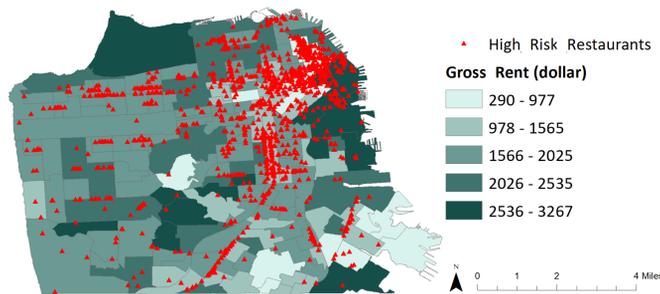


RESTAURANT FOOD SATETY

Which Factors are Affecting Restaurant Risk Scores in San Francisco?

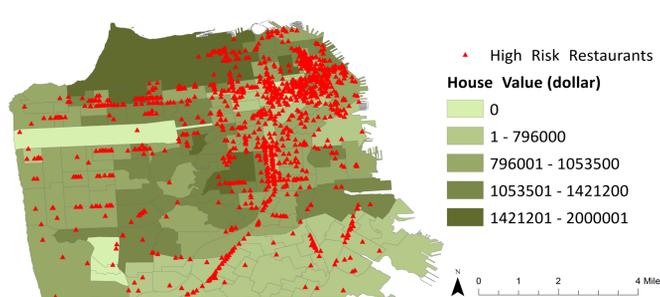
Gross Rent

This maps shows that most high-risk restaurants are located in areas with lower gross rent.



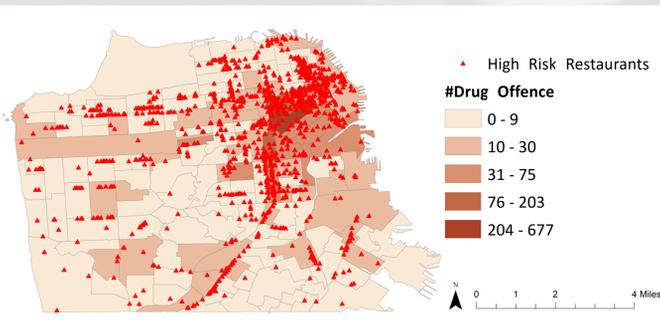
House Value

This maps shows that most high-risk restaurants are located in areas with lower house values.



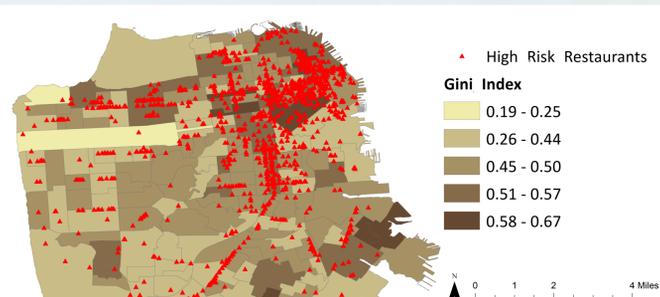
Drug Offence

This maps shows that most high-risk restaurants are located in areas with more drug offences.



Gini Index

This maps shows that most high-risk restaurants are located in areas with higher Gini index.



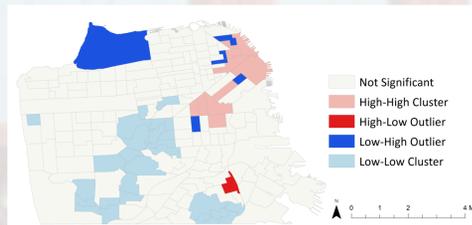
INTRODUCTION

Foodborne diseases which caused by consuming contaminated food are a growing public health problem affecting millions of Americans each year. More and more people begin to care about food safety especially when they are dining out since most food preparation processes cannot be seen. The goal of this study is to determine whether some factors including race, drug offence, Gini index, house value and gross rent will affect the food safety in the restaurants. This study focuses on San Francisco in California and uses the restaurant risk scores data to indicate the food safety of the restaurants. The result of this study can provide customers with a reference while they are choosing the restaurants to dine out with.

METHODOLOGY

Data Collection Firstly, I chose the restaurant risk scores in San Francisco data from DataSF website as my main data. Then, I did spatial join of crime and neighborhood layers from S Drive. Third, I got the race population and annual household income data from census website and geocoded into the neighborhood with crime layer. Finally, I downloaded the house value, Gini index and gross rent data from Tufts library and geocoded them into my previous layer.

Spatial Analysis First, I used the join counts to get number of high-risk restaurants in each census tract. Then, I did 'Local Moran'I' tool to visualize where most high-risk restaurants are located. Meanwhile, I selected 'HH' and 'HL' clusters which were the areas with high density of high-risk restaurants. Third, I selected by location for each factor affecting the food safety and did the statistics. Take



'income' as an example, after using 'select by location', I actually divided the income data into two groups. The first group included the incomes of households who living in 'HH' and 'HL' areas meaning that the households were in the areas with more high-risk restaurants. The second group consisted of incomes of households who living in 'LL' and 'LH' areas meaning that the households were in the areas with fewer high-risk restaurants. Additionally, I did the statistics and get the mean value of each group in order to compare the performances of each group. I used the same method to get the statistics results of other factors.

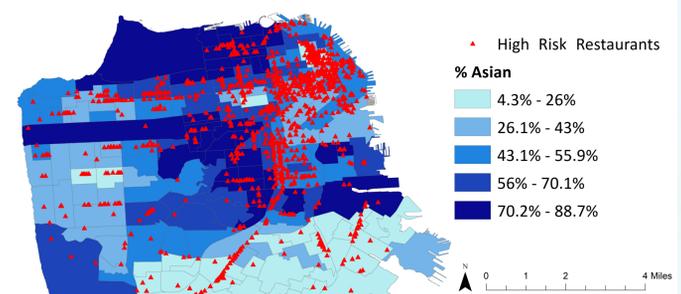
CONCLUSION

The result showed that areas with lower income, fewer White people, fewer Black people, more Asian people, more drug offences, higher Gini index, lower house value and lower gross rent will have more high-risk restaurants. Since some mean values' differences of factors are not large, the main factors threatening the food safety in restaurants are the factors other than 'Black' and 'White'. However, the result of this study only provides the basic reference for choosing low-risk restaurants. It is still lack of data to have prescriptive results about which factor affects food safety most. The further study will transfer the current descriptive results into prescriptive ones which have more practical values.

	Mean (Around High-Density High Risk Restaurants)	Mean (Around Low-Density High Risk Restaurants)
Income (dollar)	110534.2	141201.5
White (%)	43.9	50.3
Black (%)	5.2	5.9
Asian(%)	36.3	31.2
Drug Offence (#)	60	7
Gini Index	0.51	0.46
House Value (dollar)	741680	1018167
Gross Rent (dollar)	1461.5	1862.8

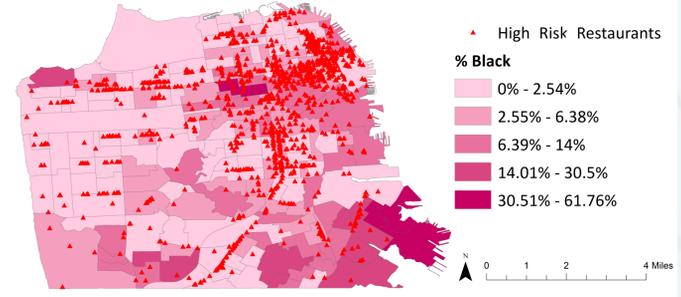
Asian Population

This maps shows that most high-risk restaurants are located in areas with more Asian people.



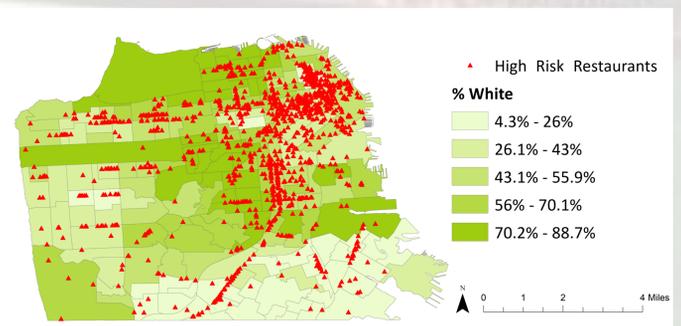
Black Population

This maps shows that most high-risk restaurants are located in areas with fewer Black people. However, the relationship is not obvious.



White Population

This maps shows that most high-risk restaurants are located in areas with fewer White people. However, the relationship is not obvious.



Household Income

This maps shows that most high-risk restaurants are located in areas with lower income.

