

For a measure of success in this experiment, I would choose the average distance per day as a metric. Clearly, if the experiment is successful, then driver partners are covering two cities or a larger area. This would cause an increase in the average distance covered per ride. On the other hand, if the experiment is not successful, and driver partners continue to serve only one city or the other, the average distance covered per ride will be lower.

Experiment to test the efficacy of the policy change:

- 1) We can collect data on average distance travelled per day for drivers prior to policy change. We compute data on the same variable on the same drivers, after the policy change has been implemented. It is recommended to conduct the experiment separately for weekdays and weekends, since activity is different on weekday and weekends.
- 2) We will use the z-test to test if the average distance travelled per day is significantly different from average distance travelled after policy change. Without making normality assumption on the parent population, we use Central Limit Theorem, and so we need to make sure sample size > 30 . The null hypothesis to test is the two averages are the same. This is a one-tail test with the alternate hypothesis being the average distance travelled is greater after policy change. We conduct the test at 5% level of significance, so if the z-statistic is greater than 1.65, we reject the null.
- 3) If we reject the null at 5% level of significance, then this would imply that the two averages are statistically different. We can then conclude that the policy has been successful in encouraging driver partners to cater to both cities. If we do not reject the null, this would imply that driver partners are continuing to cater to one city and reimbursing the toll has no effect. Its then possible that driver partners are serving a particular city based on their preference of working during the day or night.
- 4) We could also possibly have used total toll from cabs, but it's a bit unclear from the problem state above. For example, due to different activity times in the two cities, a driver may be active in a particular city during a certain time of day and night. This would only marginally increase the toll, but substantially increase driver activity across both cities.