Analysis of Chinese Bakeries in Acadia

PPD 631
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Background

Arcadia is a city in Los Angeles County, California, located about 13 miles northeast of downtown Los Angeles in the San Gabriel Valley. It is the site of the Santa Anita Park racetrack and home to the Los Angeles County Arboretum and Botanic Garden. According to the Federal Census Bureau, the city of Arcadia has large and growing Chinese-American. However, the facilities to satisfy Chinese traditional taste are in short supply. According to the survey, traditional Chinese bakery houses distribute unevenly in the communities. To choose a potential location for a new Chinese bakery, we decide to make a preliminary analysis by using ArcGIS.

Outline

The research focused on the analysis of the Chinese Bakery density of Arcadia. We divide our research into four parts. First, we calculated the buffer zone of the Chinese bakeries on the 0.5-mile level (10-minute walking distance) and the 2-mile level (5-minute driving distance). By using the buffer zone, we can point out the open area of existing Chinese bakeries. Then we use total population density, aging population proportion, and Chinese group proportion as three additional attributes to find a potential location for a new Chinese bakery.

Data

The data of the report has three main sources:
(1) Map Data: TIGER/Line® Shapefiles, www.census.gov
(2) Bakery Data: www.google.com/maps
(3) Population Statistics: AmericanFactFinder, https://factfinder.census.gov

Since the data of Chinese bakeries are not available from the census data source, we collected all the information from Google Maps. Our data of Chinese Bakeries are not only in the City of Arcadia but also including the surrounding areas. We use the longitude and latitude to locate bakeries' exact positions. The excel files are shown as following:

Name	Y	X	Address
TW Bakery	34.108256	-118.060917	5833 Temple City Blvd, Temple City, CA 91780
Kee Wah Bakery Cafe	34.128459	-118.054541	1010 S Baldwin Ave, Arcadia, CA 91007
JJ Bakery	34.126766	-118.054395	1130 S Baldwin Ave, Arcadia, CA 91007
Ellie's Cathy Bakery	34.126613	-118.053591	651 W Duarte Rd, Arcadia, CA 91007
Happy Bakery	34.090922	-118.013411	11629 Lower Azusa Rd # F, El Monte, CA 91732
T C Bakery	34.07555	-118.021322	3856 Peck Rd, El Monte, CA 91732
Sunmerry Bakery	34.104603	-118.073351	5728 Rosemead Blvd, Temple City, CA 91780
Olympic Bakery	34.101596	-118.074878	5623 N Rosemead Blvd, Temple City, CA 91780

Table 1-1 ChineseBakery Arcadia

We import the data of Chinese Bakeries number and Arcadia population as new tables.

The US Census Bureau's American FactFinder website provides tabular census data including geocodes for joining to census boundary maps. We chose SF 1 (Summary File 1) 2010 population attributes data as the primary data sources, which provides basic data on populations, races and age. This data is available for all census levels including tracts, block groups, and blocks. To make our layout simple and easy to edit, we adopted the data at census tracts level.

We obtained the following data of Arcadia from AmericanFactFinder: Summary File 1 data at census tracts level, including the total population, Chinese population and age distribution. The elderly population is defined as people aged 65 and over.[1] The general data was shown in Table 2-1. Then we calculated the proportion of the aging population and Chinese population in Table 2-2 and 2-3.

Id	Id2	Geography	Number; Total population	Number; 65 years and over	Number; Chinese
1400000US06037	6037430400	Census Tract 4304, Los Angeles County, California	4424	685	1599
1400000US06037	6037430600	Census Tract 4306, Los Angeles County, California	4505	875	1469
1400000US06037	6037430721	Census Tract 4307.21, Los Angeles County, California	3957	720	1263
1400000US06037	6037430723	Census Tract 4307.23, Los Angeles County, California	4118	513	1616
1400000US06037	6037430724	Census Tract 4307.24, Los Angeles County, California	4812	715	2154
1400000US06037	6037430801	Census Tract 4308.01, Los Angeles County, California	6342	551	3339
1400000US06037	6037430802	Census Tract 4308.02, Los Angeles County, California	4163	678	2035
1400000US06037	6037430803	Census Tract 4308.03, Los Angeles County, California	5439	973	2668
1400000US06037	6037431600	Census Tract 4316, Los Angeles County, California	4018	795	2182
1400000US06037	6037431700	Census Tract 4317, Los Angeles County, California	6433	1201	3796

Table 2-1 Population Statistics of Arcadia

Id	Id2	Geography	Number; 65 years and over	Percent; 65 years and over
1400000US06037	6037430400	Census Tract 4304, Los Angeles County, California	685	15.5
1400000US06037	6037430600	Census Tract 4306, Los Angeles County, California	875	19.4
1400000US06037	6037430721	Census Tract 4307.21, Los Angeles County, California	720	18.2
1400000US06037	6037430723	Census Tract 4307.23, Los Angeles County, California	513	12.5
1400000US06037	6037430724	Census Tract 4307.24, Los Angeles County, California	715	14.9
1400000US06037	6037430801	Census Tract 4308.01, Los Angeles County, California	551	8.7
1400000US06037	6037430802	Census Tract 4308.02, Los Angeles County, California	678	16.3
1400000US06037	6037430803	Census Tract 4308.03, Los Angeles County, California	973	17.9
1400000US06037	6037431600	Census Tract 4316, Los Angeles County, California	795	19.8
1400000US06037	6037431700	Census Tract 4317, Los Angeles County, California	1201	18.7

Table 2-2 Proportion of the Aging Population in Arcadia

Id	Id2	Geography	Number; Chinese	Percent; Chinese
1400000US06037	6037430400	Census Tract 4304, Los Angeles County, California	1599	36.1
1400000US06037	6037430600	Census Tract 4306, Los Angeles County, California	1469	32.6
1400000US06037	6037430721	Census Tract 4307.21, Los Angeles County, California	1263	31.9
1400000US06037	6037430723	Census Tract 4307.23, Los Angeles County, California	1616	39.2
1400000US06037	6037430724	Census Tract 4307.24, Los Angeles County, California	2154	44.8
1400000US06037	6037430801	Census Tract 4308.01, Los Angeles County, California	3339	52.6
1400000US06037	6037430802	Census Tract 4308.02, Los Angeles County, California	2035	48.9
1400000US06037	6037430803	Census Tract 4308.03, Los Angeles County, California	2668	49.1
1400000US06037	6037431600	Census Tract 4316, Los Angeles County, California	2182	54.3
1400000US06037	6037431700	Census Tract 4317, Los Angeles County, California	3796	59

Table 2-3 Proportion of Chinese Group in Arcadia

[1] https://data.oecd.org/pop/elderly-population.htm

Methodology

We created a Data Frame called Arcadia, with mainly two layers: Chinese Bakeries and Selected Census Tracts. We generated 4 layouts in total to analyze the Distribution of Chinese Bakeries.

The first layout map presented the 0.5-mile buffer zones and 2-mile buffer zones over all the Chinese bakeries.

The second layout map presented the buffer zones and the total population in four categories from light green to green.

The third layout map presented the buffer zones and the Chinese population percentage in four categories from yellow to red.

The fourth layout map presented the buffer zones and the aging population percentage in four categories from light blue to blue.

Findings

According to the first map with 0.5-mile (10-minute walking) buffer zones and 2-mile (5-minute driving) buffer zones, we can easily find that the current bakeries hasn't covered the entire area. Within walking distance, there is no Chinese Bakery in the north and east of the area.
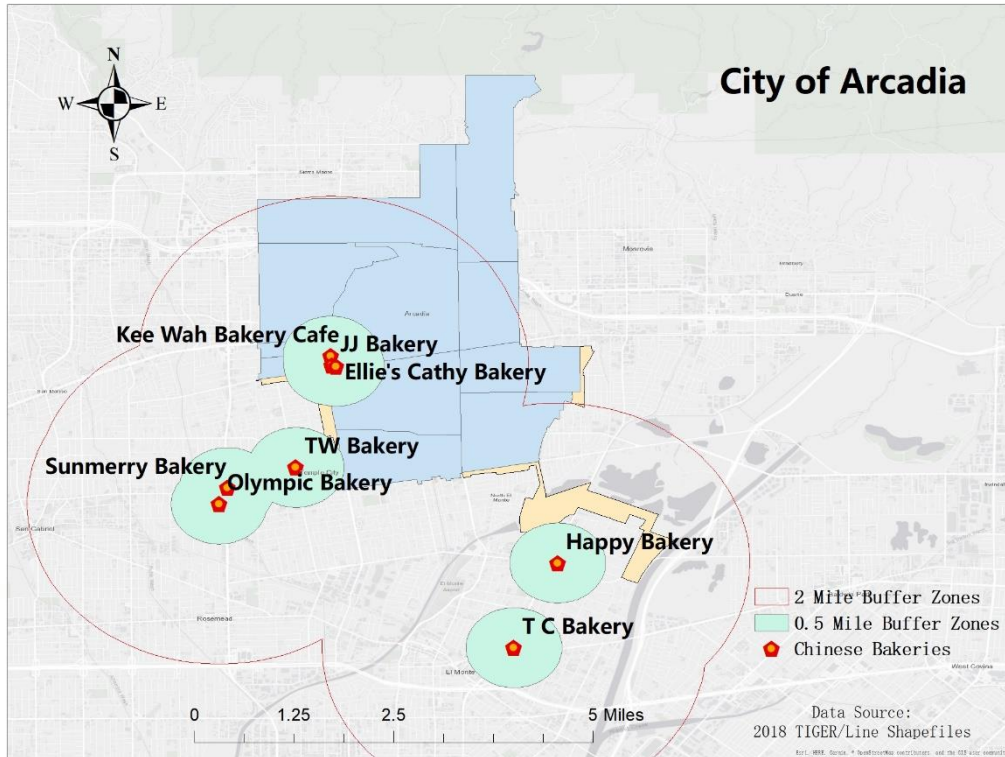

Chart 1 Chinese Bakeries with 0.5-mile Buffer Zones and 2-mile Buffer Zones in City of Arcadia

On this map of the total population, we can find that two-mile buffer zones of the bakeries have covered the area with the highest population. The concentration area of the Chinese bakeries tracks with the highest population. Although the northern region has comparatively less population, the difference is not noticeable. We can not deny the demand for Chinese bakeries in this area.
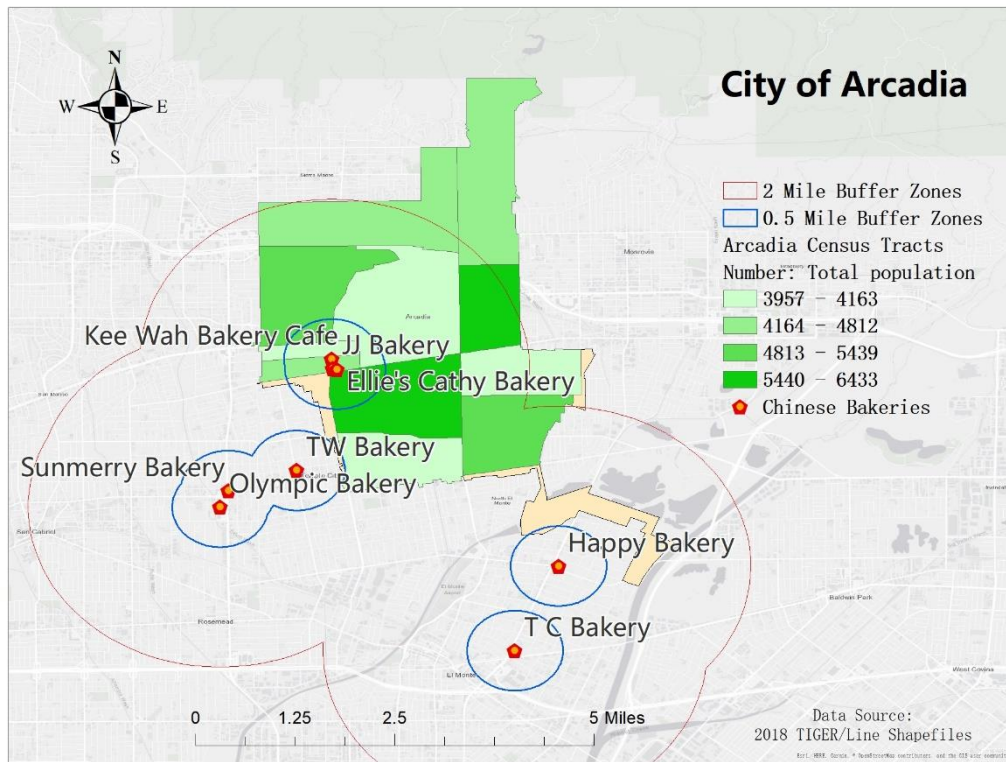

Chart 2 Chinese Bakeries Distribution and the Total Population in City of Arcadia

According to Chart 3, the region with the highest Chinese population coincides with the densest area of Chinese Bakeries. We also noticed that the proportions of the Chinese population in other regions are still more than 30%. There is still a huge demand for Chinese bakeries in the open area.
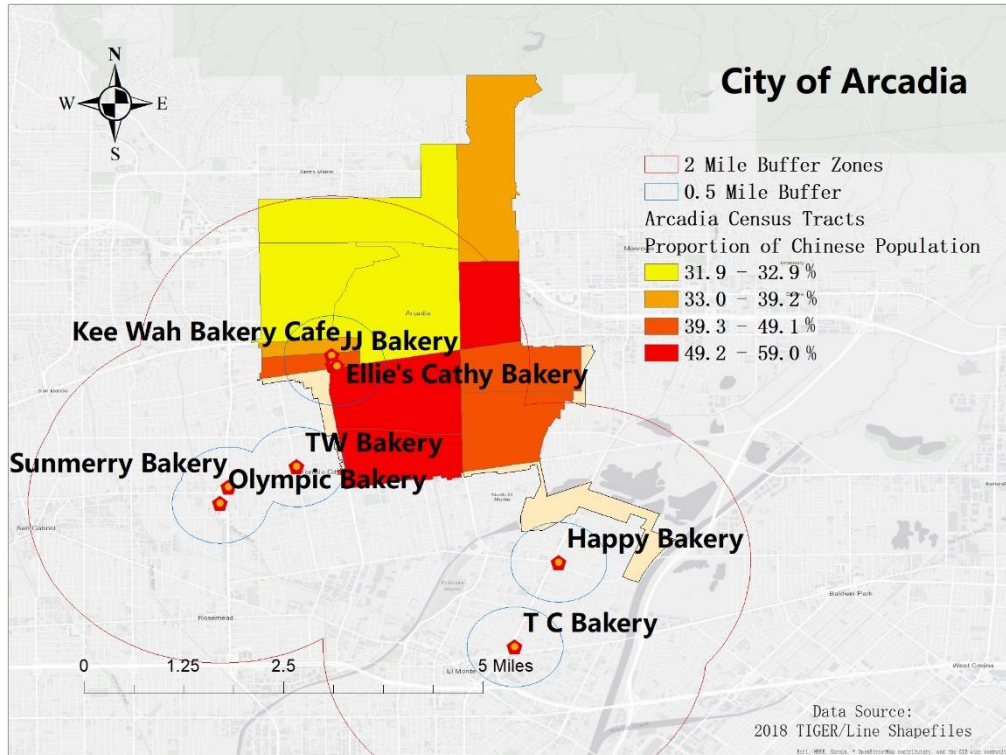

Chart 3 Chinese Bakeries Distribution and the Chinese Population Proportion in City of Arcadia

The map of the distribution of the elderly population does not have strong geographical characteristics. There is no strong correlation between the distribution of the elderly population and the concentration of Chinese bakeries. Moreover, in the City of Arcadia, the concentration area of Chinese bakeries does not share the highest proportion of the elderly population. We speculate that Chinese pastry houses might pay more attention to the tastes of the youth and elder people are not their primary target consumers now.
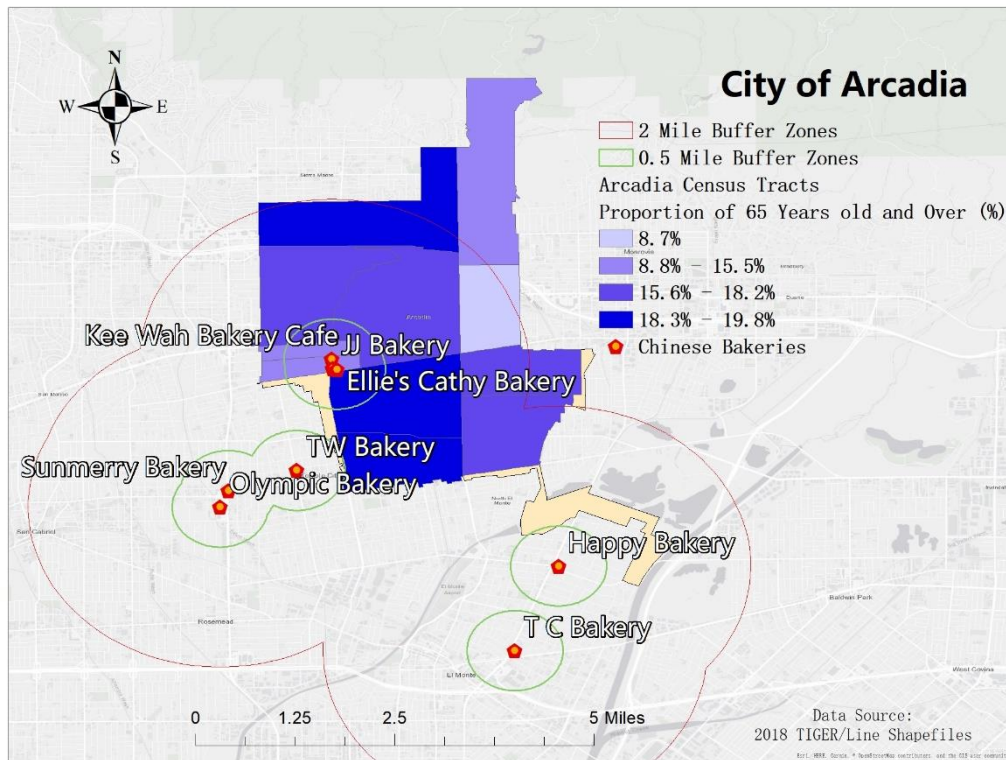

Chart 4 Chinese Bakeries Distribution and the Elderly Population Proportion in City of Arcadia

Conclusion

In the City of Arcadia, there is still a demand for Chinese bakeries, especially in the north and east. At present, the distribution of existing Chinese bakeries is very centralized, and the competition between them is fierce. If a new bakery can choose to locate at northern Arcadia, we believe it can stand out in the fierce competition.

Limitation

The census data updated in 2010. From 2010 to present, the demographic structure has changed continuously.   We are unable to forecast the current need of Chinese bakery with data nine years ago. Besides, In China's populated areas, some pastry chefs do not open their bakeries, but their home-made cakes and pastries can meet the needs of local communities.