Atlanta Suburb Town Center Evaluation with a Focus on Restaurant Type and Quantity

Introduction

The Atlanta, Georgia area has had huge success in the development of suburb downtown centers. Many suburbs have developed the downtown centers with a variety of retailers. For this project, we will evaluate the types and numbers of restaurants within walking distance from the downtown centers. We will be able to establish which restaurant types are most common and which restaurants may be lacking within the individual suburb town centers.

By analyzing this data, we can provide recommendations where there may be growth opportunities for establishing new restaurants within each suburb town center. We will also be able to conclude which types of restaurants are key to making the most popular town centers a success. Our analysis will also allow us to evaluate whether the official GPS location of a town center is the true center of the successful retail experience.

Developers and investors will be able to assess what types of restaurants and locations are best for potential business opportunities.

Our evaluation will start with the following suburbs of Atlanta, GA:

Dunwoody, Sandy Springs, Roswell, Woodstock, Norcross, Suwanee, Alpharetta, Marietta, Duluth

Data

The Foursquare API will be used to explore the various suburb town centers around Atlanta, GA and the restaurant venue category will be used for the study. We have chosen only restaurant type for this analysis in the hope that we will have a statistically significant amount of data for each suburb in the study.

One main venue category will capture all the restaurants for each suburb:

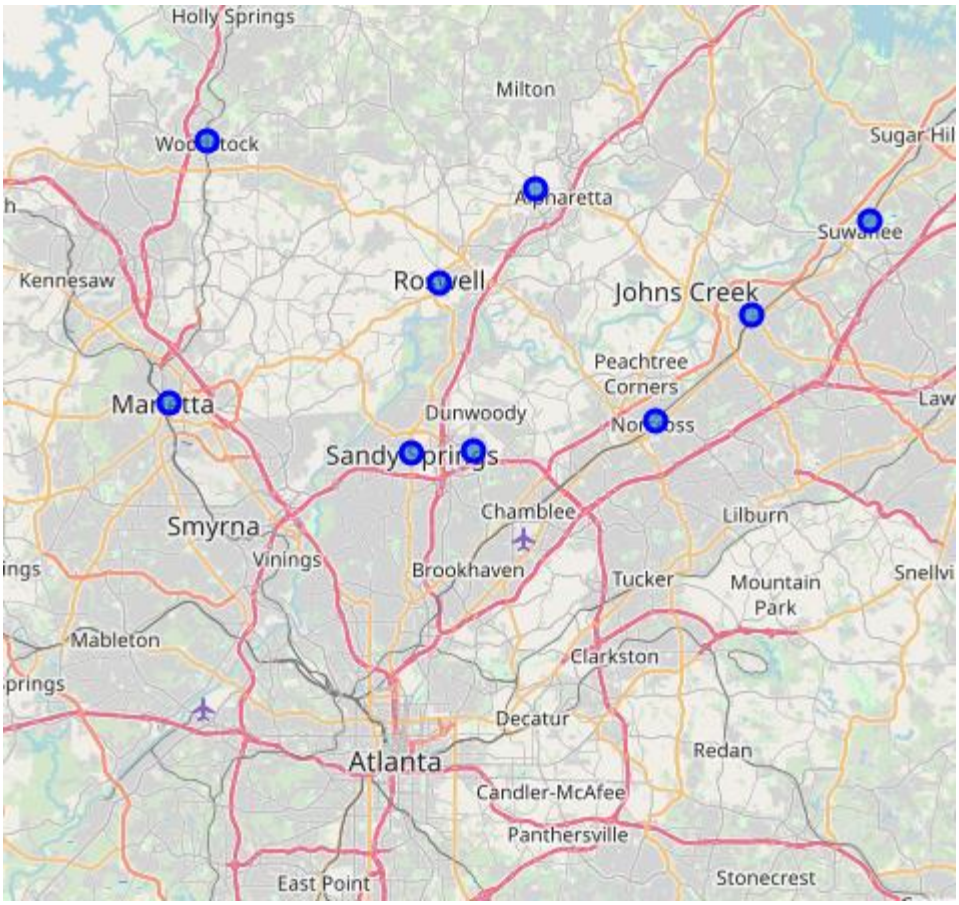
(4d4b7105d754a06374d81259)

A sample set of data from Foursquare is below showing the types and number of restaurants in the Alpharetta suburb:

City	VenueCategory	
	American Restaurant	6
	BBQ Joint	1
	Bagel Shop	3
	Breakfast Spot	2
	Burger Joint	2
	Café	2
	Cajun / Creole Restaurant	1
	Deli / Bodega	3
	Donut Shop	1
	Falafel Restaurant	1
	Fast Food Restaurant	4
	Food	1
	Food Truck	1
	French Restaurant	1
	Fried Chicken Joint	1
	Gastropub	1
	German Restaurant	1
	Greek Restaurant	1
	Indian Restaurant	3
Alpharetta	Italian Restaurant	3
	Japanese Restaurant	3
	Mediterranean Restaurant	1
	Mexican Restaurant	4

We will be identifying each town center's GPS location and then evaluate the restaurants within 2000m of the known town center. 2000m should capture the restaurants within walking distance of the town centers. Googles Geocoding API will be used for identifying the established latitude and longitude of each town center.

The town centers for the initial selection of towns are illustrated below:



The data was cleaned up by identifying all of the food venues from each suburb and then adding the GPS coordinates for each. This subset of data was then combined with the existing suburb town center GPS coordinates.

Methodology

The most popular town centers north of Atlanta were chosen for the study. Our goal was to plot the known town center GPS coordinates and then plot the food venues within a certain radius.

We then evaluated the type and number of food venues to determine how many of each were in each suburb.

We decided to combine all the venues from all suburbs to get a larger statistically significant number of venues for the study.

Our assumption was that each town center was equally successful and that by evaluating them as a whole, we would achieve better results.

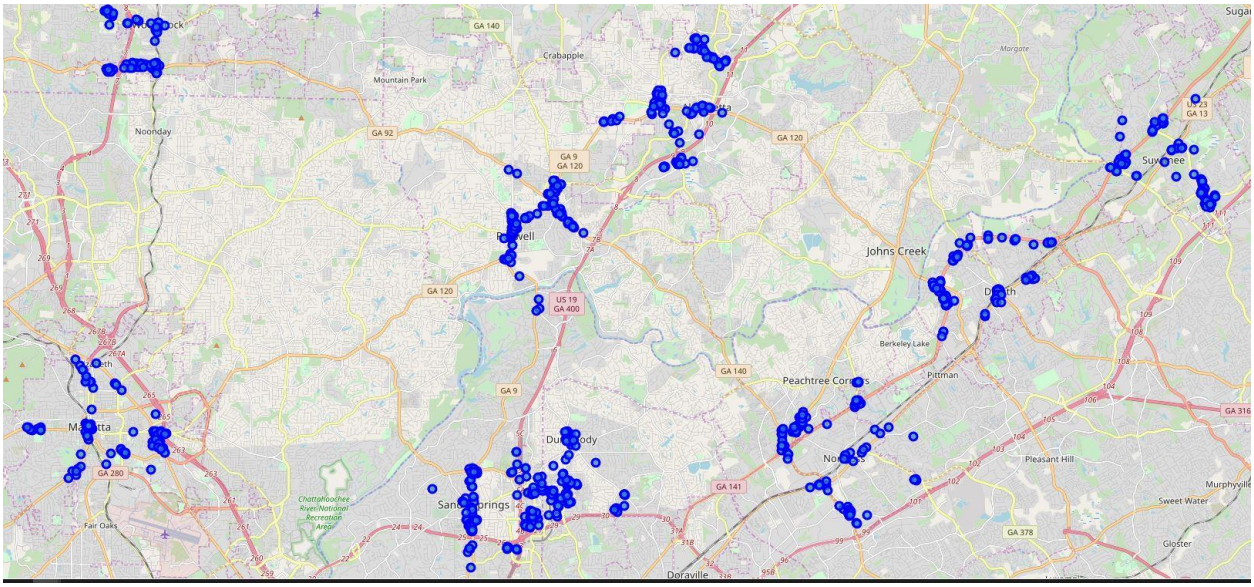
We did 3 iterations of varying distances from the town center to see if it made a difference in the type of venue the further you went from the town center. We used 1000 meters, 2000 meters, and 3000 meters.

In order to illustrate the results, we created 3 word clouds, 1 for evaluation of varying distances from the town center.

Results and Analysis

We plotted the various food venues on 3 different maps to demonstrate where the venues are in each of the suburbs.

Below is an example of the venues at 2000 meters from town center



At 2000 meters from town center, we discovered that there are 73 unique food categories represented. These food categories will be used in creating the Word Clouds.

```
In [154]: print('There are {} uniques categories.'.format(len(venues_df['VenueCategory'].unique())))

          There are 73 uniques categories.
```

```
In [159]: # print out the list of categories
          venues_df['VenueCategory'].unique()[:73]

Out[159]: array(['Bakery', 'American Restaurant', 'New American Restaurant',
                 'Steakhouse', 'Tapas Restaurant', 'Italian Restaurant',
                 'Pizza Place', 'Café', 'Sandwich Place', 'Deli / Bodega',
                 'Breakfast Spot', 'Mexican Restaurant', 'Donut Shop',
                 'Sushi Restaurant', 'Fast Food Restaurant', 'Taco Place',
                 'Burger Joint', 'French Restaurant', 'Mediterranean Restaurant',
                 'Indian Restaurant', 'Asian Restaurant', 'BBQ Joint',
                 'Hawaiian Restaurant', 'Chinese Restaurant', 'Burrito Place',
                 'Food Truck', 'Buffet', 'Food Court', 'Bagel Shop',
                 'Middle Eastern Restaurant', 'Wings Joint', 'Korean Restaurant',
                 'Greek Restaurant', 'Thai Restaurant', 'Tex-Mex Restaurant',
                 'Vietnamese Restaurant', 'Restaurant', 'Cafeteria',
                 'Ramen Restaurant', 'Noodle House',
                 'Vegetarian / Vegan Restaurant', 'Latin American Restaurant',
                 'Hot Dog Joint', 'Caribbean Restaurant', 'Japanese Restaurant',
                 'Fried Chicken Joint', 'Food', 'Salad Place',
                 'Cajun / Creole Restaurant', 'Diner', 'Cuban Restaurant',
                 'Seafood Restaurant', 'Southern / Soul Food Restaurant',
                 'Gastropub', 'Venezuelan Restaurant', 'Irish Pub', 'Snack Place',
                 'Comfort Food Restaurant', 'Arepa Restaurant',
                 'Empanada Restaurant', 'South American Restaurant', 'Poke Place',
                 'Brazilian Restaurant', 'South Indian Restaurant', 'Food Stand',
                 'Eastern European Restaurant', 'North Indian Restaurant',
                 'German Restaurant', 'Chaat Place', 'Halal Restaurant',
                 'Mac & Cheese Joint', 'Dim Sum Restaurant', 'Spanish Restaurant'],
                dtype=object)
```

In our initial study at 1000 meters from town centers, we found that the most common venues were **American, Pizza and Mexican**. We took note that **Fast Food** was noticeably small in comparison to the other venues

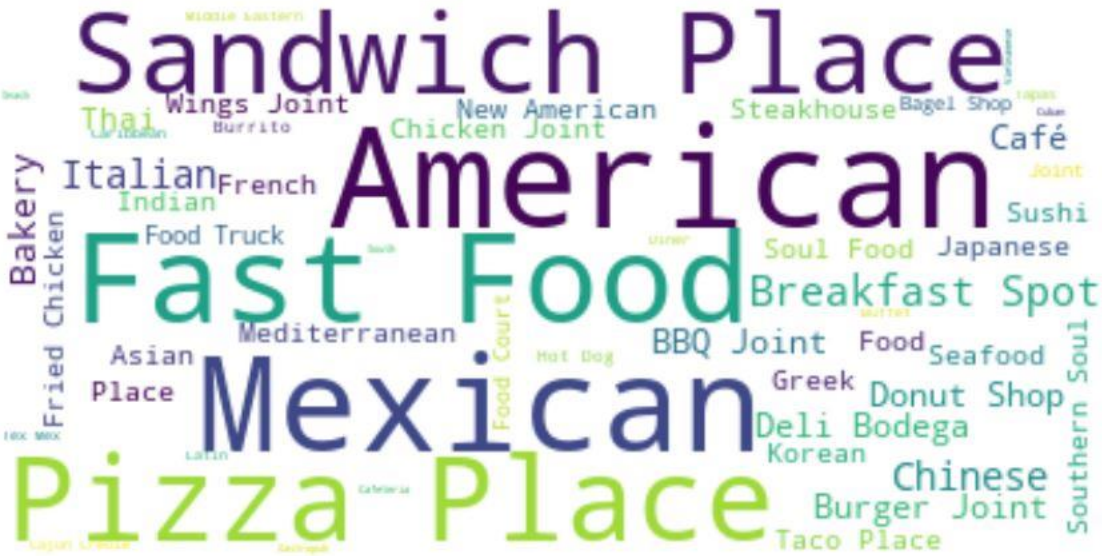
1000 meters

At 2000 meters from the town centers, we observed that **American, Pizza and Mexican** again were at the top of the list. However, we noticed that **Fast Food** was now larger, signifying an increase in the number of **Fast Food** restaurant the farther you go from town centers.

2000 meters

3000 meters

At 3000 meters from the town centers, we again observed **American, Pizza and Mexican** at the top of the list, but this time we now see **Fast Food and Sandwiches** are almost the same level as the top 3. Again, this is demonstrating the increase of **Fast Food** restaurants the further you go from town centers.



Conclusion

The town centers of Dunwoody, Sandy Springs, Roswell, Woodstock, Norcross, Suwanee, Alpharetta, Marietta, Duluth are well recognized as models of success for great businesses, especially in food retail. By evaluating what type of restaurants are most popular in these town centers, we can predict which types of food venues will succeed in future town center development. Each one of the town centers has its own uniqueness and by combining the venues from all of the towns, we can have more confidence in the results.

We can conclude from our study that as you go further from town center, you will see more Fast Food restaurants. This most likely implies that Fast Food may not be appropriate for close proximity to town centers. This aligns with the mom & pop type shops that are normally in these successful town centers.

We can also conclude that American, Mexican and Pizza can be a success regardless of distance to the town center.

Of the remaining food venue types, especially at 1000 meters, we can conclude that there are dozens of other venues that can be successful within walking distance of the town centers.

Future direction

It would be helpful to dig deeper into this data for more insights and to evaluate each town center separately. It would also be helpful to incorporate other data sources to validate the Foursquare data such as Yelp and Trip Advisor.

Developers and investors can derive great value in using this data to support their decisions in choosing a food venue type and location.