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

Executive summary report

Commission Prepared by **Automatidata**

Overview

The main objective of this project is to predict the cost of a taxi ride before it happens. Currently, the focus is on identifying strategies that can increase the revenue of taxi drivers in New York City. One approach adopted is analyzing the relationship between the total fare and the payment method used by the passenger.

Problem

Taxi drivers receive tips in varying amounts. At this stage of the project, while exploring the relationship between total fare and payment method, the goal is to determine whether customers who pay by credit card tend to spend more than those who pay with cash.

Solution

The Automatidata team conducted an A/B test to explore the relationship between credit card payments and total taxi fare amounts. The key business insight is that encouraging customers to pay by credit card may lead to a meaningful increase in revenue for taxi drivers.

Details

Steps conducted in the A/B test

1. Collected sample data from an experiment in which customers were randomly selected and divided into two groups:
    a. Customers who were instructed to pay with a credit card..
    b. Customers who were instructed to pay with cash. This approach enables causal conclusions about how payment method affects fare amount.
2. Computed descriptive statistics to better understand the average total fare amount for each payment method available to the customer.
3. Conducted a two-sample t-test to determine if there is a statistically significant difference in average total fare between customers who use credit cards and customers who use cash.

A/B test results

Customers who pay by credit card tend to spend more on taxi fares than those who pay with cash, and this difference is statistically significant

Next Steps

The Automatidata data team recommends that NYC TLC promote credit card payments. Suggested strategies include placing signs in taxis stating, “Credit card payments are preferred” and instructing drivers to verbally inform passengers of this preference.