
Toronto ethnic communities and ethnocentric restaurants

IBM Data Science Capstone Project

Hervé Choi - January 12, 2020



Introduction/ Business Problem

Preamble

Toronto is the largest city and the financial hub of Canada. It also boasts a highly culturally diverse population, a bustling night life, and a plethora of shops for residents to explore. As in many ethnically diverse cities around the world, residents of the same cultural background tend to aggregate and live in the same neighbourhood. These ethnic communities have a specific demand for services that are catered to their unique needs.



Target audience

The target audience for this project is prospective restaurateurs who seek to set up ethnic restaurants in Toronto. Specifically, they would look at areas in Toronto where ethnic restaurants are under-represented and present an opportunity for restaurants to set up new restaurants to serve the local residents.

Business problem

This report aims to determine the most desirable locations for setting up ethnocentric restaurants in Toronto. If one were to set up an ethnic restaurant in Toronto, where would he/she set it up where the demand is high and the market is not yet saturated?

Data

Data sources

The following sources will be used for the study:

- Foursquare API
- Census information for Toronto from Statistics Canada
- Geographical information scraped from Wikipedia (for Toronto) and previous assignments for the Coursera IBM Data Science Capstone module

Details

The following features will be extracted from the Foursquare API data:

- The number of ethnic restaurants in the specific neighbourhood. The count is determined by the number of restaurants within a 1km-radius from the centre of the postal code neighbourhood (also known as the “forward sortation area”)

The following information will be extracted from census surveys:

- Population and ethnic composition in each neighbourhood

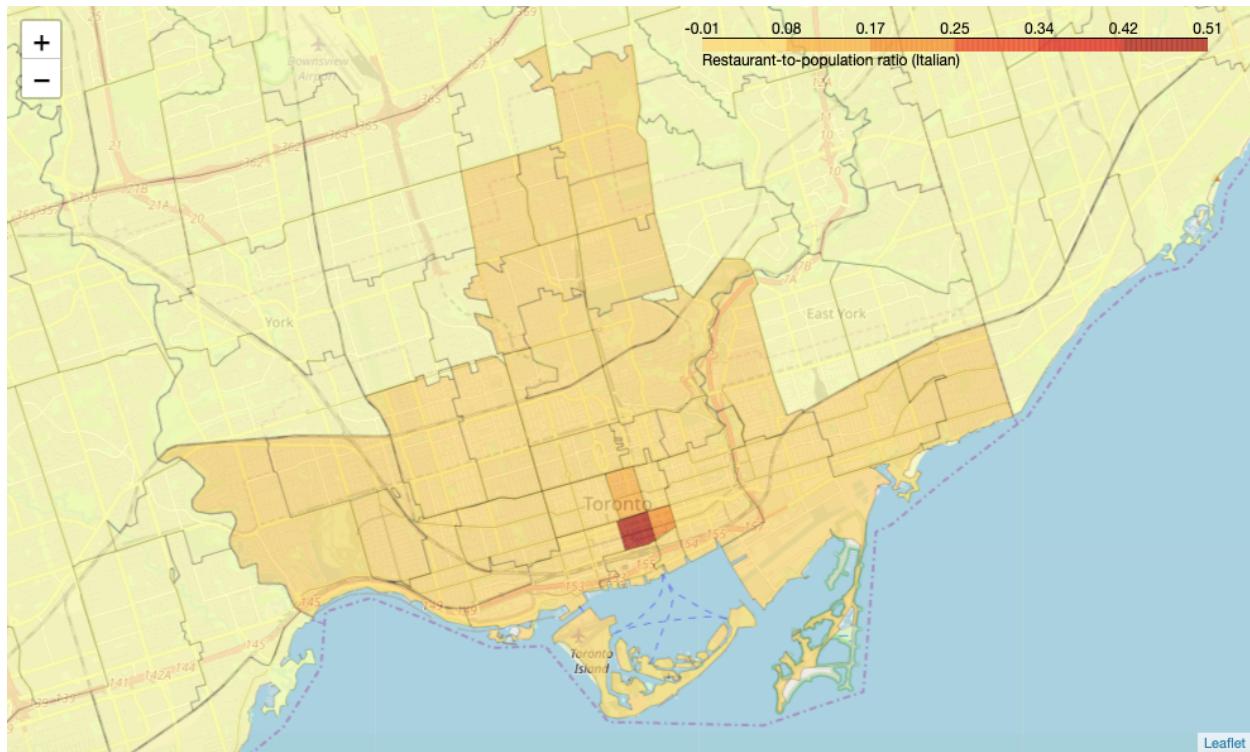
From the data, the restaurant-to-population ratio would be calculated for the ethnic groups specified.

Results

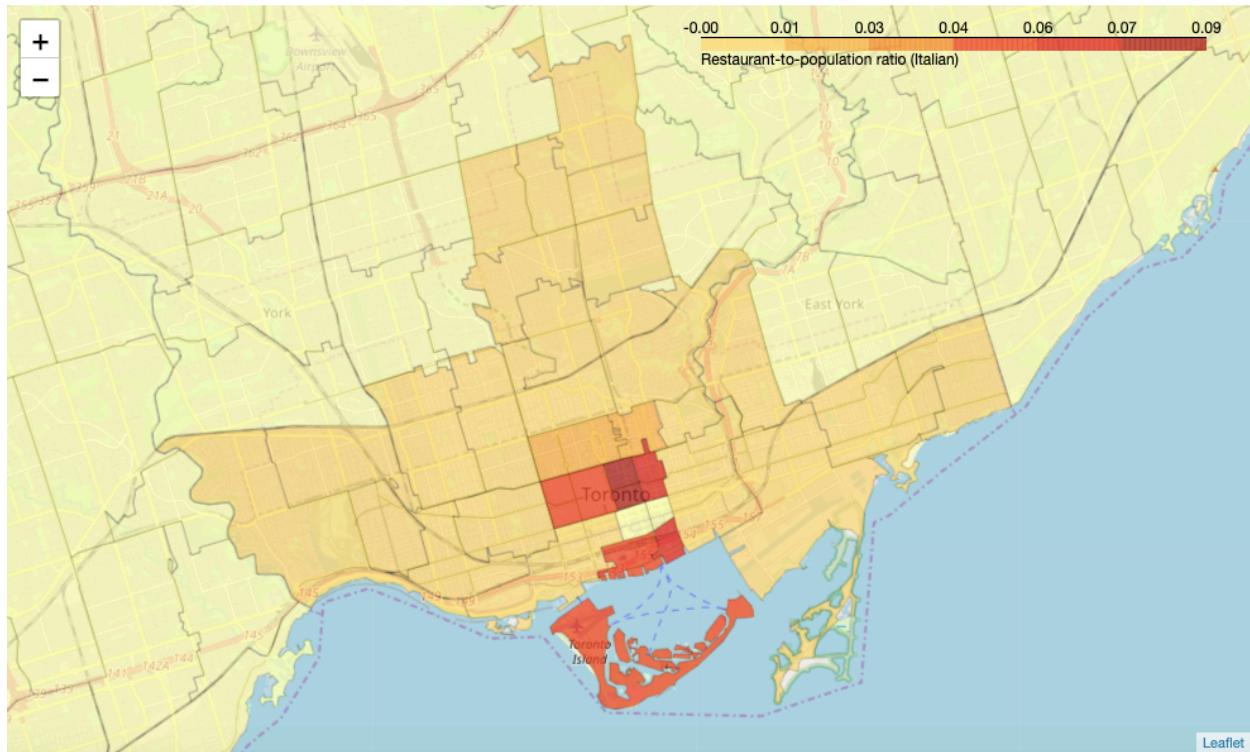
The results are presented with choropleth maps generated by the Python module Folium. Due to limitation to the number of queries to the Foursquare API for a basic account, the areas studied are restricted to those associated with the former city of Toronto. Those are also identified by the Borough names containing the word “Toronto” in the Wikipedia table.

For all ethnic groups, an elevated restaurant-to-population ratio is found in the forward sortation areas of M5H and M5C, which form the financial district of Toronto. To gain a better sense of the variation of restaurant-to-population ratios in the other neighbourhoods, the analysis was repeated with M5H and M5C left out. The maps are displayed on the next six pages.

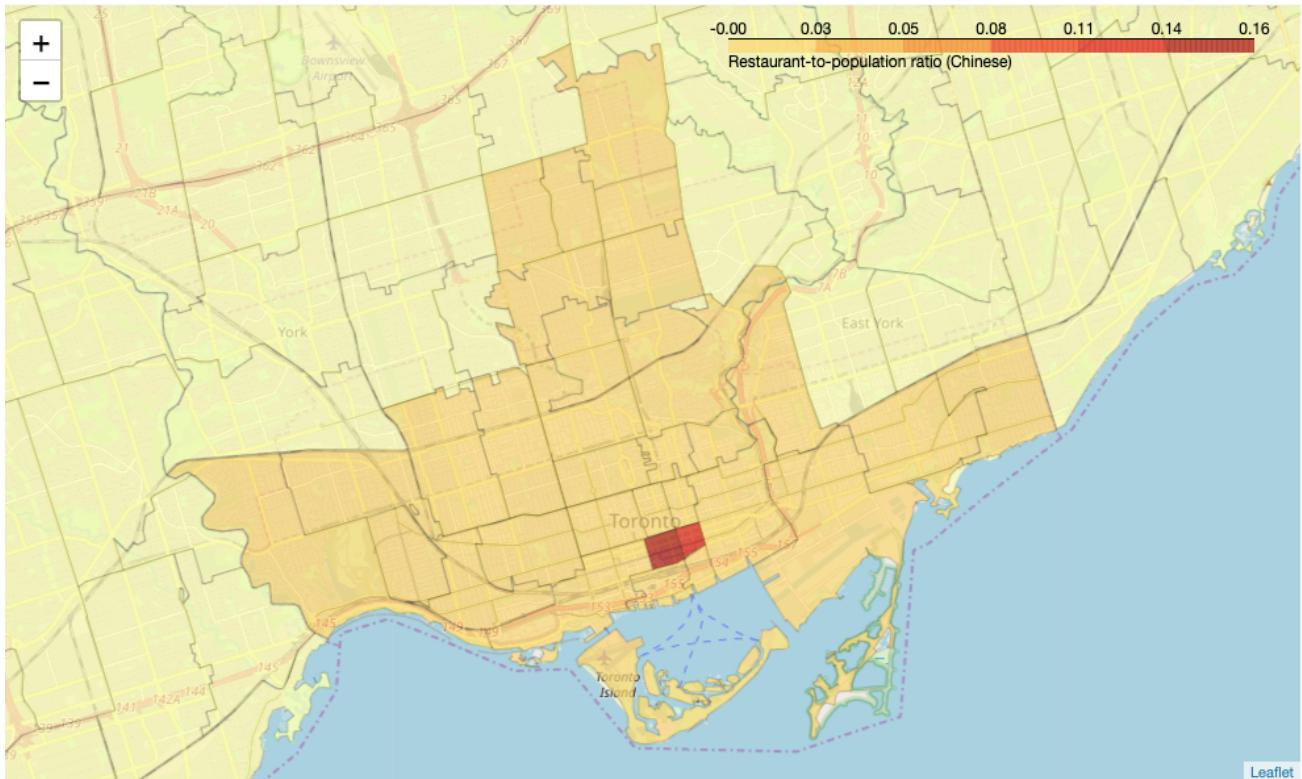
Italian



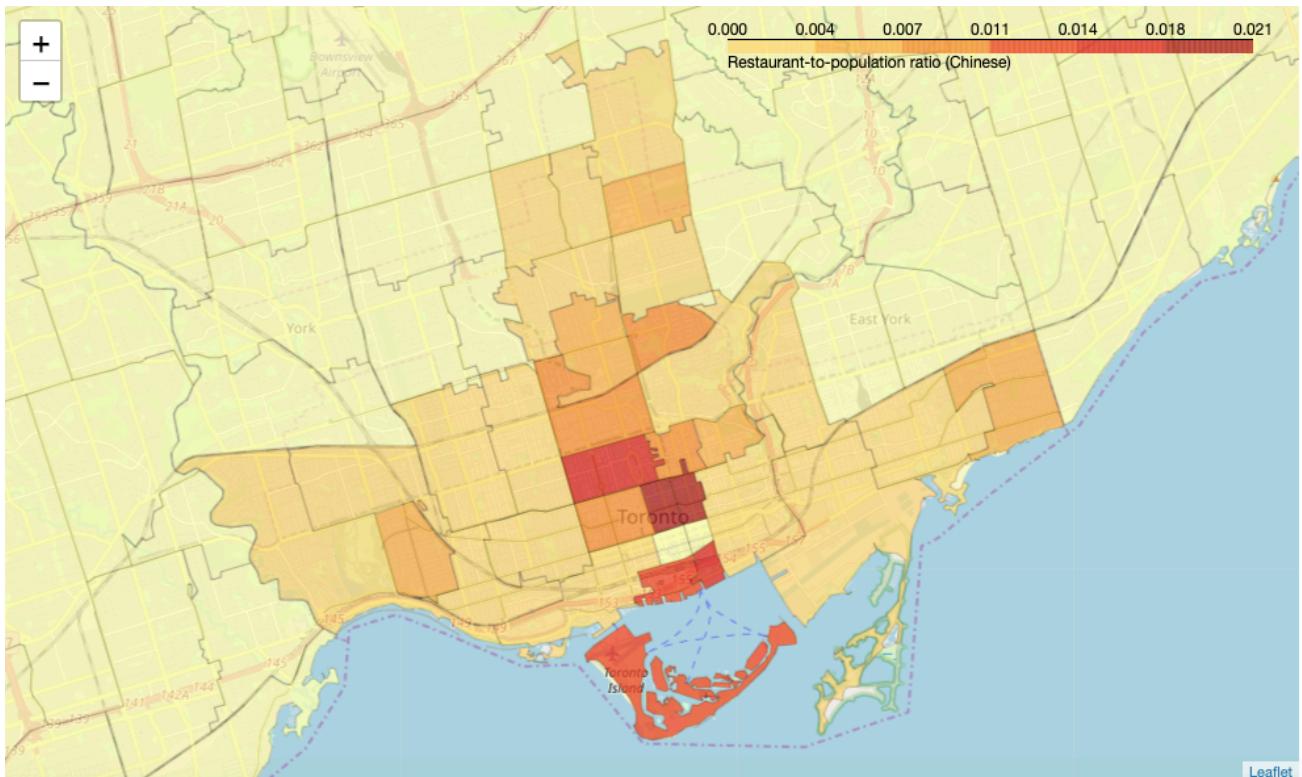
Maps displaying the Italian restaurant-to-population ratios including all neighbourhoods (top) and excluding the financial district (bottom)



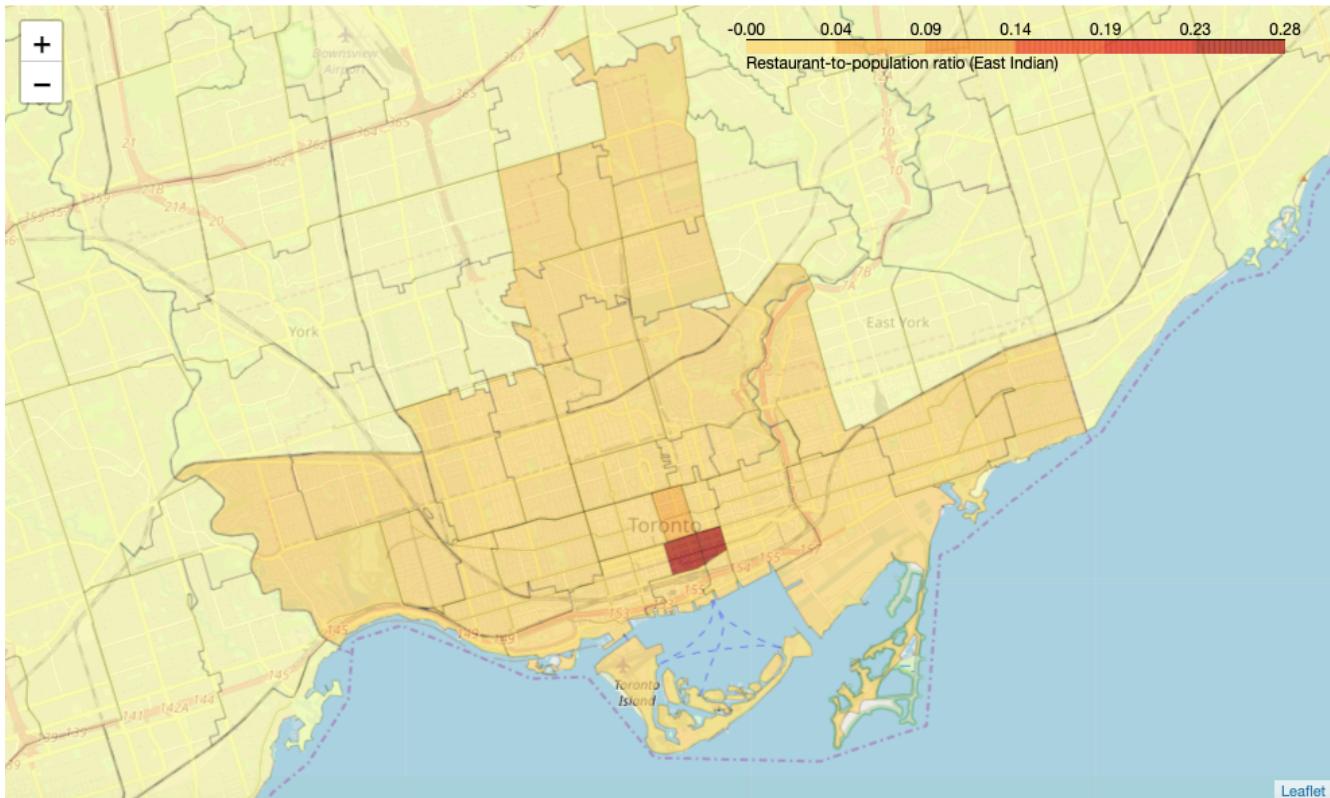
Chinese



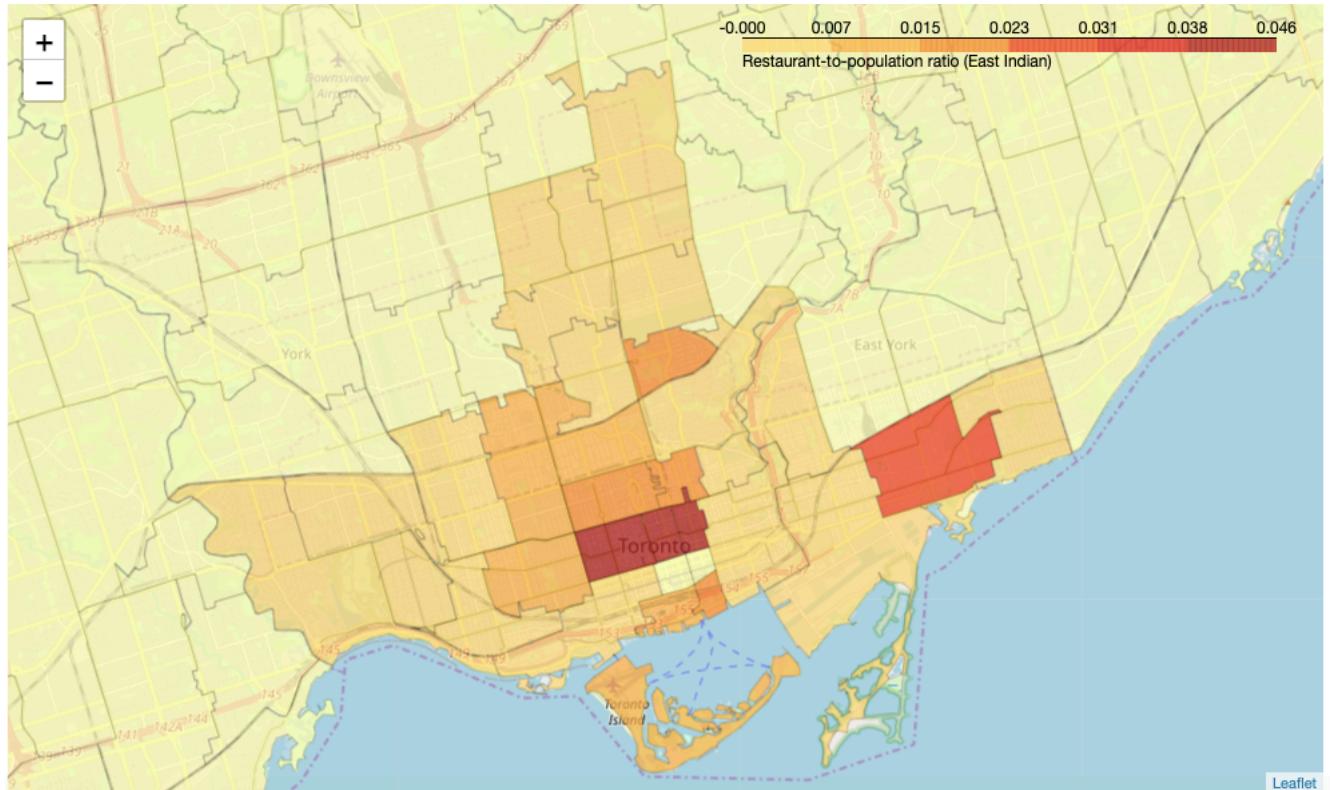
Maps displaying the Chinese restaurant-to-population ratios including all neighbourhoods (top) and excluding the financial district (bottom)



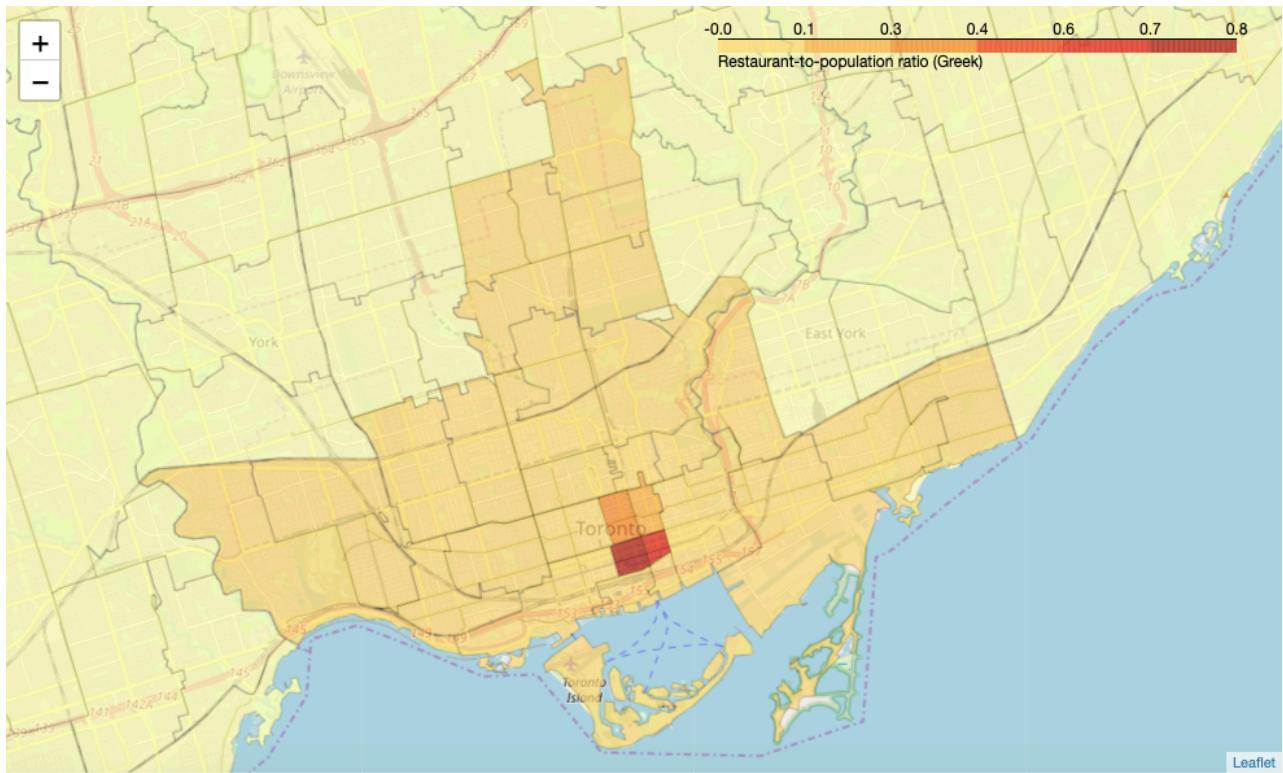
Indian



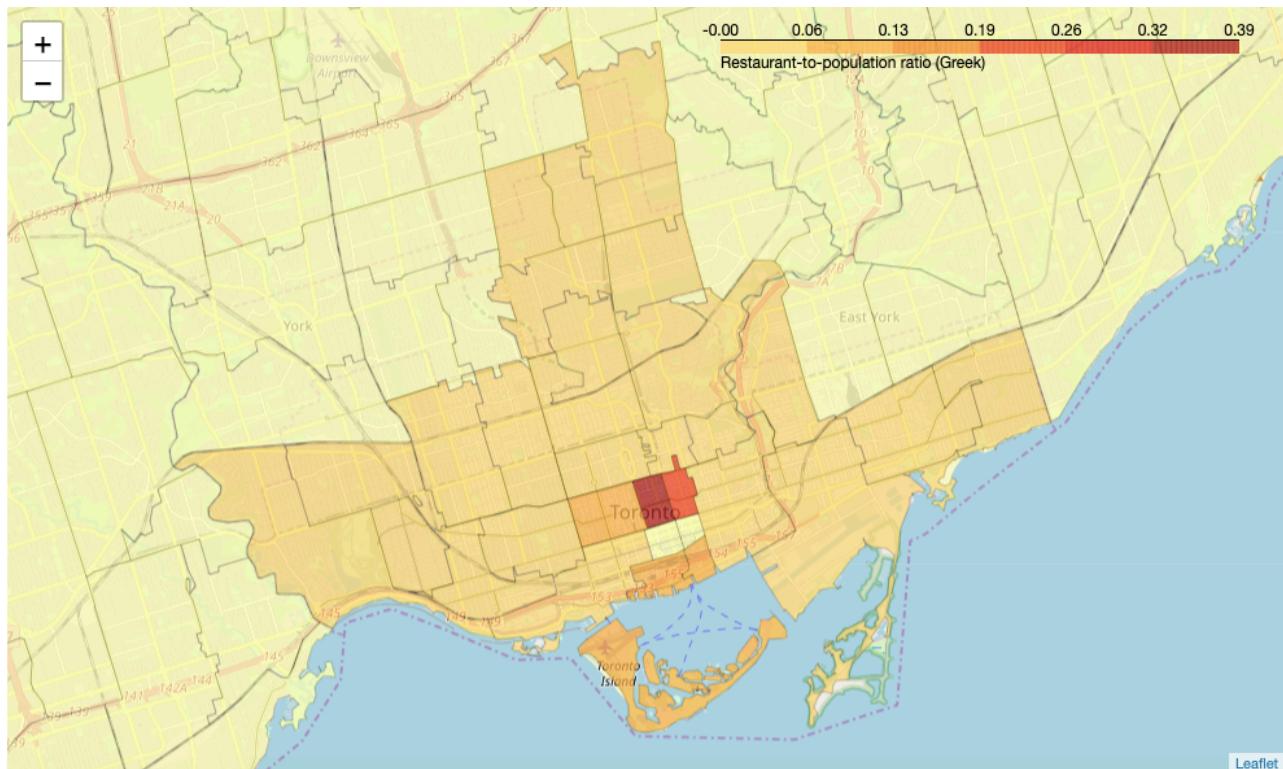
Maps displaying the Indian restaurant-to-population ratios including all neighbourhoods (top) and excluding the financial district (bottom)



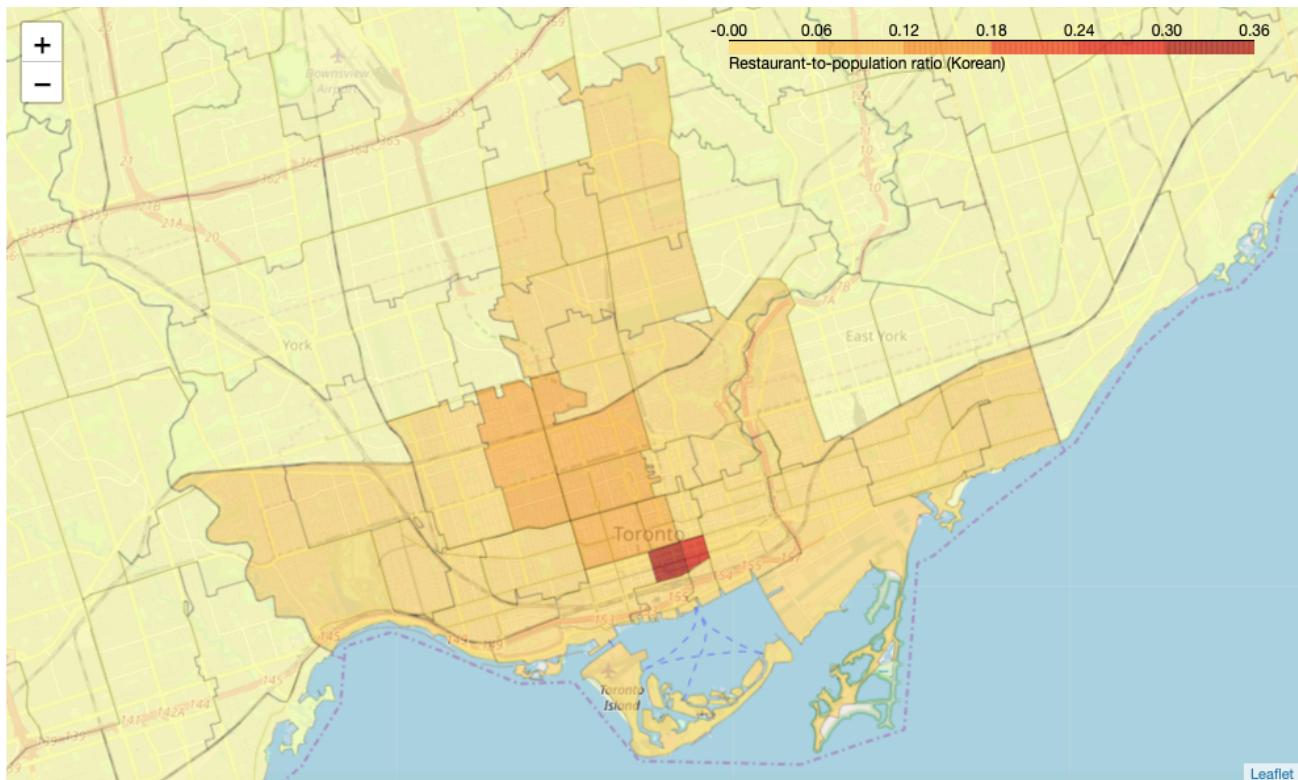
Greek



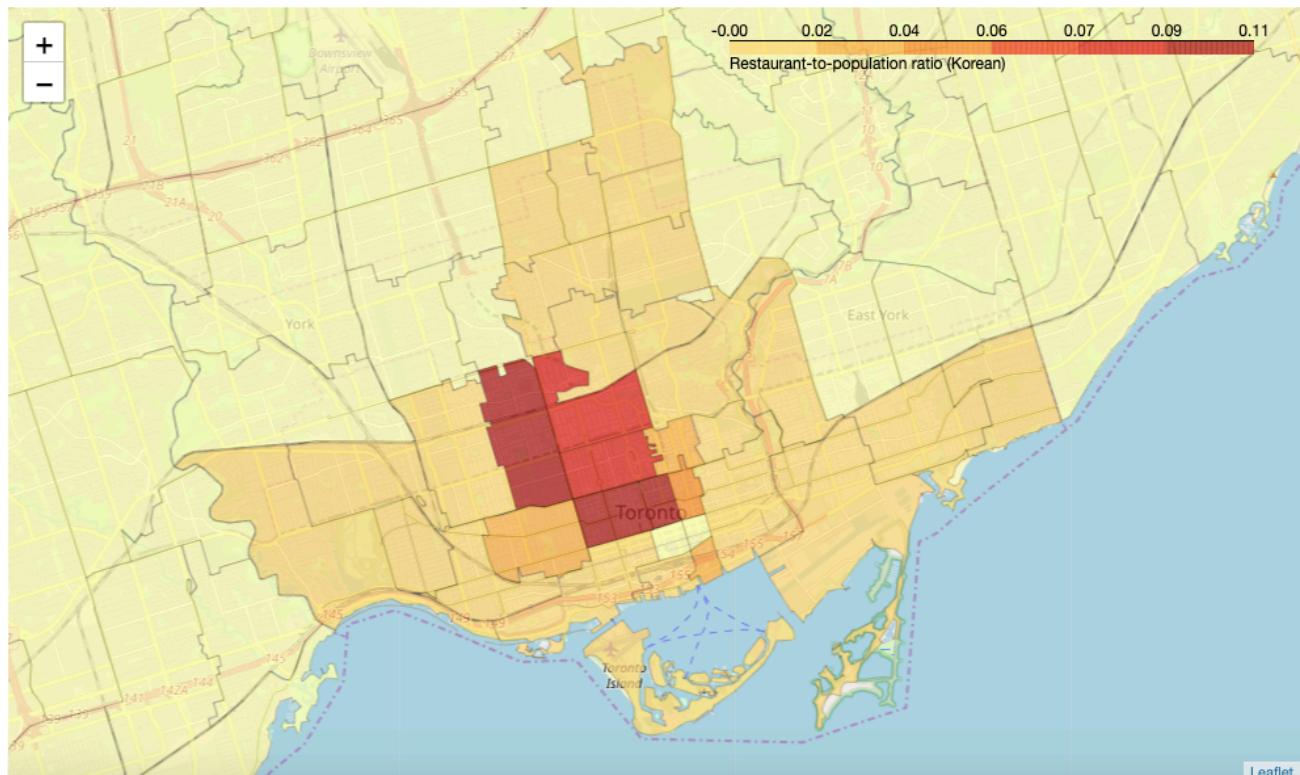
Maps displaying the Greek restaurant-to-population ratios including all neighbourhoods (top) and excluding the financial district (bottom)



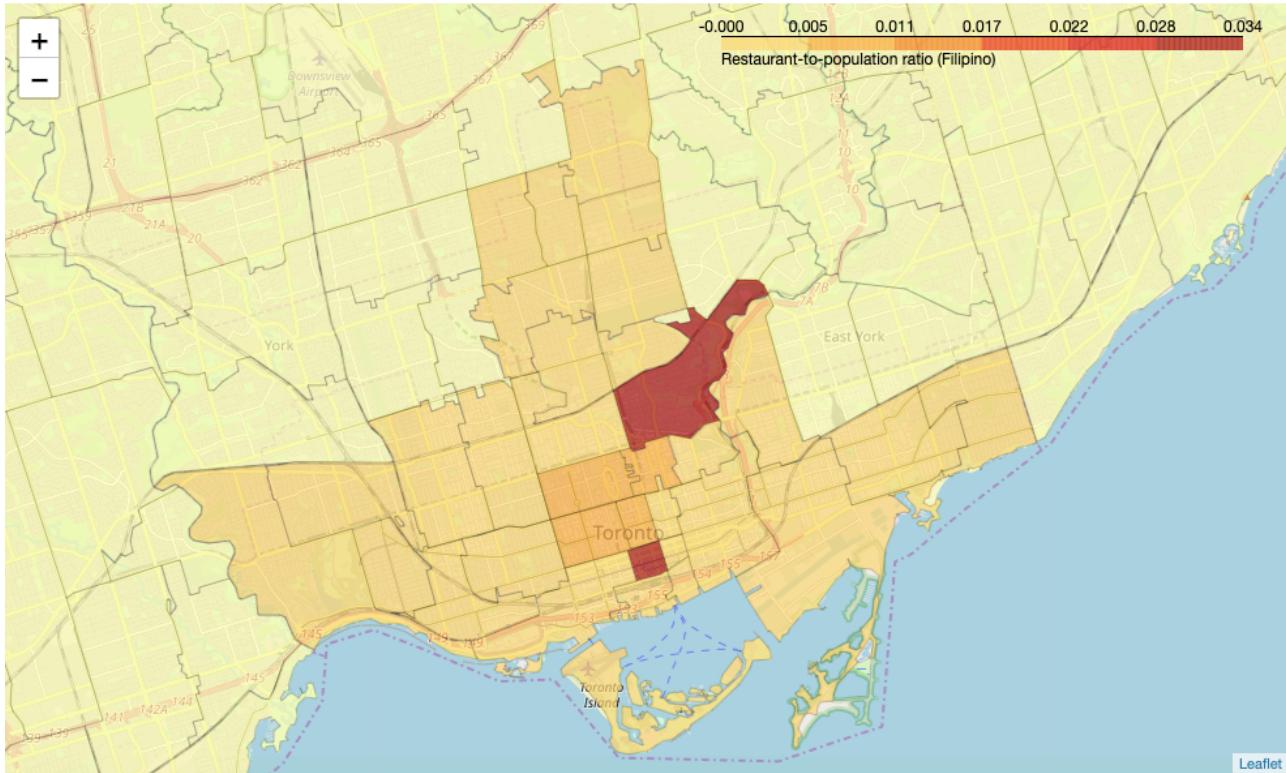
Korean



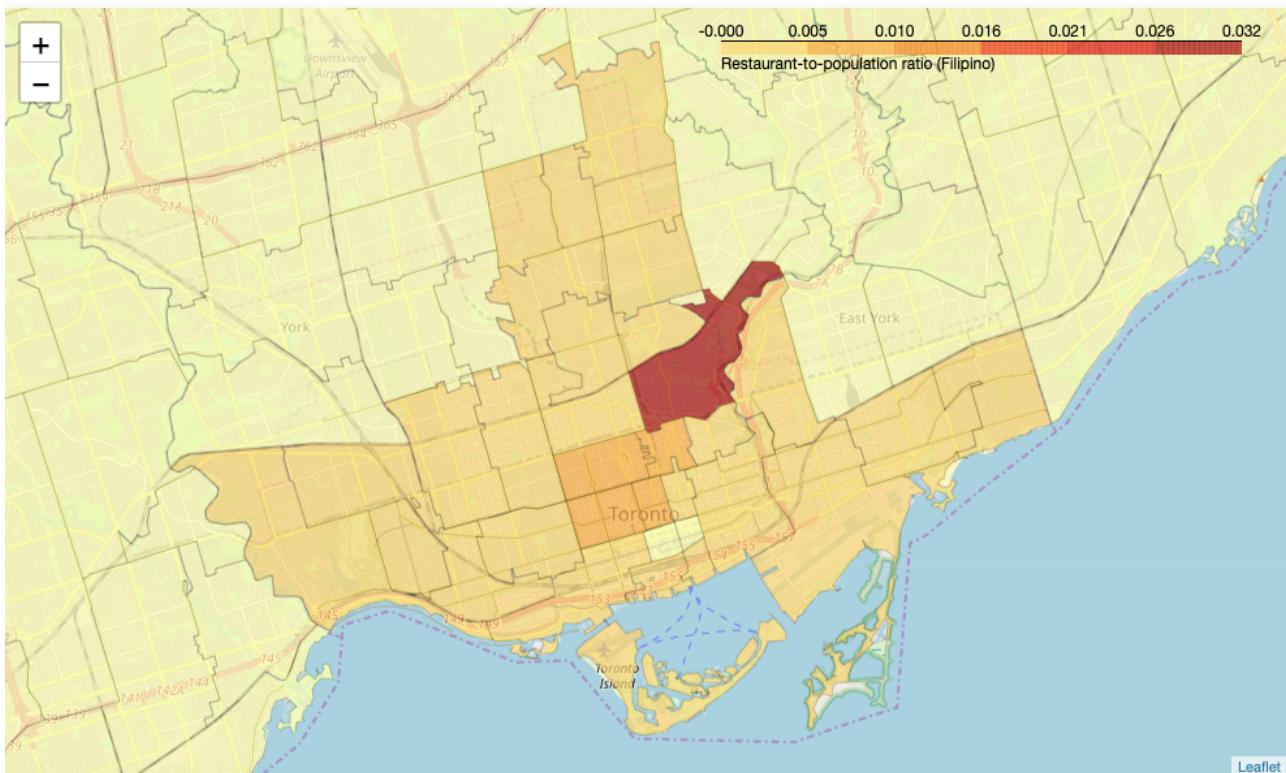
Maps displaying the Korean restaurant-to-population ratios including all neighbourhoods (top) and excluding the financial district (bottom)



Filipino



Maps displaying the Filipino restaurant-to-population ratios including all neighbourhoods (top) and excluding the financial district (bottom)



Discussion

The restaurant-to-population ratio is inflated in the financial district due to two reasons:

- An elevated concentration of restaurants in the district to cater to the office workers there, and
- A lower number of residents

In general, the westernmost, easternmost and northernmost districts have less restaurants per resident for all ethnic groups. This may be because of its location being removed from the financial core, where in the daytime office workers can patronize the restaurants. The financial core sees a saturation of ethnic restaurants despite its higher rental costs and lower number of local residents.

Based on the results, restauranteurs who are looking for places to set up ethnic restaurants in Toronto (i.e. the former city of Toronto proper) may consider the westernmost, easternmost and northernmost districts. However, within the district they should look for places that are easily accessible by potential customers.

Conclusion

There is room for growth for ethnic restaurants in Toronto; specifically, neighbourhoods in the periphery of the borough of Toronto see a lower restaurant-to-population ratios.