# Citi Bike is actually a luxury service, not an "affordable way to get around town"

*By Maheen Asghar | Nov 20, 2020*

Citi Bike has been promoted as a fun and affordable way to get around town--with the promise that it can save a lot of money over taking taxis. It has exclusive rights to the areas it operates in, including Manhattan, portions of Brooklyn, and a small part of Western Queens.

According to a study out of McGill University, Citi Bike is predominantly serving wealthy, white New Yorkers, while leaving behind low-income residents and communities of color. Even the director behind Citi Bike, Justin Ginsburg, stated that the service was a success and "mostly caters to white men in households making six figures."

Taking a look at the Citi Bike trip data from October 1st, 2019 to October 31st, 2019, there are a total of 2,092,086 trips that lasted less than a day, with an average of a trip being 14 minutes. An initial analysis proved that most riders within this period of time were subscribers, men, and between the ages of 21 to 40.
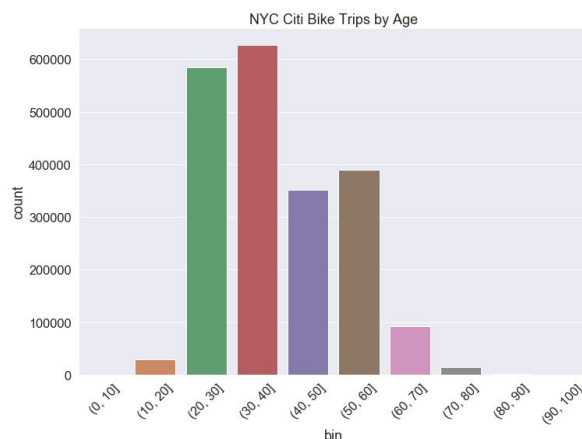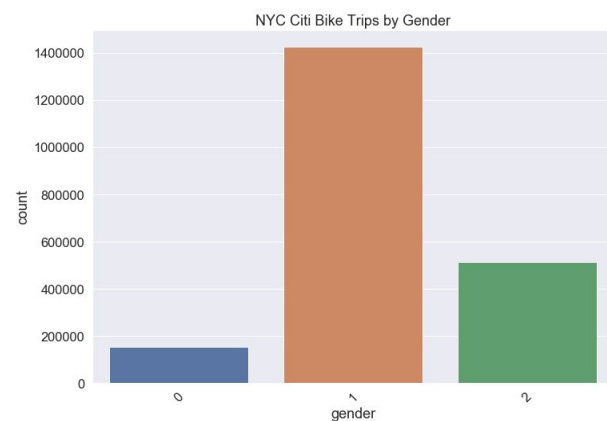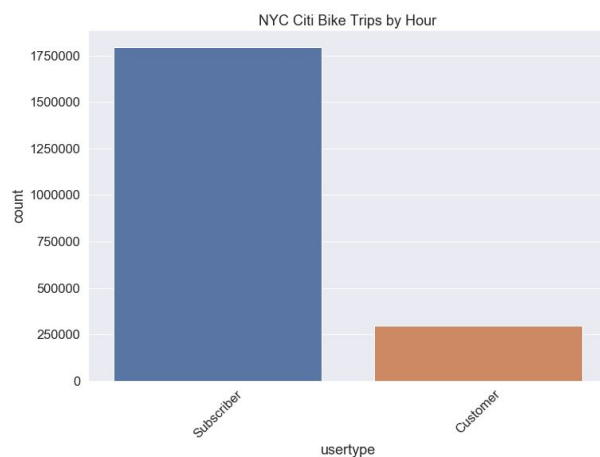
Another study by Hosford et al. surveyed public bicycle users in Vancouver, Canada and determined riders tended to be male, employed, and have higher educations and incomes compared to the general population. To determine if this applied to the Citi Bike users in NYC, I decided to pull in income data for the NYC zip codes from the IRS database.

NYC Citi Bike Trips by Zipcode Income
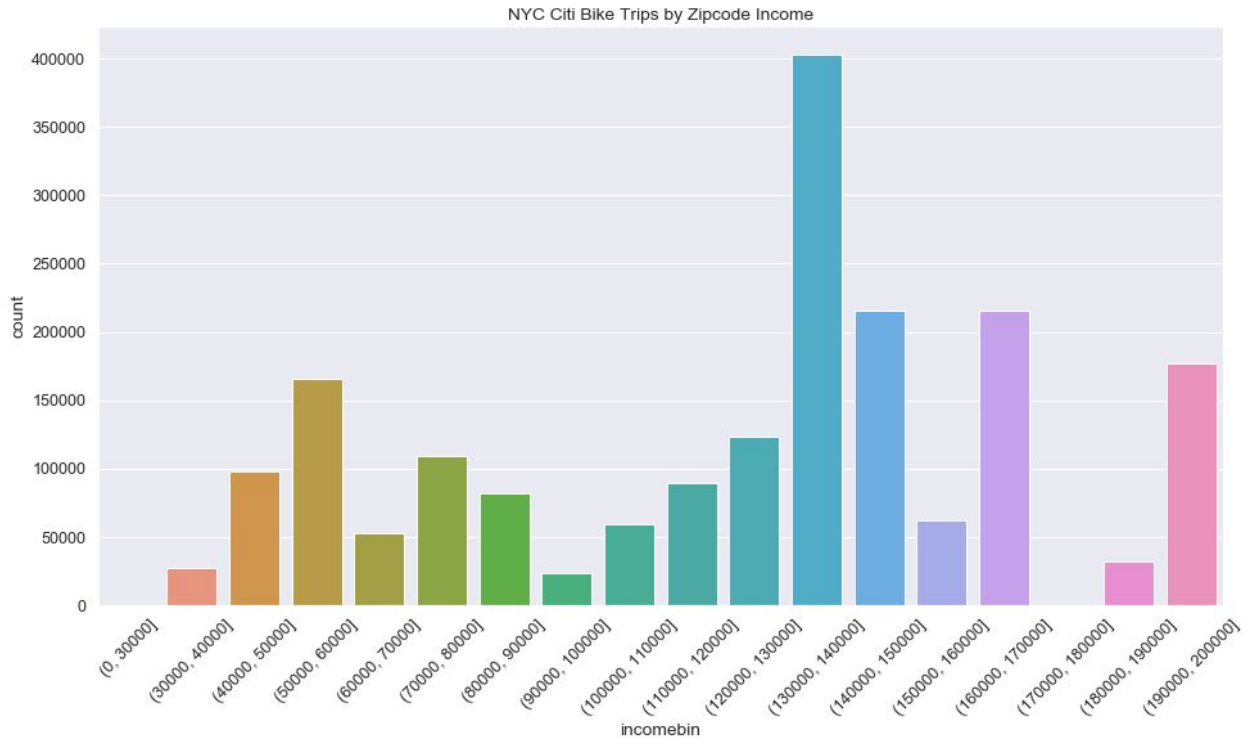
We see that zipcodes with higher incomes have a proportionately larger number of trips. Trip counts jump for people who live in zip codes with a six-figure household income. This corresponds to the report from MgGill University, which found that New Yorkers inside Citi Bike's service area had a median household income of $90,400.
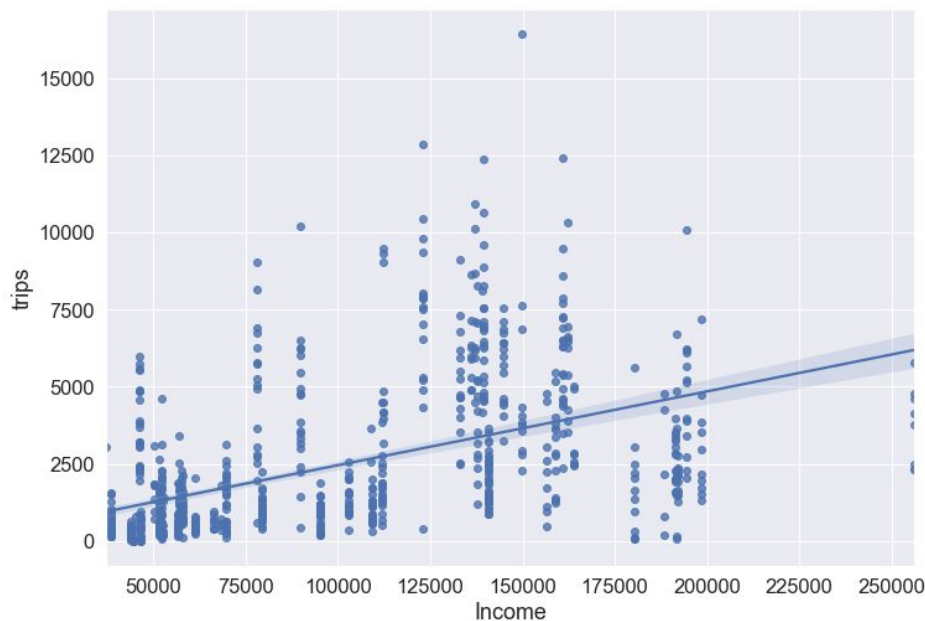

The scatterplot on the left shows a positive correlation--as income increases, the number of trips increase.

Despite Citi Bike claiming to have an extensive reach, the map below shows that there aren't many stations in Brooklyn or Queens. Lower Manhattan has the most number of stations overall. The choropleths overlay the count of stations

with household income and the number of trips within that particular zip code. The maps show the relationship between income and rate of visits (or trip count)--higher income communities, with a median household income of $137,000, have a higher rate of visits.
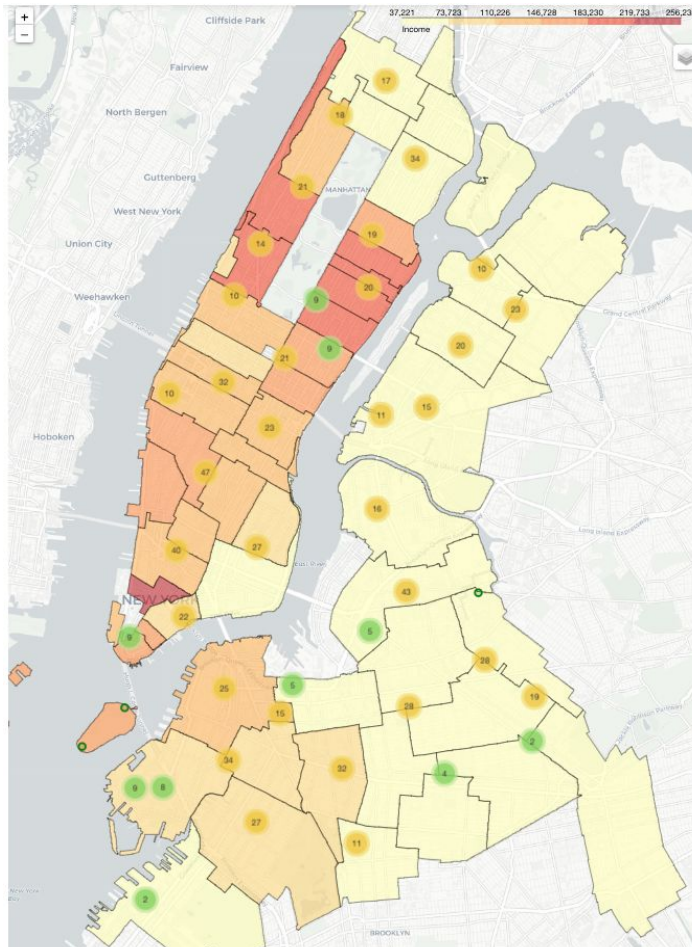
Citi Bike Station Count w/ Household Income   Citi Bikes Station Count w/# of Trips
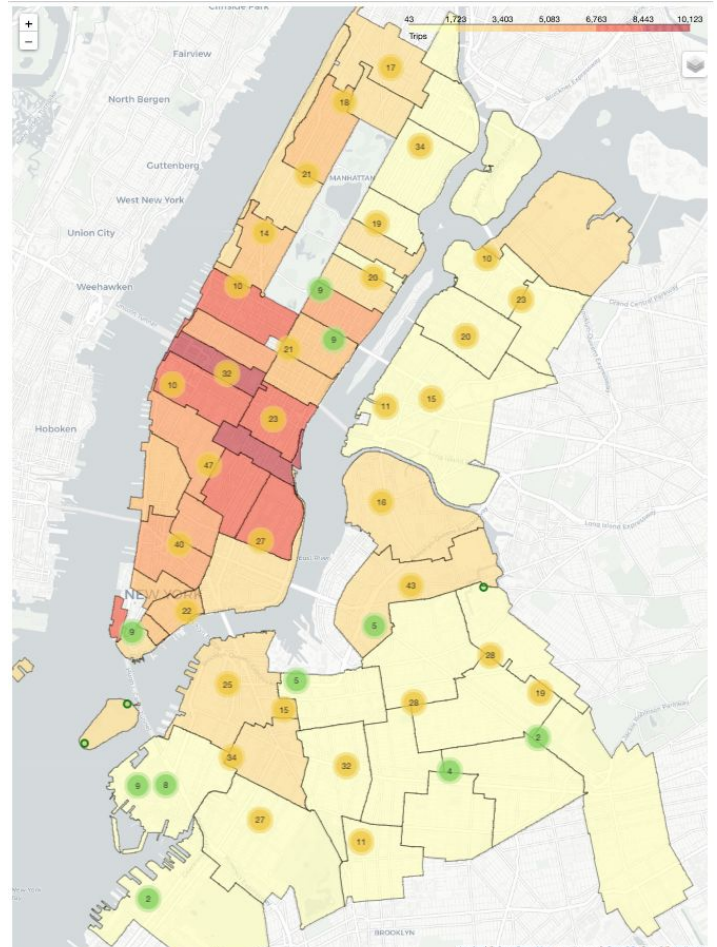
Citi Bike created a Reduced Fare Bike Share, a $5 monthly memberships for public housing residents and recipients of food stamps, in August of 2019, but by October, the predominant user remains rich (and from McGill's study--white) men. As a service that is supposed to be a public service, Citi Bike does not provide the equity needed of a public bike service for one of the most diverse cities in the country.

Citi Bike is living up to its promise of equity with reduced fare for low-income and underserved communities

By Maheen Asghar | Nov 20, 2020

Citi Bike has been promoted as a fun and affordable way to get around town, which seems more plausible with its introduction of the Reduced Fare Bike Share, a $5 monthly memberships for public housing residents and recipients of food stamps, in August of 2019. The head of micorbolity policy at Lyft (which owns Citi Bike) stated "As Citi Bike expands in the coming years, so too will our efforts to ensure that the system is accessible and equitable for everyone."

According to a study out of McGill University, Citi Bike is predominantly serving wealthy, white New Yorkers, while leaving behind low-income residents and communities of color. They reported that New Yorkers inside Citi Bike's service area had a median household income of $90,400, compared to an average of $54,700 for those excluded.

Taking a look at the Citi Bike trip data from October 1st, 2019 to October 31st, 2019, there are a total of 2,092,086 trips that lasted less than a day, with an average of a trip being 14 minutes. An initial analysis proved that most riders within this period of time were subscribers, men, and between the ages of 21 to 40.
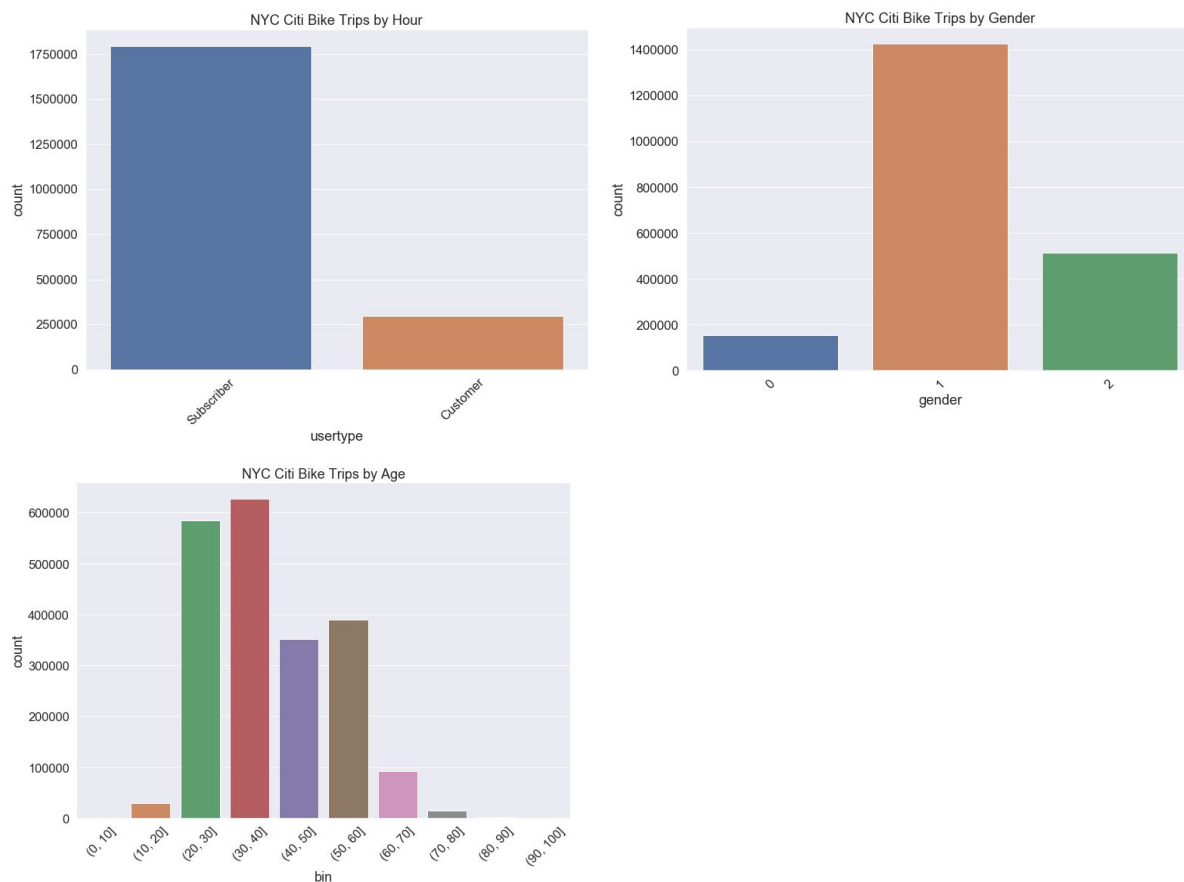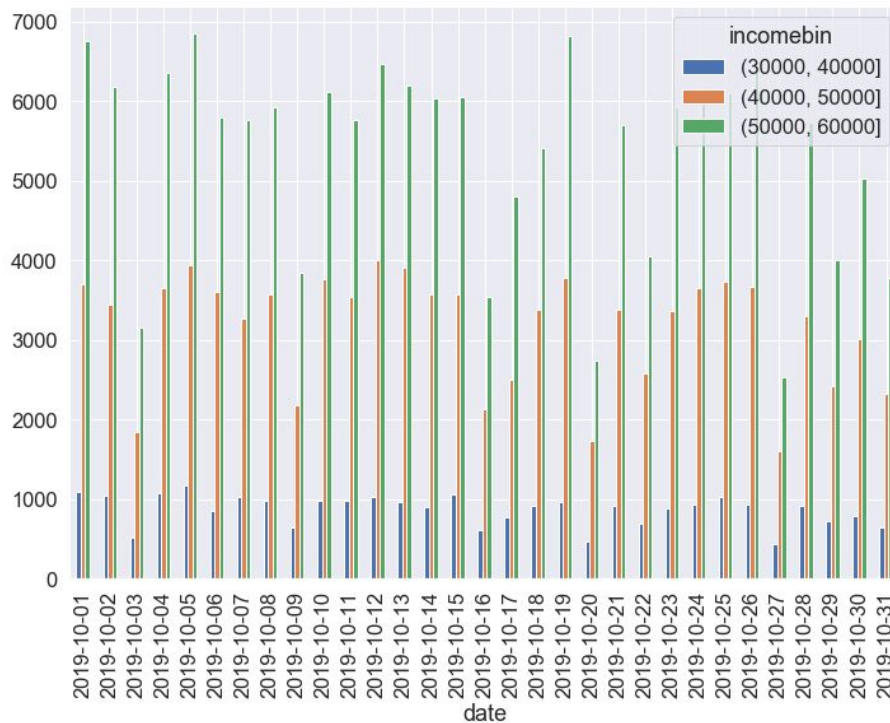
To see if the policy made a difference, I looked at total trips started at zip codes with low household income, income under $60,000 to correlate with the McGill University study.

The number of trips appears to be stagnant over the course of the month. However, an analysis of trips taken from low-income zip codes over the course of a year would provide a better picture.

Looking at the number of trips taken by zip code below, we see that there is a high number of riders in the $60,000 income bracket, which is around the average income of poorer households and underrepresented communities.

NYC Citi Bike Trips by Hour
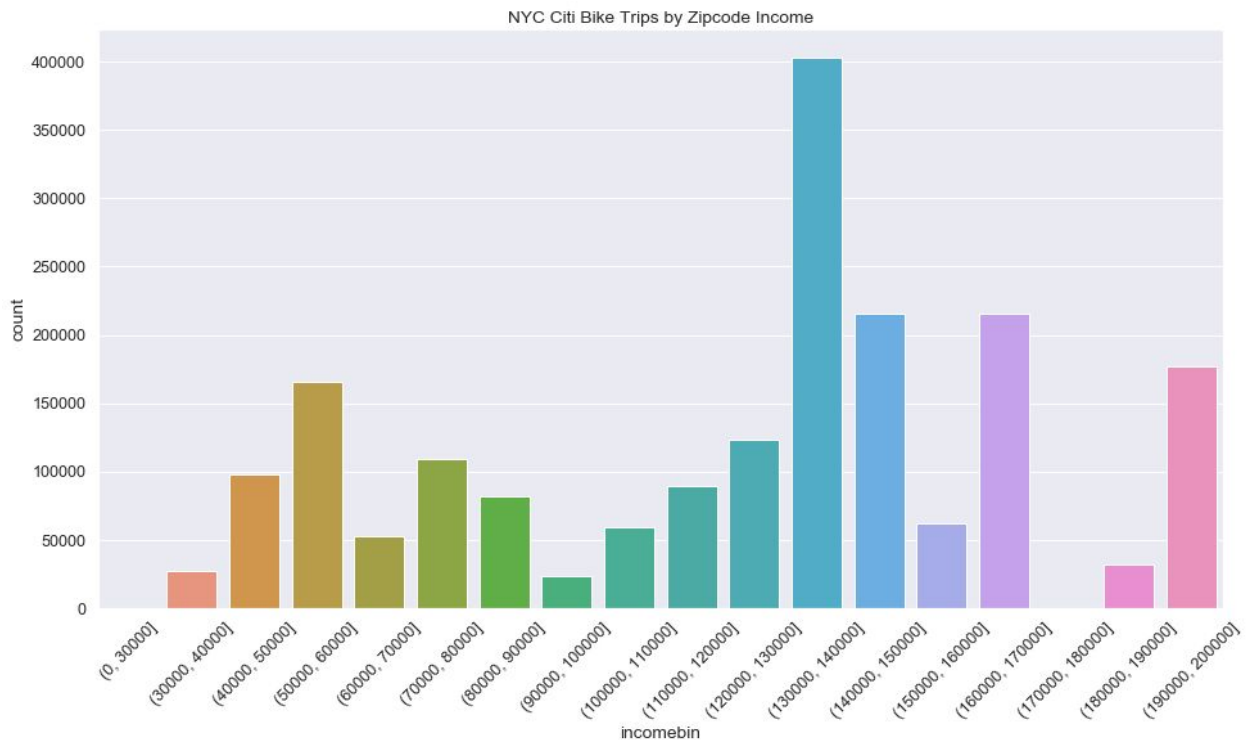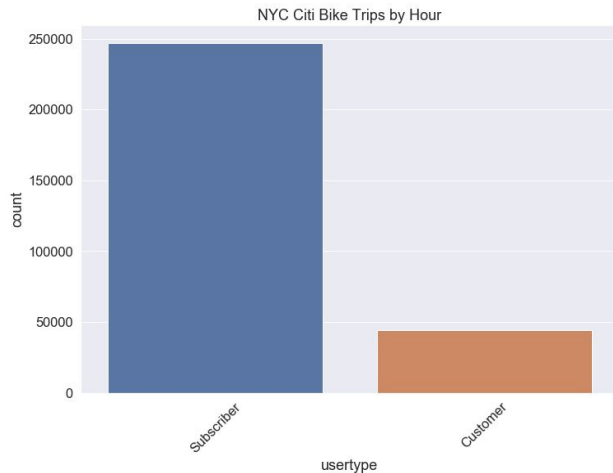
Citi Bike claims that the 3,500 New Yorkers that are currently enrolled in the Reduced Fare Program ride twice as often as the 150,000 annual Citi Bike subscribers, which proves that the program is successful. Taking a look at subscribers in zip codes under an annual household income of $60,000, we see that there are quite a few subscribers

In fact, looking at the average and median trip duration for riders in the two income brackets shows that riders from zip codes with low household have longer trip durations.

	Average (sec)	Median (sec)
Riders in zip codes with household income <= $60k	867.3	326
Riders in zip codes with household income > $60k	835.2	318

Citi Bike Station Count w/ Household Income
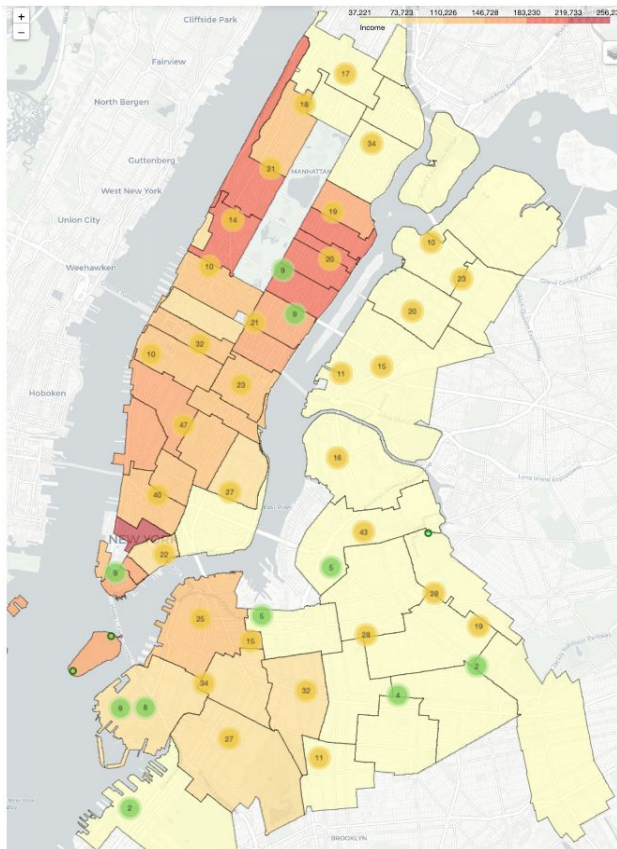
Citi Bike does appear to be increasing residents' access to sustainable transportation, as the findings above highlight that bike sharing may be serving the needs of those with lower incomes better than higher incomes. The choropleth also highlights that there are quite a few bike stations located in zip codes of income under $60,000.
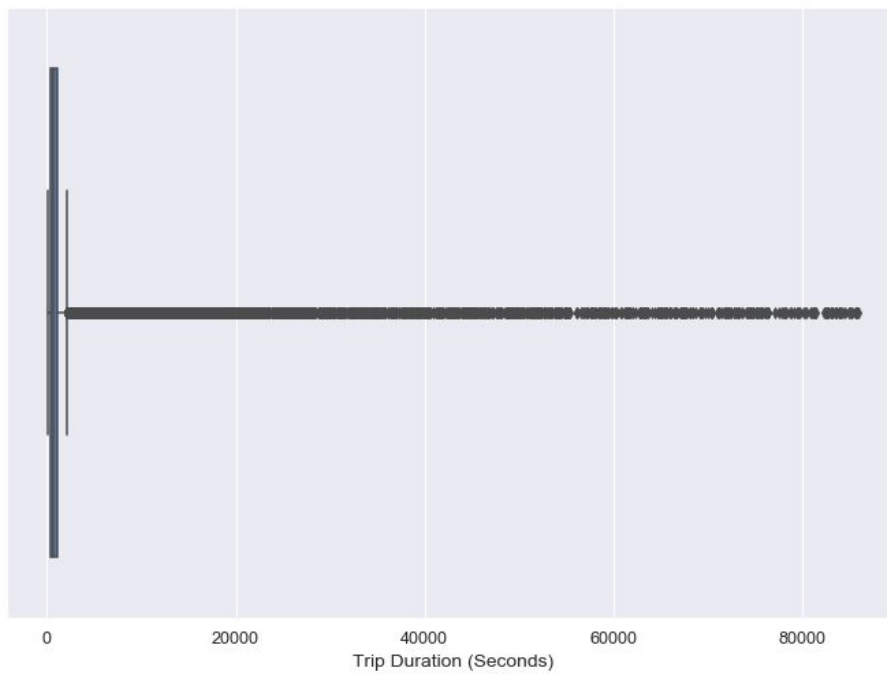
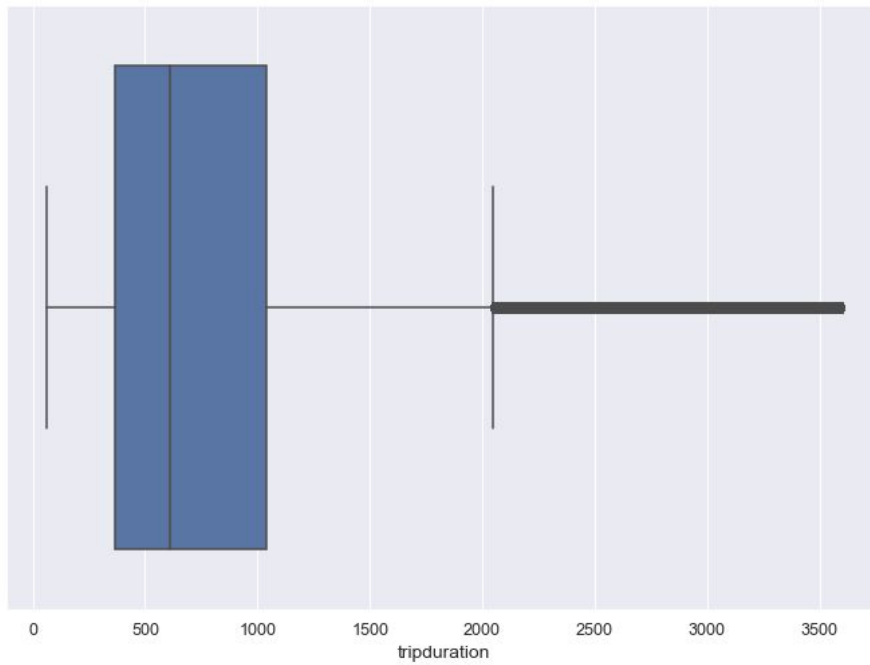Citi Bike truly is working on becoming accessible and equitable for everyone.
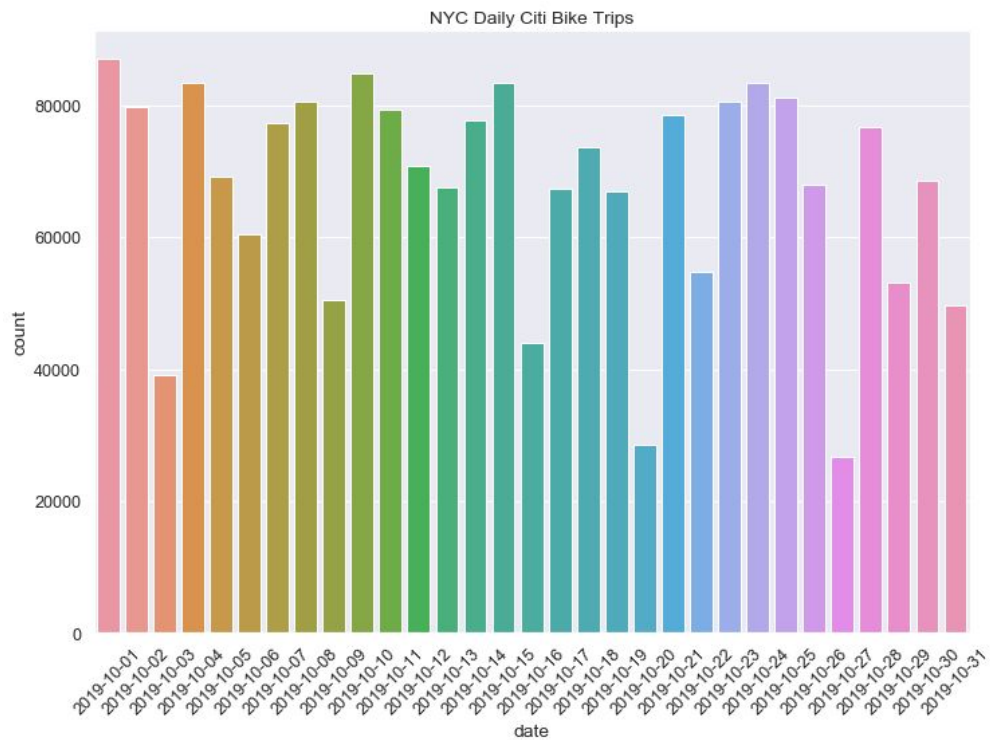
Appendix

All trips:
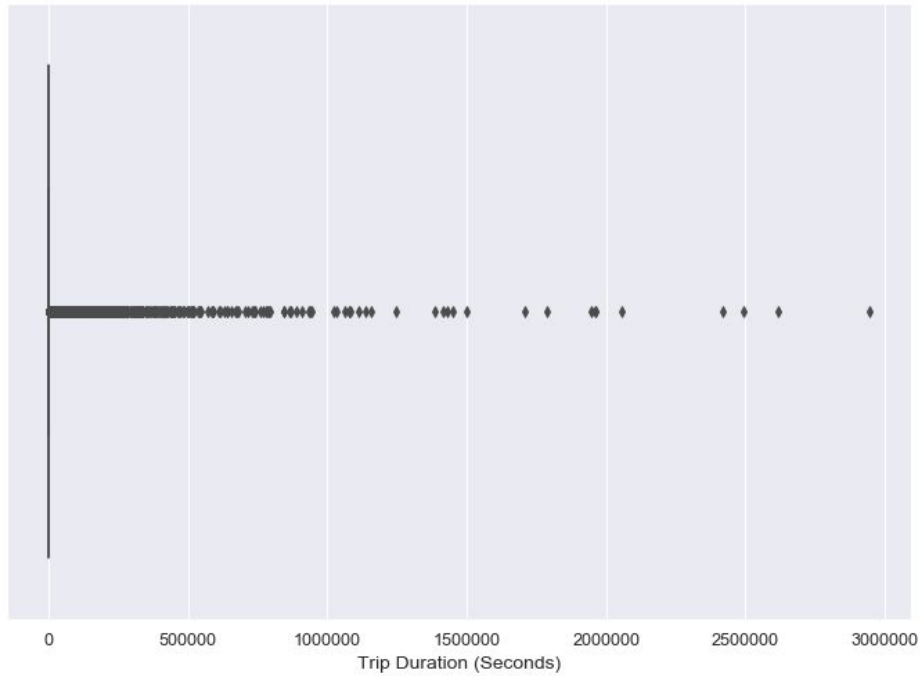
Trips up to a day:

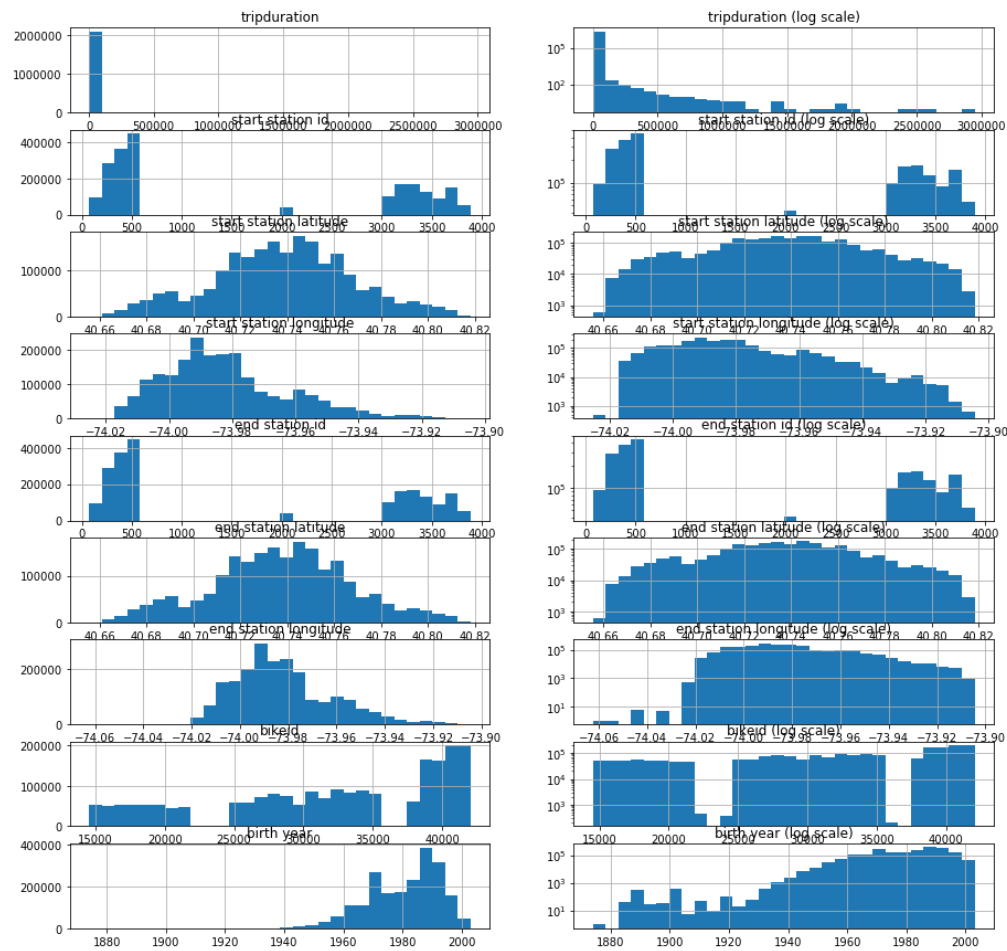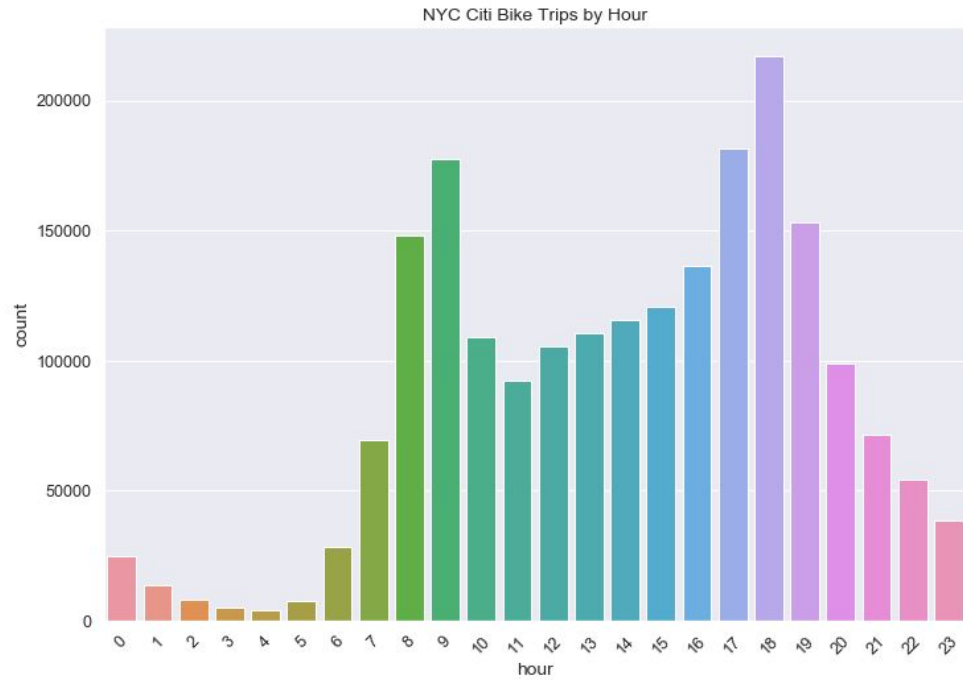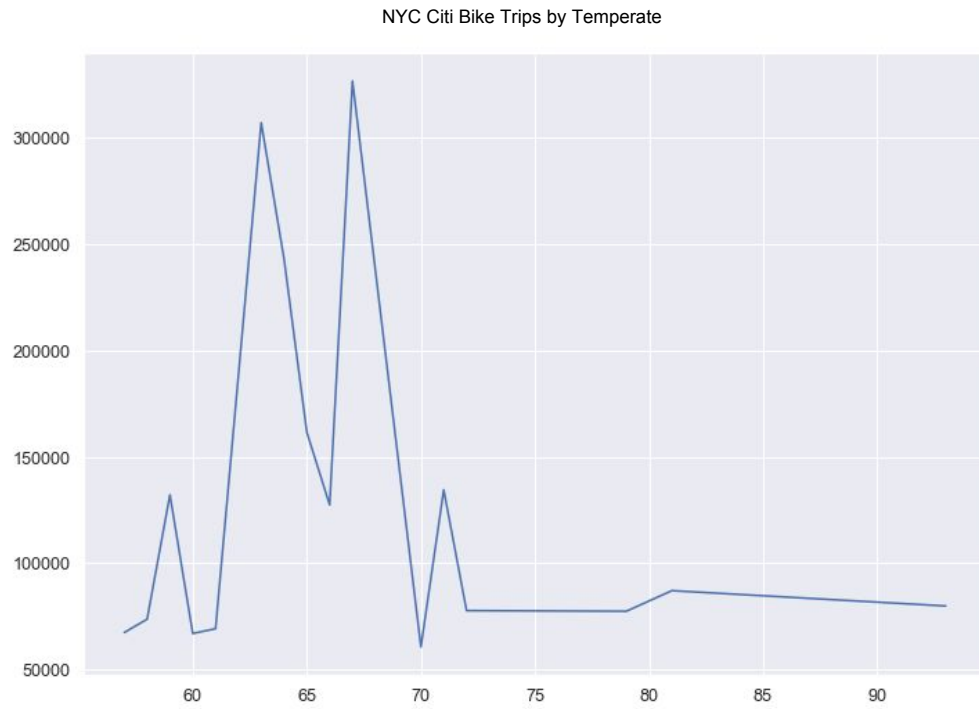Most trips are well under the 45 minute limit:

General analysis:

NYC Citi Bike Trips by Hour

Tried to analyze weather but did not find much variation with just one month of data:

NYC Citi Bike Trips by Temperate

incomebin date	(30000, 40000]	(40000, 50000]	(50000, 60000]
2019-10-01	1091	3699	6755
2019-10-02	1048	3449	6185
2019-10-03	511	1841	3152
2019-10-04	1077	3661	6364
2019-10-05	1166	3934	6852
2019-10-06	850	3604	5804
2019-10-07	1029	3265	5769
2019-10-08	981	3576	5920
2019-10-09	650	2174	3839
2019-10-10	977	3768	6120
2019-10-11	987	3545	5768
2019-10-12	1024	4009	6474
2019-10-13	971	3916	6203
2019-10-14	904	3570	6037
2019-10-15	1067	3579	6051
2019-10-16	609	2139	3536
2019-10-17	777	2502	4807
2019-10-18	920	3385	5420
2019-10-19	965	3780	6826
2019-10-20	466	1726	2737
2019-10-21	915	3378	5700
2019-10-22	697	2589	4056
2019-10-23	886	3369	5934
2019-10-24	936	3659	6173
2019-10-25	1037	3726	6098
2019-10-26	932	3677	6414
2019-10-27	434	1605	2538
2019-10-28	917	3297	5728
2019-10-29	720	2427	3998
2019-10-30	788	3011	5022
2019-10-31	640	2327	3788

Temperate

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