

Table 1: Data Descriptions

	# Obs.	Avg # Obs/day	Source
Crimes - Theft	215,075	425	Chicago Police Department
Crimes - Non-Theft	128,487	253	
Building Violations	165,681	324	Chicago Department of Buildings
311 Graffiti Request	164,318	321	City of Chicago 311 Requests
311 Sanitation Request	28,537	55	
311 Alley Lights Out	44,166	86	
311 Vacant Building - Gangs	2,243	4	
311 Vacant Building Out - No Gangs	4,333	8	
Food Inspection - Pass	16,945	33	Chicago Department of Public Health Food Protection Program
Food Inspection - Pass w/Condition	5,674	11	
Food Inspection - Fail	3,342	6	
Red Light Tickets ¹	86,817	964	Chicago Tribune
Liquor Licenses ²	4,541	n/a	Department of Business Affairs and Consumer Protection, City of Chicago
Tweets - Good Sentiment ³	1,052	n/a	Twitter
Tweets - Bad Sentiment	183	n/a	

1. Red light ticket data is only available from 12/2/2013 to 1/3/2014

2. Liquor Licenses dataset is for current licenses only so it is not shown over time.

3. Twitter dataset was added recently so there is no historical data past what was collected.

Table 2: 311 Descriptions

	Description
311 Graffiti Request	Requests to remove graffiti with city blast trucks
311 Sanitation Request	Complaints such as overflowing dumpsters or garbage in the Alley
311 Alley Lights Out - Gangs	One or more street lights out with reported Gangs or Homeless
311 Alley Lights Out - No Gangs	One or more street lights out without reported Gangs or Homeless
311 Vacant Building	Requests to inspect a vacant building

Table 3: Food Inspection Descriptions

	Description
Pass	The establishment meets the minimum requirements of municipal codes and does not have any serious or critical violations
Pass with Conditions	The establishment has Serious or Critical violations that are corrected during the inspection or the certified Food Service Sanitation Manager is not present as the time of the Inspection
Fail	The establishment has Serious violations that cannot be corrected during the inspection. The business must correct the Serious violations promptly and pass a re- inspection to remain open. Note: the business can also have its license suspended until it passes re-inspection.

Table 4: Tweet Examples

Score	Category	Tweet
.55	Good	I love this place already! - Drinking a Slim Hazy by @mikerphonebrew at @mikerphonebrew https://t.co/8EdB6ERhfJ
.72	Good	Here's our Morton Community who supported our fundraiser event today! THANK YOU all who could not make it but con https://t.co/rKrqMPWf7u
-.36	Bad	I'm really not trying to be in the crib tonight
-.35	Bad	Muffler: \$160 Battery: \$150 Alternator: \$350 Me: Broke as ****

OLS Regression

$$Theft_{(t,j)} = \alpha + \beta_1 \mathbf{X}_{(t,j)} + \beta_2 \mathbf{X}_j + \epsilon_t$$

Spatial OLS Regression

$$Theft_{(t,j)} = \alpha + \beta_1 \mathbf{X}_{(t,j)} + \beta_2 \mathbf{X}_j + \beta_3 \bar{\mathbf{X}}_{(t,j_{neighbors})} + \beta_4 \bar{\mathbf{X}}_{(j_{neighbors})} + \epsilon_t$$

