(Narangajavana et al., 2014). Since profit is always greater under discrimination(Aguirre, 2012), airlines employ different pricing strategies with different characteristics and restrictions (Chakrabarty & Kutlu, 2014).

For example ticket restrictions are associated with lower airfares(Stavins, 2001). Demand fluctuations creates asymmetric response of airline prices (Escobari, 2012). Studies shows that competition steps up airfares as the departure date comes closer(Dutta, 2015) and Companies tend to raise price during weekends to tap the increased demand(Clark &Vincent, 2012).The firm's ability to price discriminate over time affects production, product quality, and product allocation among consumers (Lazarev, 2011), and hence the industry which focus on price discrimination aregenerally keen on the service quality.

Statement of the Problem

Indian civil aviation industry has shown tremendous and dramatic growth for the last few years. Aircraft movement showed an increase of 13.4% in 2017-18. Passenger movement and cargo movement accounted for 16.5% and 12.7% increase respectively (AAI, 2018), whereas the GDP growth rate was only 6.81% for the period(World Bank, 2019). These indications show that the industry is capable of attracting more and more customers to the segment. Yet one can observe disparities in the prices of airline tickets. Air Asia announced Kochi-Bangalore travel @Rs.500/- in 2014 (AirAsia,2014)(PTI, 2014), whereas the prevailing bus fare in this route was Rs.600 to Rs.1000. The researcher could book a ticket for Rs.1013/- for August 25, 2016 with SpiceJet, but the same day IndiGo could bag Rs.3766/- in the same route(Cleartrip, 2016). Indian Railway ticket fare for second ac in this route was Rs.1366/-(IRCTC, 2016). Even in 2017, AirAsia offered tickets for the same route Rs.899/-(Airasia, 2017).These disparitieswill definitely induce the curiosity of any researcher to this area. The present study focus on the disparities in airfares in different segments of aviation markets in India.In general, the study hypothesis that discrimination exists in the market.

Objectives of the Study

To study the dispersion in the air fares offered by airlines operating in Mumbai-Delhi route.

Hypothesis

Hypothesis 1: There is no significant difference in mean Air fare of Mumbai-Delhisector for tickets booked 1 month in advance of departure date.

Methodology

Sample Selection - Routes

Out of the133 operating airports in India and 914 domestic routes with scheduled flights, the busiest airports Indira Gandhi International Airport (Delhi) and ChatrapatiShivaji International Airport (Mumbai, Maharashtra) which accounts for more than 45% of the total domestic traffic density of the Indian domestic civil aviation market(DGCA, 2017) has been chosen for selection for samples.Four days are selected which are adjacent to Deepavaly, since there are chances of more traffic density during this festival.

Sample Selection - Flights

There were 65 scheduled direct flights to departure from Mumbai to Delhi on

November 11th in 2018, the day of observation. These flights on 24 hours are divided into five periods, such as early morning flights, morning flights, Midday flights and Evening flights and late night flights. Table 1 shows the details.Early morning flights are selected for this observation.

Data Collection

Table 1 Schedule Flights on Mumbai - Delhi Route

SI No	Time of Departure	Vistara	Indigo	Jet Airways	SpiceJet	Go Air	Air India	Total
1	0.00 to 07.00	0	3	4	1	1	1	10
2	7.01 to 12.00	2	3	6	2	2	4	19
3	12.01 to 18.00	1	6	4	0	1	4	16
4	18.01 to 20.00	2	2	1	1	1	2	9
5	20.01 to 24.00	2	2	2	2	2	1	11
	Total Flights	7	16	17	6	7	12	65

Source: Compiled from yatra online booking site

Go Air has 2 segments in the same flight – Economy and Business Class. Both are treated as two different flights. Hence the total number of flights will be increased to72. For this study the prices of one fleet of all the five companies are selected for the date of departure. Business class of Go Air is analyzed separately. Prices have been collected for 31 days in advance, from the website of 'Yatra Online Private Limited'. The screen has been saved as a pdf file and then tabulated manually to Excel sheet.

Methodology-Analysis

The data analysis is done for the sample of 31 days prior the departure. Using the Anova, the study compares the mean of the lowest air fare of 5 Airlines and one Business. For measuring price dispersion, several eminent researchers in the field have used Gini Coefficient, since it efficiently reflects fare inequality(Borenstein & Rose, 1994), (Gale, 1993), (Cornia, Gerardi,& Shapiro, 2012).It is a common and simple measurement of inequality.For the analysis of the dispersion of fares among the travelers of early departure flights, gini coefficient is used by the researcher.

Results and Discussion

Passengers booking in advance are generally considered as leisure travellers and highly price sensitive. Hence, companies' charges comparatively low charges from

them. Price sensitive traveller generally books in advance. Companies' tend to charge more fares from the late comers, since they are assumed to be less price elastic.
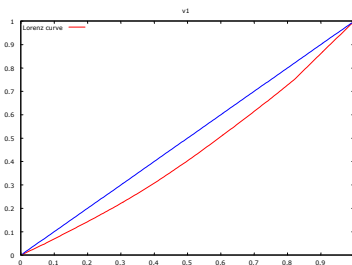
Price dispersion of air prices

Higher rate of gini coefficient indicates higher dispersion and inequalities. Table 2 shows the GINI Coefficients of various flights. Air India ranks first for dispersion. Spicejet has the least dispersion among economy class. Business class shows almost nil dispersion. Sample Gini coefficient calculated from the average price of all fleets in the economy classes is also below 0.1. But the overall dispersion of prices of all economy fleets shows a higher dispersion since the coefficient calculated from the prices of all fleets is 0.131. The 'Lorenz curve' shown in figure 1 shows the dispersion.

Table 2 GINI coefficients for Price Dispersion

Fleet	Sample Gini coefficient	Estimate of population value
Indigo	0.0213076	0.0219343
Jet Air	0.0631356	0.0649926
Spicejet	0.0653185	0.0672396
Go Air	0.0786973	0.081012
Air India	0.113306	0.116639
Average	0.0351833	0.0362181
Overall	0.13078	0.131554
Go Air Business	0.00078717	0.000810323

**Figure 1 Lorenz Curve of Overall Dispersion**

Eventhough the price dispersion is not high for individual fleets for the days of observation, overall dispersion is comparatively more. The frequency distribution may bring the idea more clearly. The following table 3 shows the frequency distribution of quoted prices. Number of observations are 170, with a mean of 6726.01 and SD of 1561.66. Figure 2 will also give an idea about the normality of price distribution.

Table 3   Frequency distribution for all quoted prices

Interval	Midpt	Frequency	Rel %
< 5120	4517	37	21.76%
5121 - 6330	5725.8	35	20.59%
6331 - 7540	6934.5	54	31.76%
7541 - 8750	8143.2	14	8.24%
> 8750	9352	30	17.65%

Figure 2. Normality of frequency
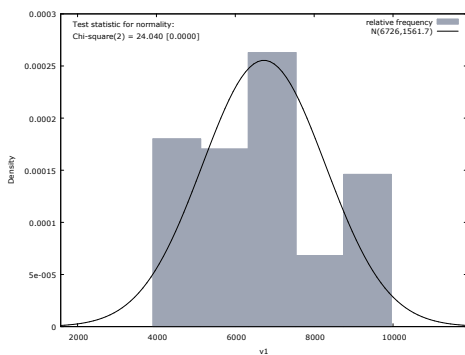
Comparison of mean fares

Table 4 shows the summary statistics of the data, using the observations from 31 days prior to departure.

Table 4. Summary Statistics

	Indigo	Jet Air	Spicejet	Go Air	Air India	Go Air Business
Mean	5424.18	9132.74	6319.03	6773.00	5981.09	16880.59
Min	4907.00	7357.00	5315.00	5100.00	4517.00	16860.00
Max	6489.00	9352.00	7593.00	8282.00	7772.00	16895.00
SD	714.30	614.63	763.31	999.72	1249.33	17.48
Mode	4907.00	9352.00	5315.00	7498.00	4570.00	16895.00

Separating the business class, Jet airways is costly since the mean average and ranges are higher for that. SD is also comparatively less. Indigo is found cheapest airline since the mean average and ranges are the lowest. SD is also comparatively less. Mode value is also the minimum fare. Comparing these values, Air India is cheaper

next to Indigo. Dispersion of fares is least for Business Class, since mean and mode are almost equal.

Test of Hypothesis 1 is done with the help of one way anova for fares of 30days. Table 5 shows the test results. The fares of Go Air Business are not considered for the test.

Table 5   One way ANOVA

ANOVA	sum-of-squares	Degree of Freedom	Mean Square
Source of Variation	SS	df	MS
Between Groups	279134793.7	4	69783698
Within Groups	133019681.3	165	806179.9
Total	412154475	169	
Source of Variation	F	P-value	F crit
Between Groups	86.56095197	1.72E-39	2.426438

The calculated F ratio is higher than critical value for degree of freedom. P value is much less than 0.5; the null hypothesis that there is no significant difference in mean Air fare of Mumbai-Delhisector for tickets booked within 1 month of departure dateis rejected. There is significant difference in mean Air fare of Mumbai-Delhisector for tickets booked within 1 month of departure date.

Conclusion

The study investigated the price strategy of airlines in the highly competitive domestic market during a high traffic/demand day between Mumbai and Delhi. The study observes that there exists dispersion of price within the company and between the companies. There exists significant difference in the mean air fare for tickets booked within one month of departure. Dispersion and mean fare difference is least for business class. The study result will be useful to passengers,who have limited knowledge about the airlines pricing strategies, benefit by booking the tickets as early as 1 month to 1 week , for availing the best lowest fares. The study provides the interesting research area in Indian environment for further investigation.

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