11/9 Crime Data Analysis Update

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Detroit Police Data Initiative Dataset

POLICE DATA INITIATIVE

5.5+ million observations with complete information (09/16-present)

Detroit Variables:

- Measures of Response Time:
    - Intake, Dispatch, Travel, Time On Scene, Response Time
- Priority (1-5)
- Call Code, Call Description, Category
- Call Time/Date
- Officer Initiated (Yes/No)
- Neighborhood
- Longitude/Latitude

Haven't found a good way to rep-
resent point process data (perhaps develop animated image over time)
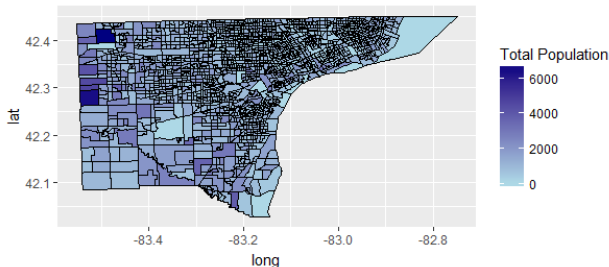

Crime Frequency by Block Group
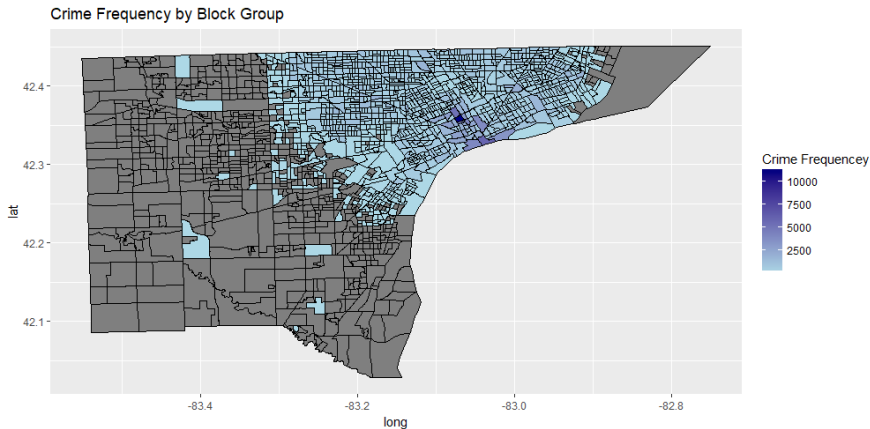
Managed through the US Census Bureau, available through 2015
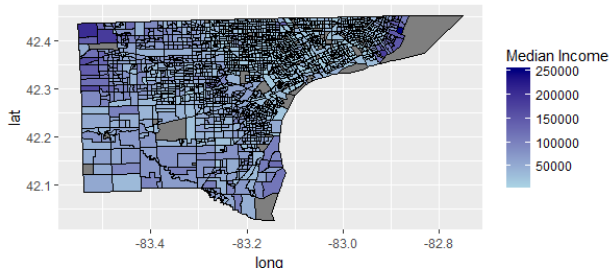
Variables for all 1,822 block groups:

- median income
- median age
- percentage female
- unemployment rate
- total population
- measure of racial diversity (?)

Exploratory Data Analysis- ACS

Total Population by Block Group

Median Income by Block Group

LODES Data

Compared this to Census data

- employed in census: 818,898
- represented in this dataset: 398,296
- Interpretation: More than half work in the block group where they live?

	w_geocode	h_geocode	S000	SA01	SA02	SA03	SE01	SE02	SE03	SI01	SI02	SI03
1	261635001002	261635001001	1	0	1	0	0	1	0	0	0	1
2	261635002003	261635001001	2	0	2	0	2	0	0	0	0	2
3	261635011003	261635001001	1	0	1	0	0	1	0	0	0	1
4	261635014004	261635001001	2	1	0	1	2	0	0	0	1	1
5	261635016002	261635001001	4	0	4	0	0	2	2	0	0	4
6	261635017002	261635001001	3	0	2	1	1	1	1	0	0	3
7	261635035005	261635001001	1	0	1	0	0	1	0	0	0	1
8	261635040001	261635001001	1	0	1	0	0	1	0	1	0	0
9	261635043002	261635001001	2	0	2	0	2	0	0	0	0	2
10	261635050001	261635001001	1	1	0	0	1	0	0	0	1	0
11	261635054001	261635001001	1	0	1	0	1	0	0	0	0	1

Other Questions

1. Should we subset the crime data?
2. How to use the social proximity data to establish neighbors?
3. What preliminary model to fit? LM or GLM (Poisson, quassi)?
   - Getting some strange results for p-values (maybe just not a good fit? maybe because of large dataset?)
4. Next step of fitting Poisson CAR model okay?
5. Also, will read Pillow and Scott (2012) paper and consider fitting log Gaussian Cox process data (?)
6. Other:
   - Conference ideas?
   - Connection with Dr. Luc Anselin? (Center for Spatial Data Science Senior Fellow, working on crime data) https://spatial.uchicago.edu/directory/luc-anselin-phd