Analysis of Airline Ticket Pricing

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According to the t-test in Hpothesis 1 there is a difference in prices in both Economy and Premium Economy classes based on the manufacturer. The boxplots and the t-tests indicate an higher average price for Airbus in both the categories.

To investigate this further we start considering other factors such as Pitch, Width and Percentage Premium(indicates percent of premium economy seats on the plane) in Hypothesis 2(H2).

Checking for Pitch(H2): There is no difference in Pitch for the Premium Economy Class between the brands as well as within the brands. There is a difference in Pitch for the Economy class within the brands but they are both equally well Distributed The P value is extremely small for the Pitch Economy ~ Aircraft. This indicates a very strong correlation for the fact that the Average Pitch in the Economy classes greatly differs between the Boeing and Airbus brands.

Checking for Width(H2): The premium economy width is indeed higher than that of the regular economy class. The Premium Economy class widths are identically distributed with Boeing and Airbus. Whereas Boeing offers a higher degree of variation in the Economy width category, also Boeing has more distribution in the lower quartile in the Economy Width class though the mean is the equal for both Airbus and Boeing. The premium economy class's widths are identically distributed among Airbus and Boeing with same mean etc. According to the T-Tests the P-Value for the Width in the Economy class is extremely small, a strong indication the average value of width among the brands in the Economy class is not equal.

Checking Percentage Premium Seats between the brands(H2): We need to investigate this since the percent of premium seats in a plane determine the distribution of operational costs of the plane among its passengers. Higher the Premium seats percentage the higher the average air ticket price is and vice versa. Boeing has a higher degree of Percent Premium Seats, whereas Airbus has a lower degree of Percent Premium seats making them less prevalent on their aero planes. The P-value is very small for this t-test indicating that the average percentage of premium seats is not equal between the Airbus and the Boeing brands and that the sample mean for percentage premium seats of Airbus is lower than that of Boeings.

Building a Linear Regression Model, where the Economy class Price and the Premium Economy class prices are independent variables and the Aircraft-brand, width, pitch, percent premium seats. I expect to see a week relation between these factors such as width & pitch since they are identically distributed across both Boeing and Airbus. Pitch Premium, Pitch Economy, Width Premium, Width Economy play a very important determining role. Width Premium and Width Economy playing a very important role. Surprisingly Percentage Premium Seats does have any affect according to the Data Set on the relative price. But since, especially given this effects the distribution of costs in a plane this needs to be further investigated. Also, unlike what I expected, “Higher the Premium seats percentage the higher the average air ticket price is and vice versa” Airbus has a lower average Premium Seats Percentage on its plane but it does not have an average lower price, it could be because airlines operating Airbus aeroplanes are implementing a higher profit margin and hence offsetting the lower per seat cost to a higher cost. Or it could also be that Airbus on average makes smaller, inefficient planes compared to Boeing. The Domestic and International aspects of these flights also need to be investigated further.