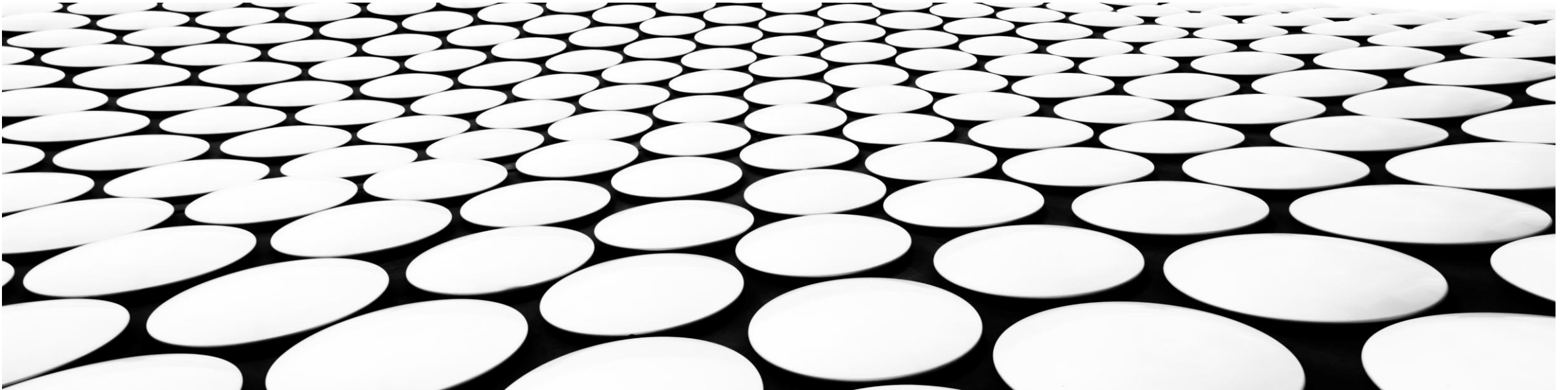

WHERE TO OPEN A MEXICAN RESTAURANT IN NEW YORK CITY

IBM DATA SCIENCE CAPSTONE PROJECT

BY JENS GREVE

JANUARY 26, 2021





FINDING THE BEST LOCATION FOR A PARTICULAR RESTAURANT IN NEW YORK CITY IS VALUABLE TO INVESTORS

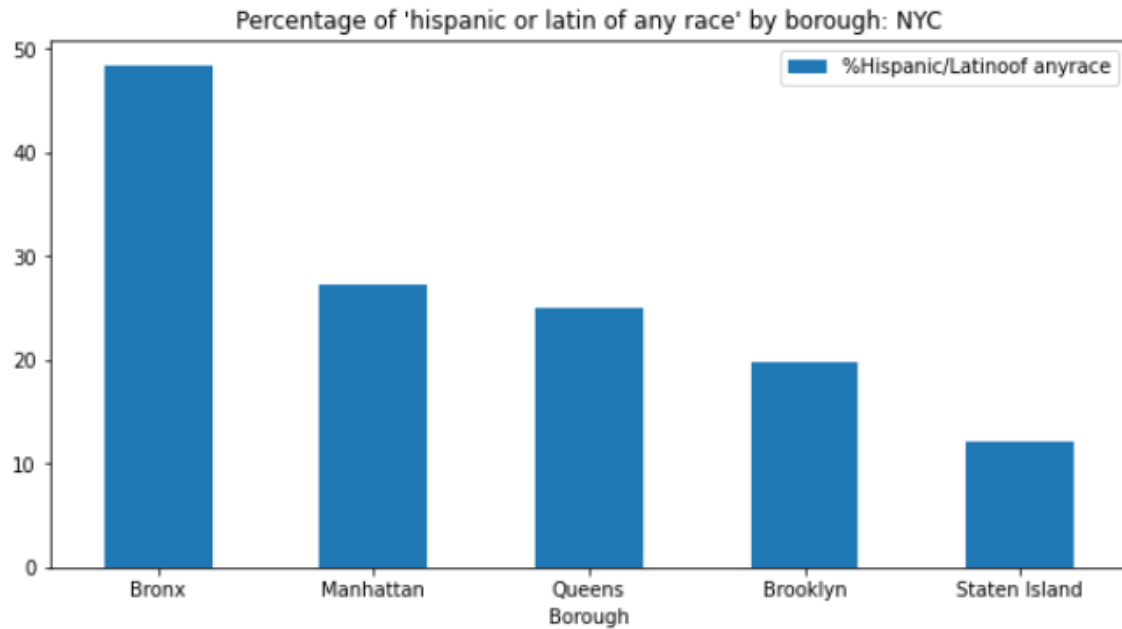
- New York City is the largest city in US and the most diverse city in the world with 800 languages spoken in New York.
- New York City has a long tradition of different ethnical restaurants.
- Being able to identify great locations for a particular type of restaurant help investors to
 - Shortlist potential neighborhoods to research for real estate availability and restaurant competition
- The Mexican cuisine is one of the fastest growing helping and could in itself be an attractive business proposition

DATA ACQUISITION AND CLEANING

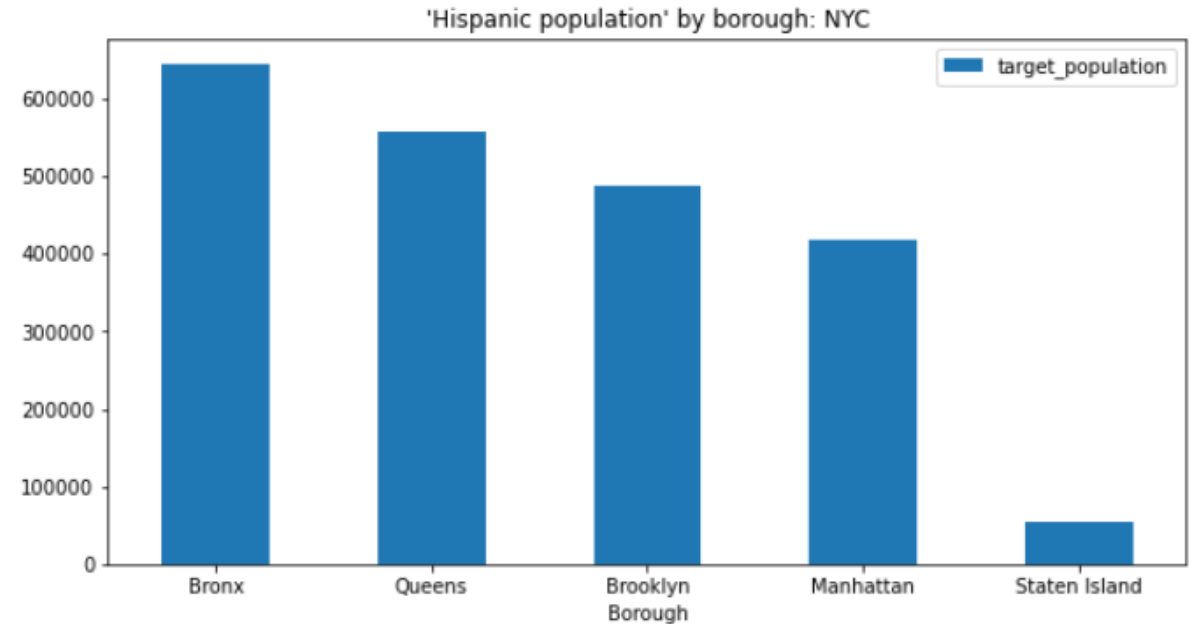
- Demographical data for ethnical origin of boroughs in New York City from Wikipedia (https://en.wikipedia.org/wiki/Demographics_of_New_York_City). Data scrapped off a particular table and cleaned to 5 rows and 8 attributes.
- New York City data containing the neighborhoods and boroughs, latitudes, and longitudes will be obtained from the data source: https://cocl.us/new_york_dataset. Data containing 5 boroughs and 305 neighborhoods.
- All data related to locations and quality of Mexican restaurants via the FourSquare API. Venue data containing 127 Mexican restaurants in New York City with 7 attributes. Cleaned data from new restaurants without any ratings.
- Venue data merged to include longitude and latitude to be able to plot the data on a map.

USING DEMOGRAPHIC DATA TO UNDERSTAND HISPANIC POPULATION

- ASSUMING THEY HAVE A STRONG PREFERENCE FOR MEXICAN CUISINE

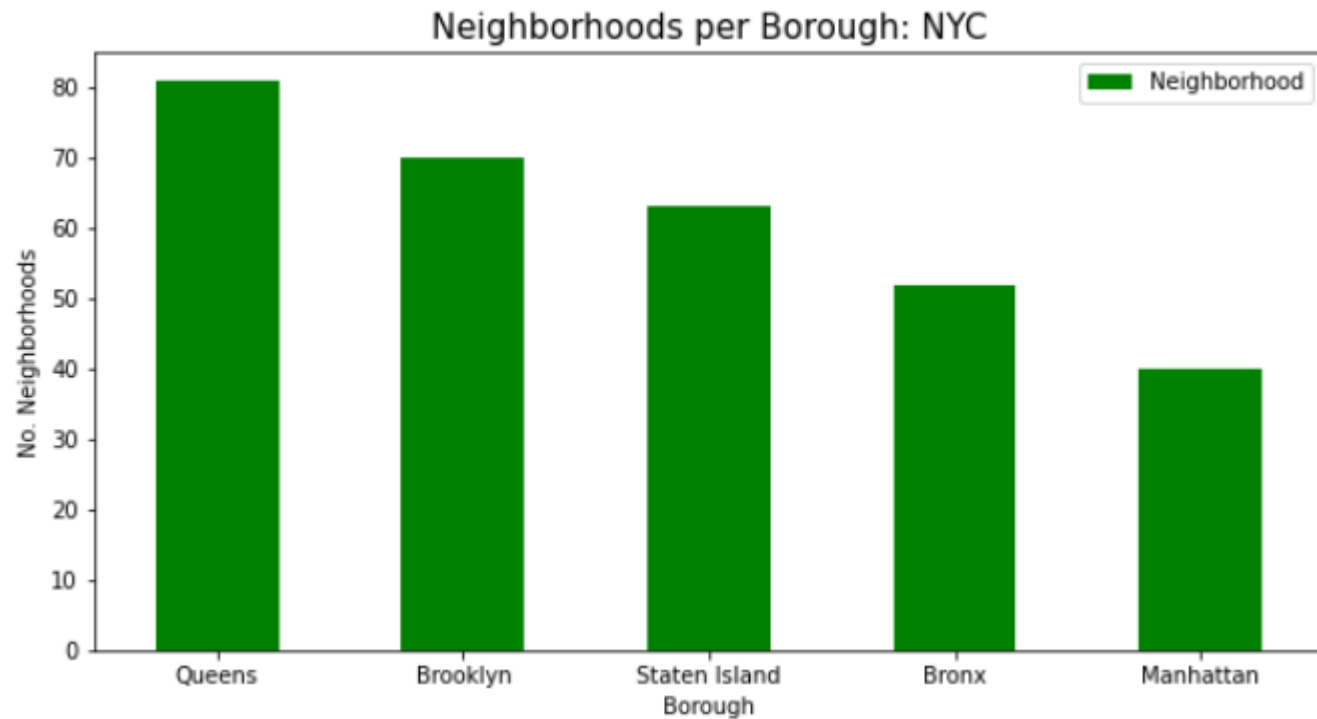


Bronx has 48,6% Hispanic population, almost x2 that of other boroughs

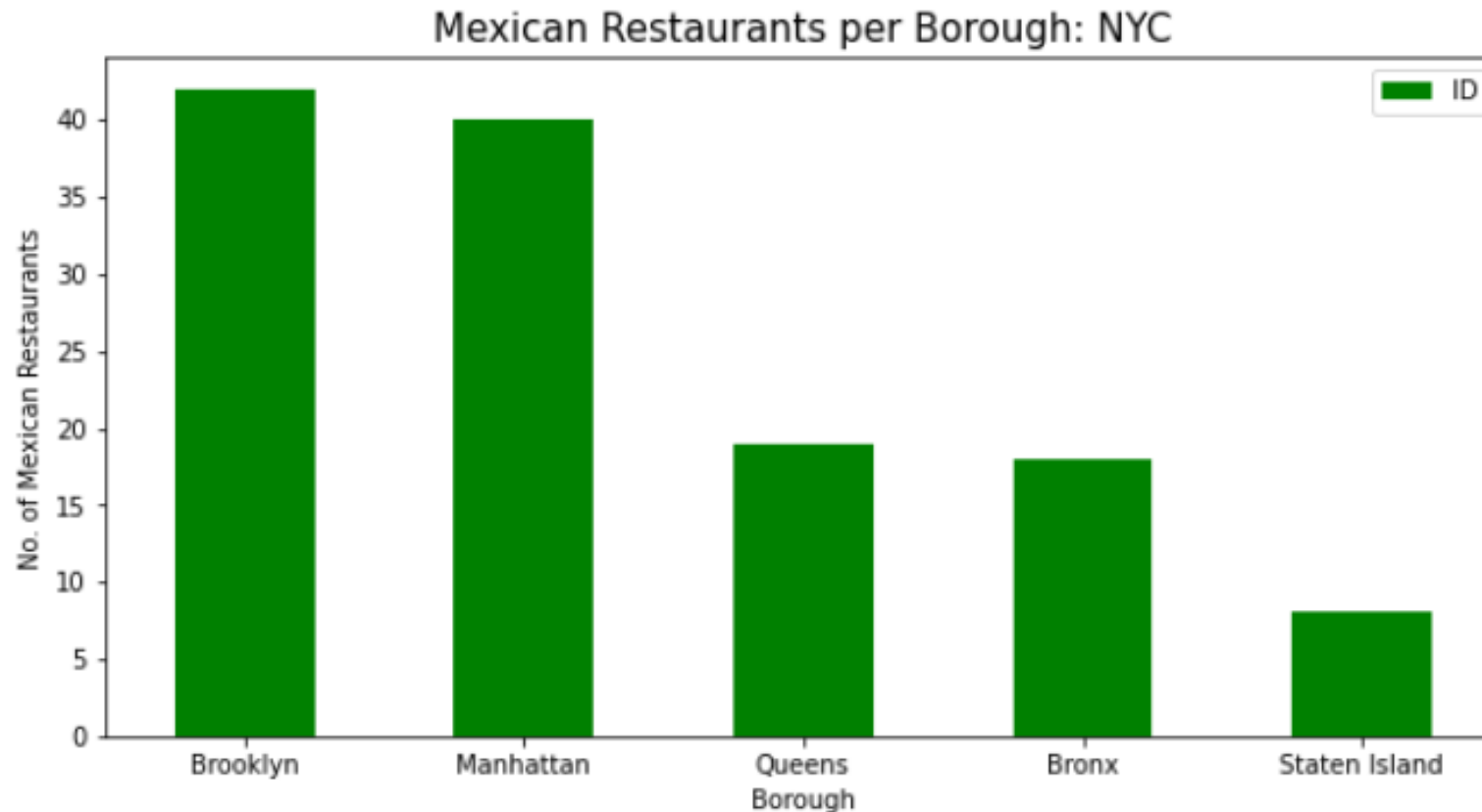


Boroughs like Brooklyn have a bigger population so the Hispanic population is still a large population.

USING CITY DATA TO UNDERSTAND NEIGHBORHOODS

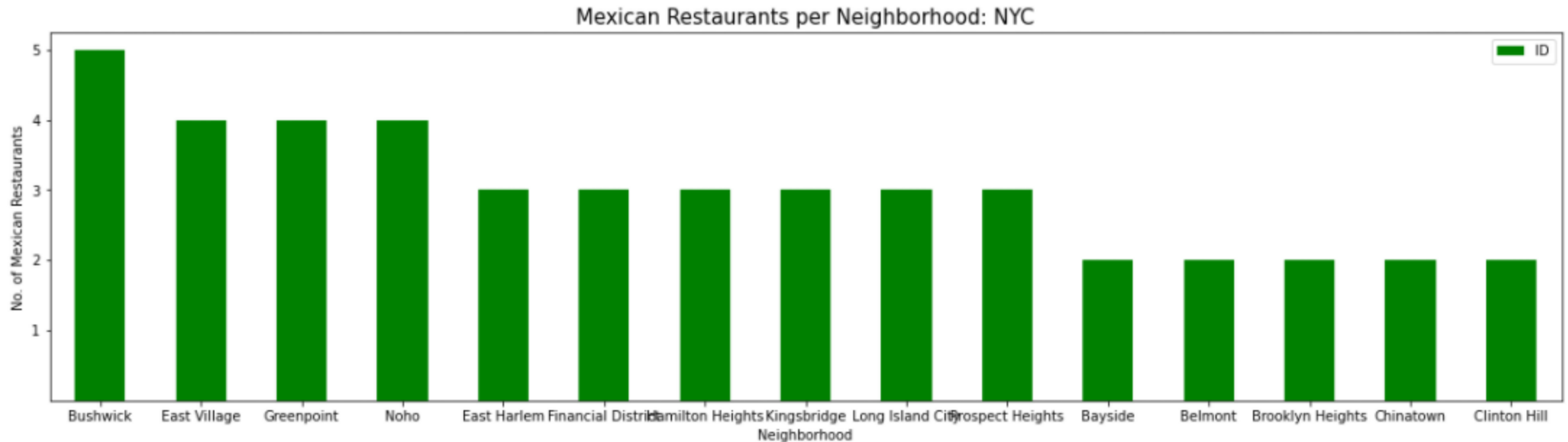


BROOKLYN AND MANHATTAN HAVE THE MOST MEXICAN RESTAURANTS

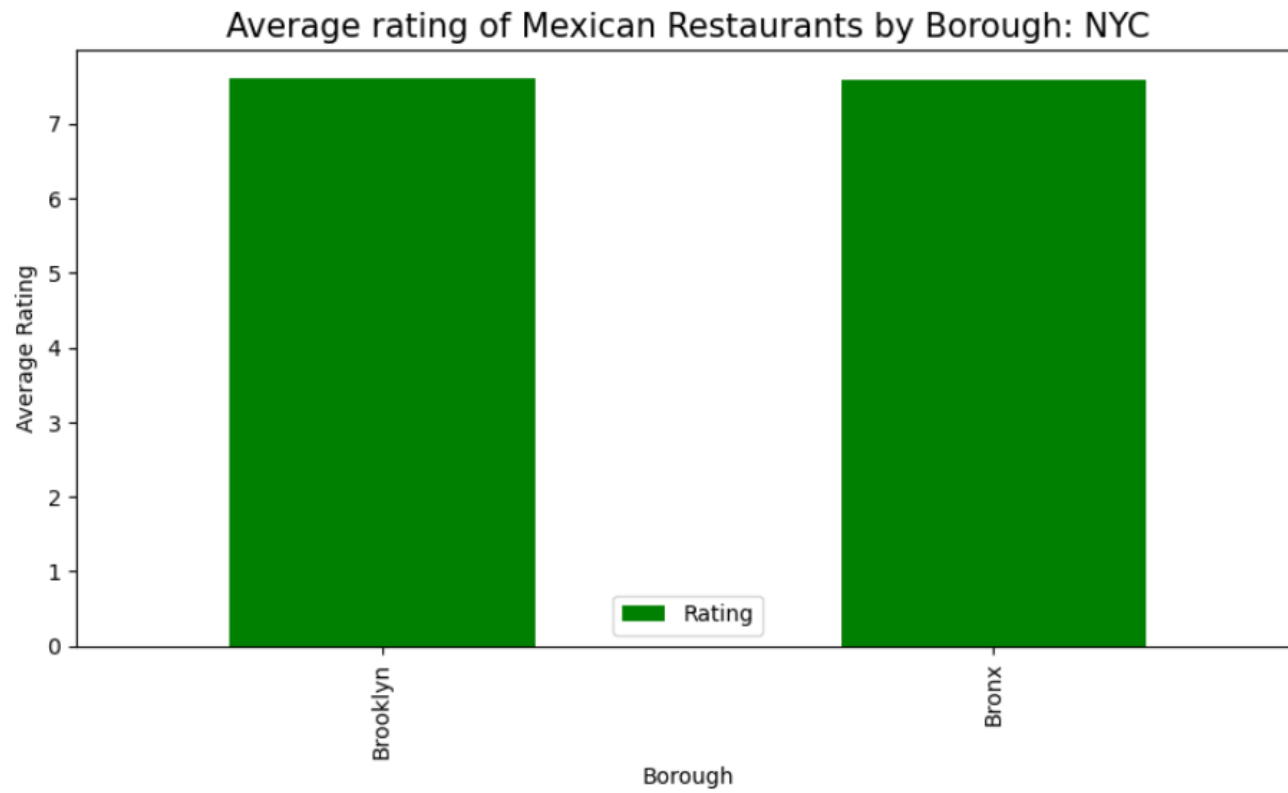


Even though Bronx has the largest percentage and total population of Hispanic, it has significantly less Mexican than Brooklyn and Manhattan.

BUSHWICK + GREENPOINT IN BROOKLYN AND EAST VILLAGE + NOHO IN MANHATTAN HAVE THE MOST MEXICAN RESTAURANTS



MANHATTAN HAS THE HIGHEST RATING OF MEXICAN RESTAURANTS



Fourthsquare premium API has a limit of 50 API calls in sandbox per day.

So I was unable to retrieve rating for Manhattan again.

BIG CHAINS LIKE CHIPOTLE HAVE AVERAGE RATING

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
46	Brooklyn	East Williamsburg	48260007f964a5209e4f1fe3	Cafe Los Arcos	16.0	6.2	21.0
11	Bronx	North Riverdale	4ba174d5f964a52094b837e3	Carlos & Gabby's - Riverdale	9.0	6.5	8.0
38	Brooklyn	Clinton Hill	42829c80f964a52053221fe3	Castros	56.0	7.9	43.0
48	Brooklyn	South Side	51c4c6de498edf95246e0072	Cerveceria Havemeyer	179.0	8.1	54.0
1	Bronx	Kingsbridge	553d5376498e322eb4d37a1b	Chipotle Mexican Grill	31.0	7.7	1.0
44	Brooklyn	Georgetown	5c26849c64c8e1003979056d	Chipotle Mexican Grill	2.0	7.6	0.0
41	Brooklyn	Downtown	4ad4a7c0f964a52085e820e3	Chipotle Mexican Grill	174.0	6.6	78.0
8	Bronx	Westchester Square	5e7dc30676db98000832f0d6	Chipotle Mexican Grill	0.0	7.5	0.0
10	Bronx	Belmont	5529d964498ec65bfc27ad91	Chipotle Mexican Grill	24.0	6.4	5.0
40	Brooklyn	Downtown	5c436d760d8a0f0039eb3f78	Chipotle Mexican Grill	2.0	7.6	0.0
36	Brooklyn	Park Slope	57781fab498ee216fb58a39c	Chipotle Mexican Grill	16.0	7.6	1.0
34	Brooklyn	Brooklyn Heights	53dd1f41498efb39049ce081	Chipotle Mexican Grill	64.0	7.6	6.0
4	Bronx	Melrose	5591837d498ee4167d48bb73	Cinco de Mayo	8.0	6.9	3.0
26	Brooklyn	Prospect Heights	53361829498eb42538181b8d	Citrico	48.0	7.6	17.0
22	Brooklyn	Flatbush	4b92e166f964a520062434e3	Don Burrito	11.0	6.8	11.0
29	Brooklyn	Bushwick	54a5a765498e6b7e2ce128c8	El Kucho	40.0	8.2	16.0
23	Brooklyn	Kensington	4c0c46c3340730e4e1740003	El Mestizo	5.0	7.0	2.0

GREENPOINT IS A BETTER LOCATION THAN BUSHWICK

We can see that Greenpoint in Brooklyn has almost the same average rating as Bushwick, but significantly more Likes and Tips.

Average rating		Average tips		Average Likes	
Neighborhood		Neighborhood		Neighborhood	
Parkchester	9.100000	Parkchester	73.000000	South Side	194.000000
North Side	8.400000	South Side	71.000000	Parkchester	131.000000
Westchester Square	8.050000	Sunset Park	49.500000	Greenpoint	97.000000
Prospect Heights	8.033333	Downtown	39.000000	Downtown	88.000000
South Side	8.000000	Clinton Hill	38.000000	Sunset Park	84.500000
Brooklyn Heights	7.950000	Windsor Terrace	36.000000	Prospect Heights	81.666667
Bushwick	7.900000	Greenpoint	29.750000	Clinton Hill	46.000000
Sunset Park	7.850000	Prospect Heights	29.000000	Belmont	45.000000
Kingsbridge	7.833333	East Williamsburg	22.500000	Windsor Terrace	40.000000
Kensington	7.800000	Belmont	21.000000	Brooklyn Heights	37.500000
Greenpoint	7.700000	Bushwick	15.500000	Bushwick	36.750000
Park Slope	7.650000	Westchester Square	14.500000	East Williamsburg	27.500000
Georgetown	7.600000	Flatbush	11.000000	North Side	26.000000
Prospect Park South	7.500000	North Riverdale	8.000000	Kingsbridge	24.666667
Flatbush	7.400000	Kingsbridge	7.333333	Westchester Square	23.000000
Belmont	7.300000	North Side	6.000000	Bay Ridge	19.000000
Clinton Hill	7.200000	Bedford Park	4.000000	Flatbush	17.000000
Schuylerville	7.200000	Bay Ridge	4.000000	Park Slope	15.000000
Bedford Park	7.100000	Kensington	3.000000	Prospect Park South	12.000000
Downtown	7.100000	Melrose	3.000000	North Riverdale	9.000000
Melrose	6.900000	Brooklyn Heights	3.000000	Melrose	8.000000
East Williamsburg	6.750000	Schuylerville	3.000000	Bedford Park	6.000000
Windsor Terrace	6.700000	Prospect Park South	2.000000	Kensington	5.000000
Bay Ridge	6.700000	Park Slope	1.500000	Schuylerville	5.000000
North Riverdale	6.500000	Georgetown	0.000000	Georgetown	2.000000
Name: Rating, dtype: float64		Name: Tips, dtype: float64		Name: Likes, dtype: float64	

MAPPING THE PREFERRED LOCATION AND THE COMPETITION





DISCUSSION

- Manhattan and Brooklyn are the best locations to find the best Mexcian food in New York city, even though other boroughs may have the highest ranked restaurant, the average is lower.
- Manhattan and Brooklyn are also the best locations to open a Mexican restaurant
- Brooklyn is our preferred location and Bushwick and Greenpoint are preferred neighborhoods for a new Mexican restaurant, with Greenpoint as the number 1



LIMITATIONS AND ISSUES

- Our data primarily came from Foursquare and it has a limitation of 50 premium API calls per day in sandbox
- Unable to retrieve all data from Foursquare
- To get better results we would need Foursquare paid account to bypass any limitations.
- To get better results we would need more data such as real estate prices, restaurant size, price, profit and citizens buying power



CONCLUSION

- Answer to our questions
- Bronx has the highest percentage and total population of Hispanic of all boroughs in NYC
- Bushwick + Greenpoint in Brooklyn and East village + Noho in Manhattan have the most Mexican restaurants
- Manhattan has the highest average rating
- Big chains like Chipotle rate lower than the authentic Mexican cuisine restaurants
- Bushwick and Greenpoint in Brooklyn are the best locations to open a Mexican restaurant, with a preference for Greenpoint