

Total Fare Amount A/B Testing for NYC TLC Project

Executive Summary

Overview

During this phase of the project we are trying to find ways to increase the overall revenue earned by NYC taxi drivers with a focus on the relationship between total fare amounts and payment type.

Problem

While conducting exploratory data analysis we noticed that there was a difference in the total fare amount between those who use credit cards versus those who use cash. Those paying with credit cards were seen to on average pay more. We want to know if this difference is significant or due to sampling variability.

Solution

We ran A/B testing to see the relationship between payment type (cash vs credit card) and total fare amount. The key business insight discovered is that the difference between the total fare amount of those who use credit cards versus those who use cash is statistically significant, meaning that encouraging customers to pay with credit cards will likely increase total revenue.

Details

Steps taken in conducting A/B Testing:

1. Collect sample data from customers riding in NYC taxi cabs ensuring that their payment method falls into one of the following two categories:
 - a. Credit card
 - b. Cash
2. Utilize descriptive statistics to get a deeper understanding of the average total fare amount of those who used either payment method
3. Create our null and alternative hypothesis
4. Set a significance level of 5%
5. Conducted a two-sample t test to determine the statistical significance of the difference observed between the total fare amounts of those who use credit cards vs cash

A/B Testing Results:

Since the P value is much smaller than our significance level we reject the null hypothesis . There is a statistically significant difference in the average total fare amount of those who pay with credit cards versus those who pay with cash, those who pay with credit cards have on average a larger total fare amount.

Next Steps

Based on the results of the A/B testing in order to increase total revenue our team suggests that the NYC TLC strive to get more credit card transactions as opposed to cash. An example of this could be new signage within taxis stating that credit card payments are preferred, leading customers towards the usage of credit cards.

