

MACS 30200

PS1 Part 1

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Par1.

1.

The data set is stored on the website of Chicago data portal in the catalog of health and human services, which is curated by the Chicago Department of Public Health. The data is derived from inspections of restaurants and other food establishments in Chicago from January 1, 2010 to the present. Inspections are performed by staff from the Chicago Department of Public Health's Food Protection Program using a standardized procedure. The results of the inspection are inputted into a database, then reviewed and approved by a State of Illinois Licensed Environmental Health Practitioner (LEHP).

2.

Several studies utilized food inspection data of Chicago. Dworkin, Liu and their colleagues (2012) studied the Spanish-speaking and English-speaking people's food safety knowledge, utilizing the food inspection data to grade the local restaurants. Liu and Manes (2013) utilize the food inspection data to study the food safety issue in suburban Chicago. In 2014, Liu, Manes and their colleagues analyzes the relations between restaurant's food safety score and restaurant's manager. Recently, Aavik, McBride and their colleagues(2018) conducts a study using this data set to build a Chicago's food inspection forecasting model.

3.

The Food Protection Division of the Chicago Department of Public Health (CDPH) is responsible for conducting food inspection of restaurants in Chicago. The staff of Chicago Department of Public Health's Food Protection Program conducts inspection of retail food establishments with CDPH's license in Chicago, such as restaurants, grocery stores, bakeries, convenience stores, hospitals, nursing homes, day care facilities, shelters, schools, and temporary food service events. Inspections focus on food handling practices, product temperatures, personal hygiene, facility maintenance, and pest control. The department operates under the ordinances of the City of Chicago's Municipal Code, chapters 4-8, 7-38, 7-40, and 7-42 and the Chicago Board of Health Rules and Regulations. Staff records the basic information of food establishments (address, name, license and type), inspection results (risk score, whether pass the inspection and violation information) and some information of inspection as well (inspector's ID, the date and type of inspection).

4.

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Out [5]:
```

	Zip	Latitude	Longitude
count	131735.000000	131735.000000	131735.000000
mean	60629.421057	41.879988	-87.676971
std	19.129261	0.081867	0.059551
min	60501.000000	41.644670	-87.914428
25%	60614.000000	41.827328	-87.708230
50%	60625.000000	41.891279	-87.666865
75%	60643.000000	41.939829	-87.634799
max	60827.000000	42.021064	-87.525094

```

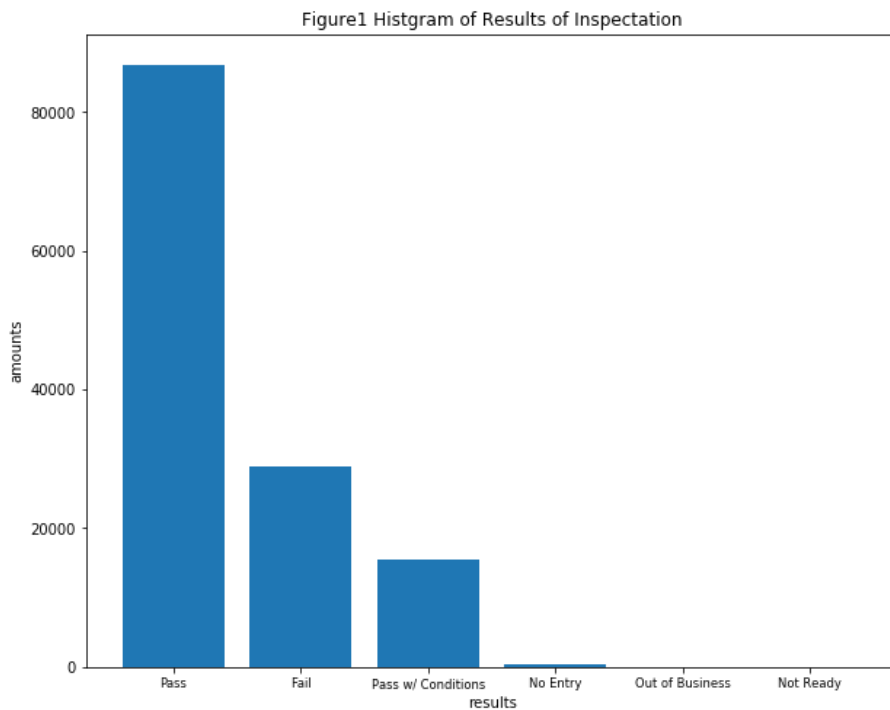
Out[6]:
Results Inspection Type Results \
count    131735          131735 131735
unique      6           57      6
top      Pass      Canvass    Pass
freq     86845      67335    86845

Violations      Risk
count          131735 131735
unique        130577      3
top    18. NO EVIDENCE OF RODENT OR INSECT OUTER OPEN... Risk 1 (High)
freq              38    97600

```

5.

From the histogram we know that most of food establishments pass the food inspection, more than double of the number of restaurants that failed inspections.



6.

Here, I am curious about the distributions of restaurants that pass inspections and fails the inspections.

The plot on the left side is a geographic distribution map produced by 'pass.csv' using Tableau. It shows that there are more food establishments passed the inspections in the north of Chicago, especially in 60618, 60647, 60614, 60657, 60639 and 60608.

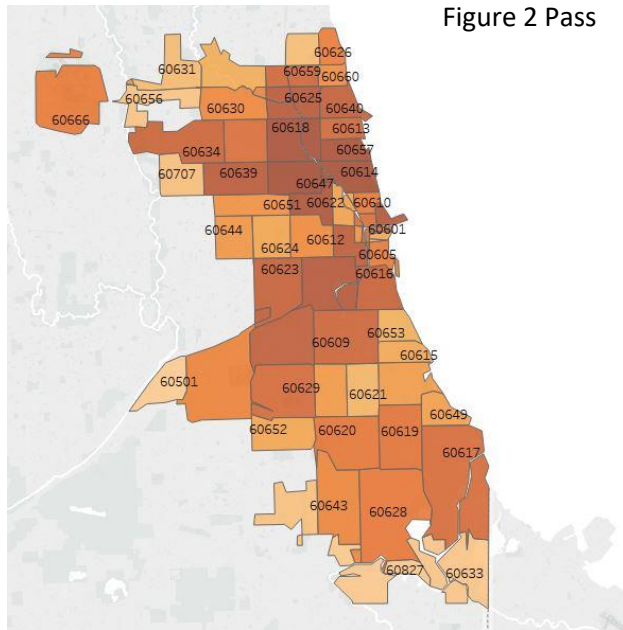


Figure 2 Pass

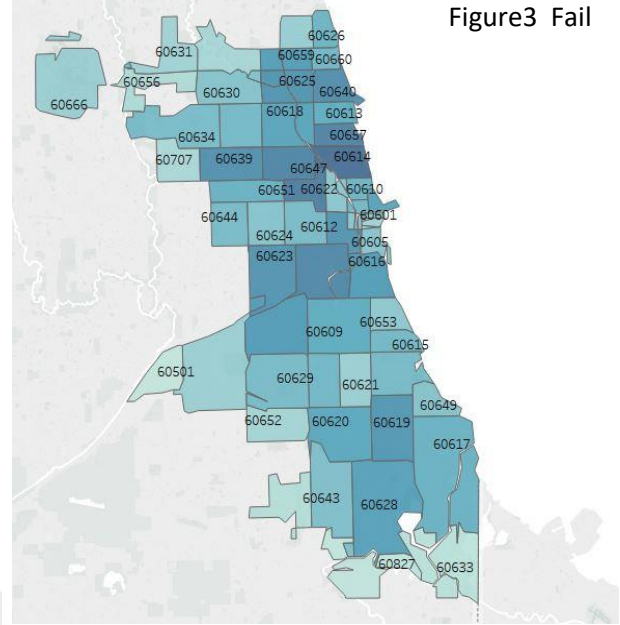
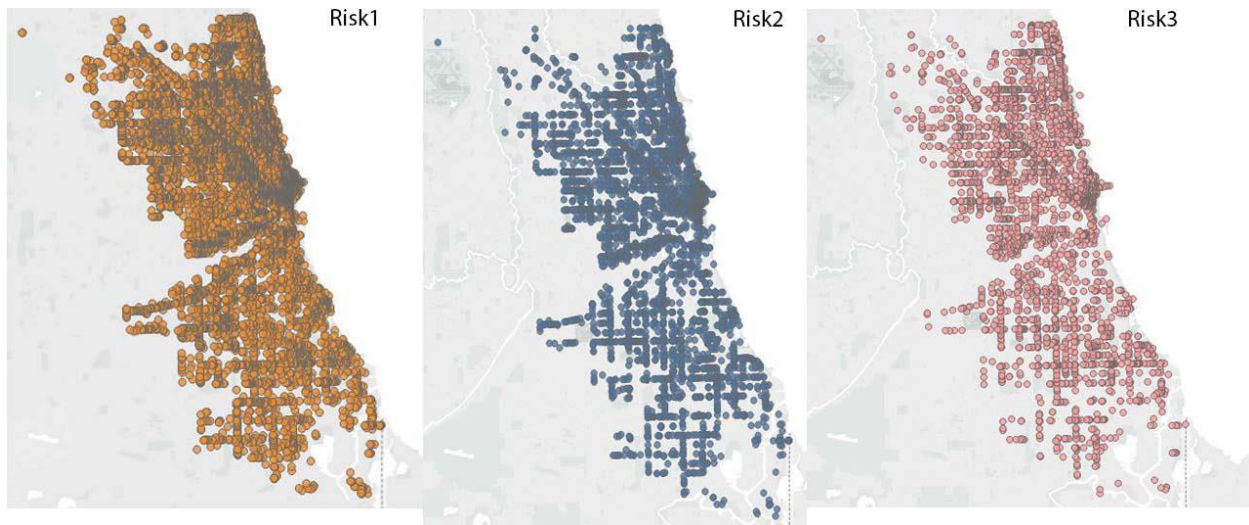


Figure3 Fail

Using Tableau and 'fail.csv', I plot another geographic distribution of restaurants that failed the inspections by Zip codes. Failed restaurants are centered in the middle and north areas of Chicago.

7.



The above plot shows that the risk level for most restaurants is level 1, which might be good news for residents. And most restaurants that have risks are along the lakeshore and in the north of Chicago.