

Introduction: Business Problem

Chinese immigration is taking the world by storm, so much so that it is changing the demographic landscape. In Sydney and Melbourne for example, whopping 44% [1] and 31% [2] of the populations respectively were identified as being born in Mainland China. More recently it seems that this trend is continuing in North America and in particular, Canada as a result of tightening of American immigration policies [3]. In this project, we will try to qualitatively evaluate the growth of Chinese influence in cities/towns that comprise the GTA. While this information would benefit many different groups of people, we will specifically walk through this case in the eyes of a marketer who should ideally adapt in accordance to how receptive people are to different marketing techniques.

Data

Based on definition of our problem, factors that will reveal the extent/effects of Chinese influence include:

- * Population growth in the GTA
- * Household Income
- * Percentage of Native Chinese Speakers
- * Decline of Native English Speakers
- * Highest Education Obtained
- * Chinese Restaurants Nearby

Following data sources will be needed to extract/generate the required information:

- * Figures by Statics Canada
- * Number of restaurants and their type and location in every neighborhood will be obtained using ****Foursquare API****

Methodology

Our first endeavor is to gather the requisite data from Statics Canada. The following pages were used to manually extract information:

<https://www.richmondhill.ca/en/shared-content/resources/documents/2019-Socio-Economic-Study.pdf>

<https://www12.statcan.gc.ca/English/profil01/CP01/Search/List/Page.cfm?Lang=E&GeoCode=35&Letter=H>

<https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/search-recherche/lst/page.cfm?Lang=E&GeoCode=35>

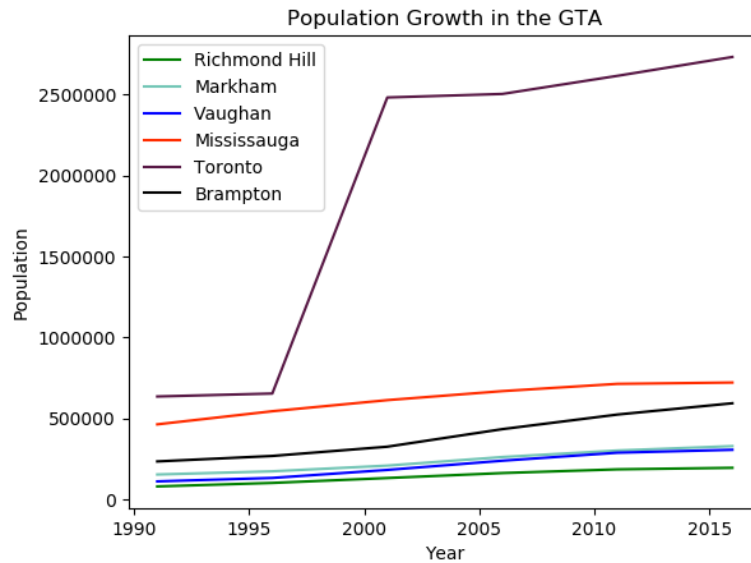
<https://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E>

<https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E>

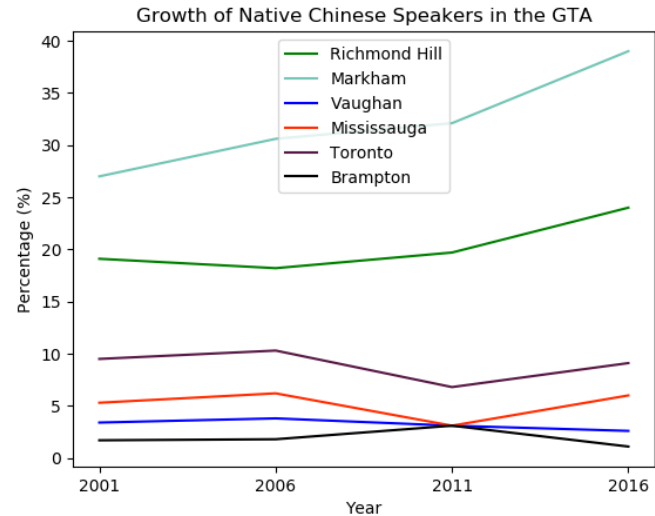
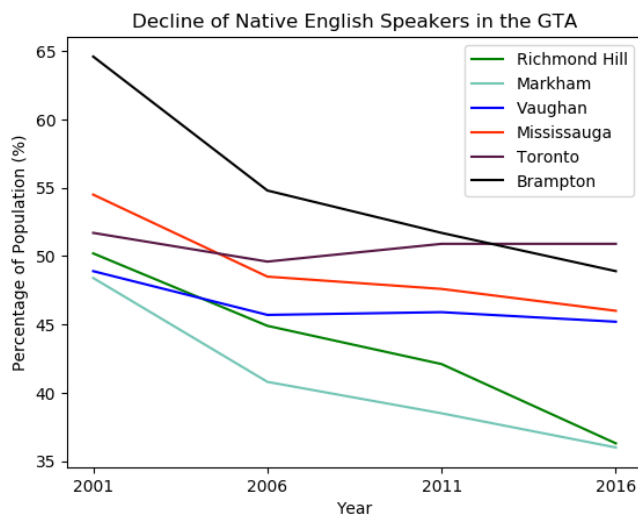
Afterwards, the data will be plotted in either a bar graph or line graph representation to illustrate the changes over time. Due to the limited data available for each segment, only visual, qualitative analysis can be performed.

Analysis

Population has increased steadily in the GTA over the years. Given the fact that the increase is mostly as a result of immigration, one has to wonder if persistent immigration from a certain part of the world would have an influence in changing the socio-economic makeup of the area.



The drastic increase in Toronto in the year 2000 is as a result of neighbourhood consolidation.

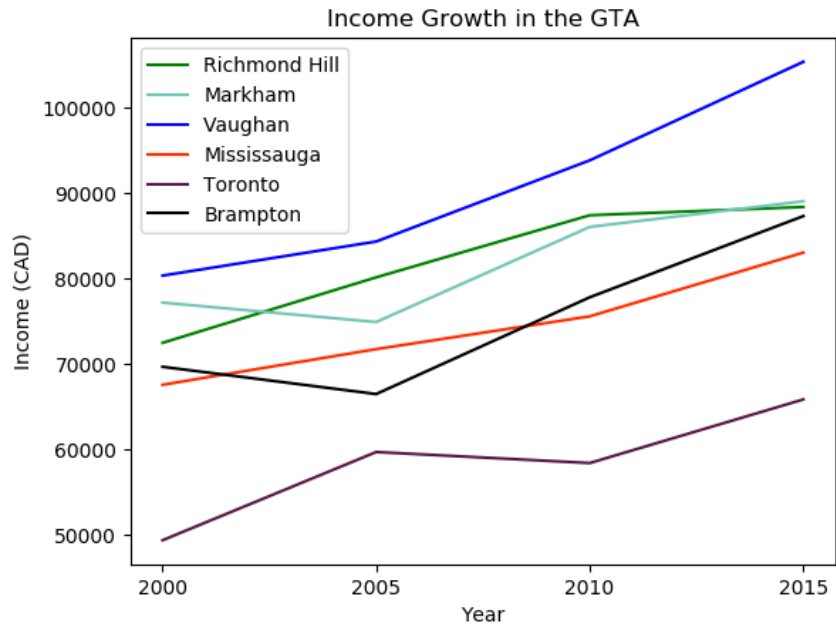


English as a mother tongue has steadily declined over the years in every region of the GTA. At the same time, Chinese as a mother tongue has steadily grown in prominence in Markham and Richmond Hill.

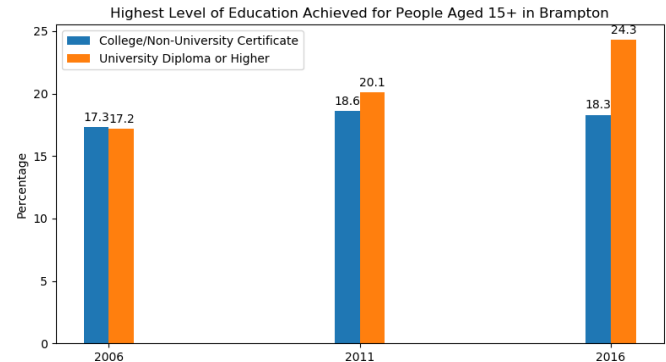
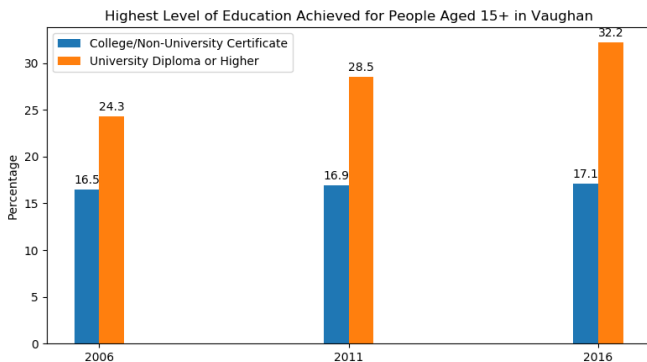
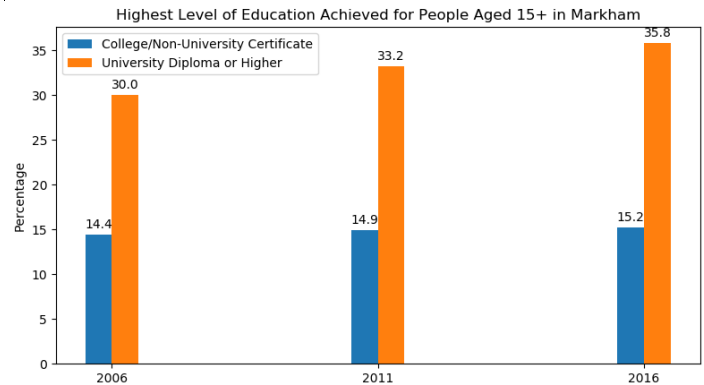
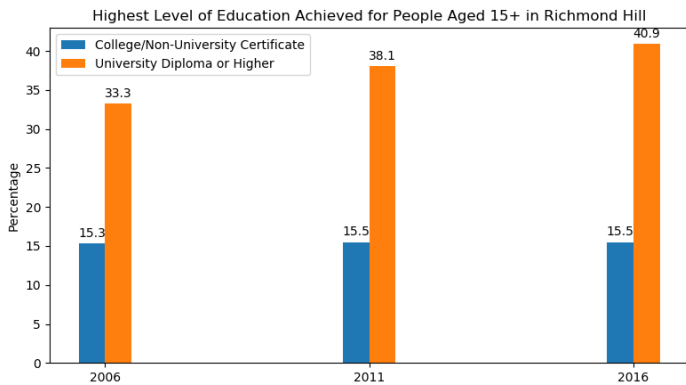
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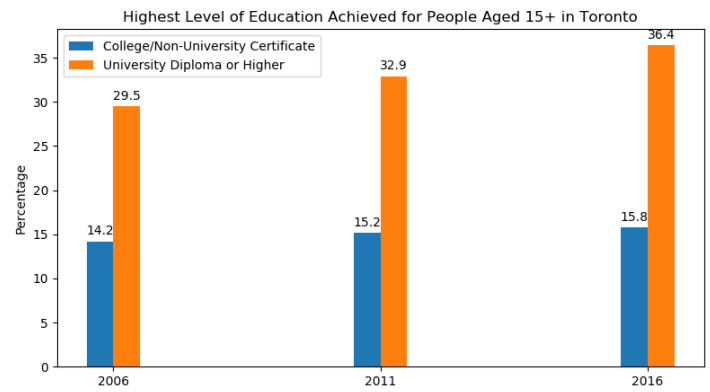
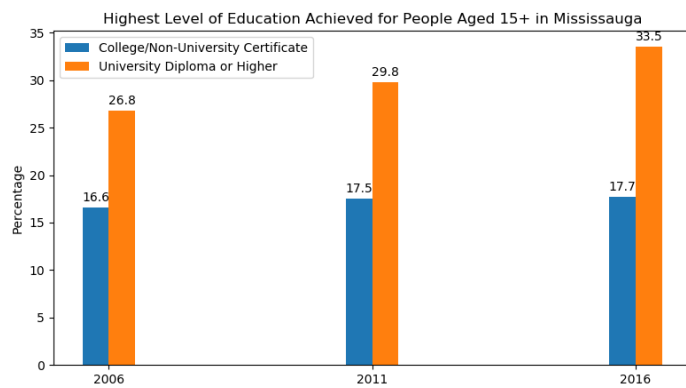
* With the exception of Richmond Hill, 2001 and 2006 data regarding the percentage of people having Chinese as mother tongue was calculated by taking the percentage of the population with Chinese background and multiplying it by 0.9 to take into consideration that some may be ethnically Chinese but may not speak the native language.

* The provincial average was used for 2011 values pertaining to people having Chinese as their mother tongue in Vaughan, Brampton and Mississauga.



Despite the emphasis of Chinese immigration in the areas of Markham and Richmond Hill, they do not seem to impact the average household income as Vaughan reigns supreme in greatest household income in the GTA nor, does the rate of growth seem to be any different.





The role of Chinese ethnicity makeup on level of education is also somewhat fuzzy. Richmond Hill is a town with one of the highest Chinese ethnic composition in the GTA as well with the highest percentage of university degree attainment. While this does support a brief correlation, the trend does not hold up very well. Markham has the highest percentage of Chinese people in all of the GTA but does not share the same attribute as Richmond Hill with the university education rate being much lower. Further, the change in university degree attainment is on the lower end in comparison to Vaughan.

City/Town	Asian Restaurant	Bubble Tea Shop	Chinese Restaurant	Cantonese Restaurant	Dumpling Restaurant	Japanese Restaurant	Shanghai Restaurant	Sushi Restaurant	Taiwanese Restaurant	Sum
Brampton	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.04
Markham	0.03	0.04	0.05	0.01	0.01	0.04	0.01	0.01	0.01	0.21
Mississauga	0.02	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.05
Richmond Hill	0.01	0.01	0.00	0.01	0.00	0.02	0.01	0.01	0.00	0.07
Toronto	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02
Vaughan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Salary and education seem to be out of the question when it comes to a qualitative look at establishing correlations with large ethnic Chinese populations. However, a trend that we do see is that there are a lot of Chinese cuisines with large Chinese populations. Chinese people love Chinese food. Who would have thunk?

While there does not seem to be any correlation between ethnic Chinese composition and other attributes such as household income and education, more rigorous techniques in terms of quantifying the relationship between the Chinese ethnic race and these above attributes are needed. These can include various mean comparison statistical methods to achieve this along with some machine learning algorithm to predict certain properties of cities given the fed input. Further, the GTA should merely be a starting point for data collection. The 6 cities/towns do not nearly contain enough input to feed into any ML modeling technique.

As for the marketer's perspective, assuming that correlations could be made between Chinese culture and socio-economic status, techniques could be applied to accommodate for such a scenario. The use of red and materialistic emphasis are key to channeling the deep subconscious of opulent Chinese households. Further, Asia is known for flashy lights and bombastically unrealistic commercials so copying that could be another element. These examples are obviously only fitting for one of the many possibilities that a comprehensive study could output.

This capstone project does not do this subject justice as it made me realize that this was a much more grandiose topic that requires much more effort/understanding than what was envisioned. However, to recap, we do not see much qualitative correlation between the elements of education and income with the number of ethnic Chinese population

based off of the information given. We have shown, however, that more Chinese people means more Chinese food! Larger data sets would enable machine learning algorithms to quantitatively identify certain trends in the former topics and increase in scope of the study to encompass attributes like crime would also certainly help. Thus, despite the haphazardly performed study, there is merit to further investigating this trend especially since more and more Chinese immigrants are mobilizing in different parts of the world. Thank you for reading!

Sources

[1]

https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/1GSYD?opendocument

[2]

https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/2GMEL?opendocument

[3]

<https://www.npr.org/2020/01/27/799402801/canada-wins-u-s-loses-in-global-fight-for-high-tech-workers>