

Statistical Review and A/B Testing for New York City TLC Project

Executive summary report

Commission Prepared by **Automatidata**

Overview

This project aims to forecast taxi cab fares prior to each trip. Its primary objective is to explore avenues for increasing revenue for New York City taxi cab drivers. This phase of the project specifically investigates the correlation between total fare amount and payment methods.

Problem

In investigating the correlation between total fare amounts and payment types, this project aims to discern whether customers who pay by credit card tend to offer larger tips than those who pay with cash, thereby shedding light on the variability in tip amounts received by taxi cab drivers.

Solution

The Automatidata team conducted an A/B test to examine the correlation between credit card payments and total fare amounts. The crucial business insight gleaned from this analysis suggests that incentivizing customers to use credit cards may result in increased revenue for taxi drivers.

Details

Steps conducted in the A/B test

1. Sample data was collected from an experiment in which random customers were selected from two different categories:
 - a. Customers who payed with credit card.
 - b. Customers who payed with cash.

This enables us to draw causal conclusions about how payment method affects fare amount by comparing the two cases.
2. Descriptive statistics were computed to gain insights into the average total fare amount for each payment method available to the customer.
3. A two-sample t-test was conducted to ascertain whether there exists a statistically significant difference in average total fare between customers who utilize credit cards and those who use cash.

A/B test results

There is a statistically significant difference between the average total fare between customers who pay using credit cards and those who pay with cash. Customers using credit cards showed a higher total fare amount.

Next Steps

The Automatidata data team recommends that the New York City TLC should promote credit card payments and devise strategies to encourage their use. For instance, the TLC could collaborate with popular payment platforms to provide exclusive deals, making credit card payments more appealing to passengers and implement a promotional campaign highlighting the benefits of using credit cards, such as convenience, security, and ease of tracking expenses..