Relationship Between Coastal Areas and Food Sector in Tourism-driven Cities/Case Study Turkey

1. Introduction

1.1. Background

Turkey has several cities where the local economy is driven by tourism. With that said, in such cities restaurants and food sector is also seasonally driven by tourism. Accordingly, the location of a restaurant in the city is an imperative determinant in the profit margin of a restaurant. This study aimed to further explore the relationship between the proximity to coast and the distribution & reviews of restaurants. Backing up such a relationship and determining accurate locations with the highest profit margin would be critical for restaurant-owners who would like to expand or any investor that would like to enter the market. For exploration, the study uses three coastal tourism-driven cities from Turkey: Istanbul, Izmir and Antalya. While Istanbul is not technically a tourism-driven economy model, being the sixth mostly visited city in the world makes it worth to explore.

1.2. Problem

Data that might reveal the relationship between the food sector and coastal areas in tourism-driven cities include the location of the restaurants, their type, their reviews.This project aims to explore the relationship and see how determining is the factor of being in a coastal area.

1.3. Interest

Investors in the both tourism and food sector would be interested in exploration of such relationship to increase their profit and get the most out of their restaurant with an initial decision of location.

2. Data

2.1. Data Acquisition

For this report, the Foursquare API is utilized to pull the following location data on restaurants in Istanbul, Izmir and Antalya, Turkey.

- Venue Name
- Venue
- Venue Location
- Venue Category
- Count of Likes

Also, data from Google maps and Ministry of Tourism used to get the location of the tourist attractions and more information about the attraction sites. The data is used to map out the cities to show which areas have the most food options with folium and k-clustering method.

2.2. Data Cleaning and Preparation

Data downloaded or scraped using Foursquare's API to create three data frames for three different cities. For the purpose of the analysis, we queried the closest 3000 venus to the geolocation of the cities within 30 km radius.

The main problem with the data was the fact that API queried all the venues within the radius, not only the restaurants. Then, creating a removal list of venus, the datasets were only left with the following venue categories:

- Steakhouse
- Restaurant
- Café
- Coffee Shop
- Seafood Restaurant
- Snack Place
- French Restaurant
- Pizza Place
- Kebab Restaurant
- Turkish Home Cooking Restaurant
- Tea Room
- Pastry Shop
- Chocolate Shop
- American Restaurant
- Kokoreç Restaurant
- Dessert Shop
- Candy Store
- Fish & Chips Shop
- Ice Cream Shop
- Fish Market
- Turkish Restaurant
- BBQ Joint
- Cafeteria
- Bagel Shop
- Fast Food Restaurant
- Manti Place
- Doner Restaurant
- Sandwich Place
- Italian Restaurant
- Cupcake Shop
- Breakfast Spot as the category "restaurants" and,
- Pub
- Cocktail Bar
- Bar
- Dive Bar

- Sports Bar
- Hookah Bar
- Meyhane
- Night Club
- Lounge as the category “bars”.

  Then again using the API, the number of likes for the restaurants data was acquired and added to the respective tables. Then, using the quartiles and the median of each respective city’s number of likes, restaurants are clustered into four categories as following:
  - Great (Great)
  - Average (avg avg)
  - Below Average (blw avg)
  - Poor (poor)

  This is an example from the Izmir table:

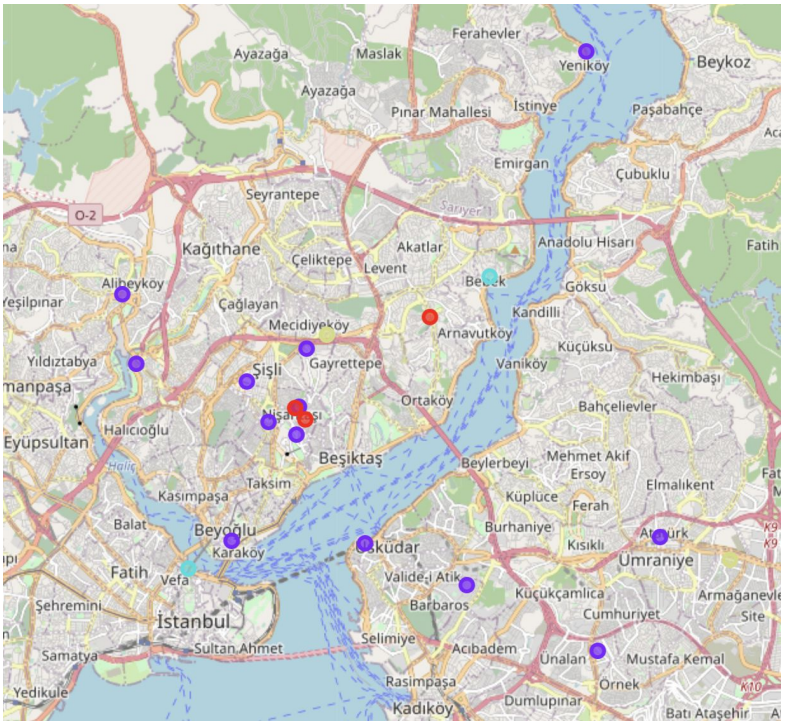
	name	id	categories	lat	lng	total likes	total likes_cat	categories_new
4	Etiler Gurme Kasabı & Izgara	59dfb5c186bc495799852e2c	Steakhouse	41.079847	29.044947	32	below avg	restaurants
10	Byulus Steakhouse&Burger	59bd56c92079551e2b7eb007	Steakhouse	41.071683	29.028886	53	avg avg	restaurants
33	Match Cafe	4b5c7a03f964a520b03129e3	Restaurant	41.065213	28.995525	1537	great	restaurants
34	Jaja Istanbul	5d8e0b5ba67bc000081c3e1d	Café	41.067860	29.001080	19	poor	restaurants
43	Hümaliva Çikolata & Kahve	55bcf47d498e08d9c9742a5b	Chocolate Shop	41.053195	28.993723	1116	great	restaurants

3. Methodology

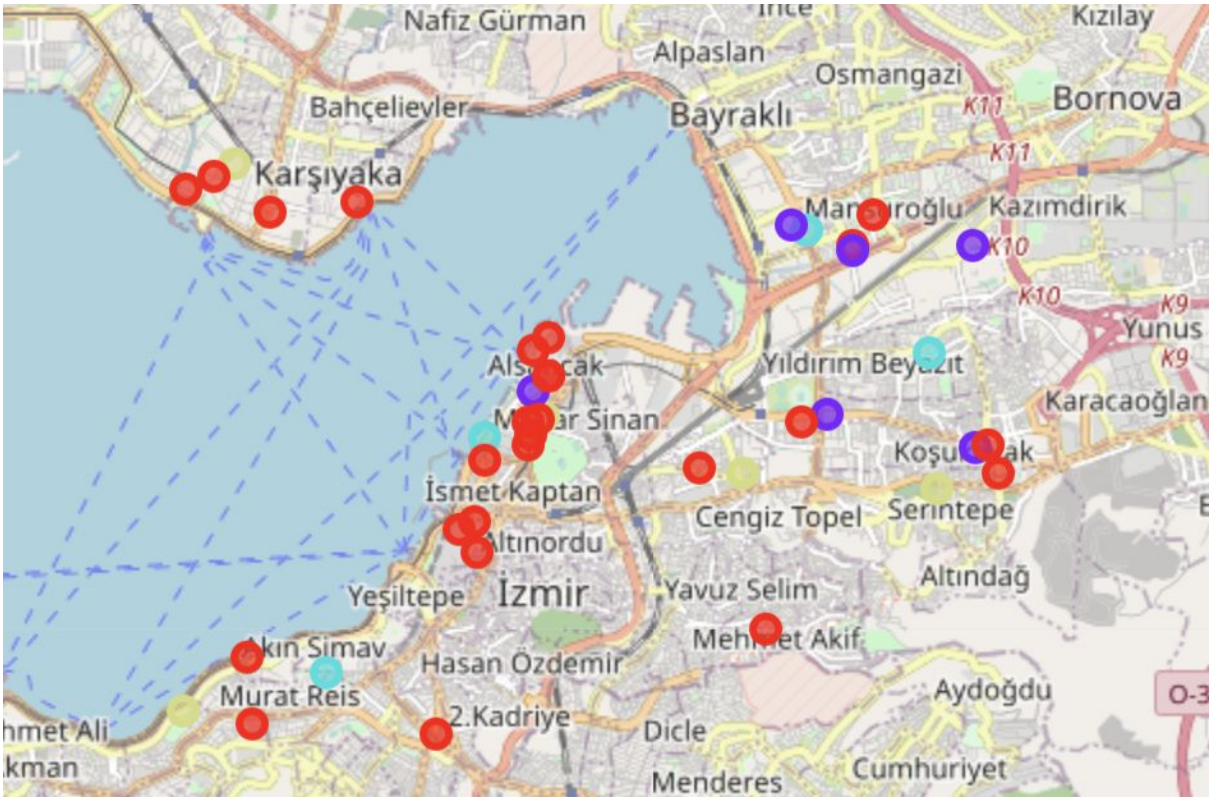
3.1. Data Visualization using Folium

After the clusters were set and data was ready, restaurant clusters with their location were visualized on each cities map for observation. Three maps below are of Istanbul, Izmir and Antalya, respectively:

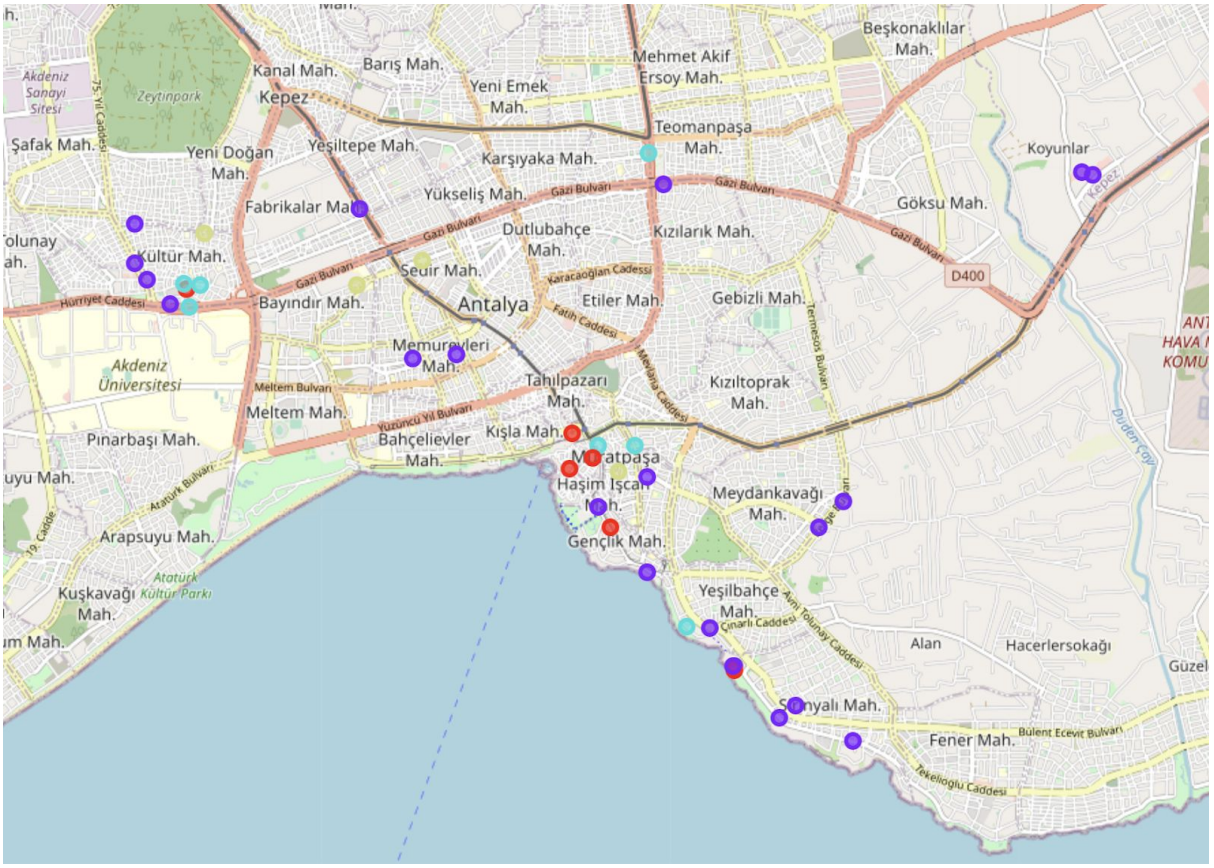
- Map of Istanbul



- Map of Izmir



- Map of Antalya



4. Results

While the data and the visualization supported our thesis in Izmir and Antalya's case, which are the two actually tourism-driven cities, Istanbul case did not necessarily follow the trend. The prediction was to see more dense good-reviewed restaurant population around the coastal region. After observing the trend on the map, table of different cluster of restaurants showed that the restaurants closer to the coastal regions had more likes on average. As a conclusion, data supports the claim that opening a business closer to the coastal neighborhoods increases the aptness to like the restaurant of the customers.

5. Discussion

While the data at hand supports the claim, this analysis insufficient to back an investment decision. To support such a decision, there must be massive data available to analyse from the restaurants location to text algorithms to go over the review and detect whether there are any reviews regarding its location or view. Moreover, reliability of the likes from Foursquare as a success indicator is another question to keep in the mind since less likes does not necessarily indicate that the restaurant is disliked. Also, data must be collected to estimate the rent's of restaurants in different neighborhoods to assess whether it is really profitable to open a restaurant in coastal areas. So, to make a proper decision-maker analysis, there has to be more factors in consideration.

6. Conclusion

This study should be considered as an indicator acknowledging that there is a positive correlation between proximity to coast and favorableness of restaurants in tourism-driven cities. Maps created in the study showed that restaurants around the coastal neighborhoods were more liked on Foursquare. However, there are still significant variables that could not be predicted by the analysis made in this study. This study could be reference to create a model assessing business decision in the food sector of touristic coastal cities.