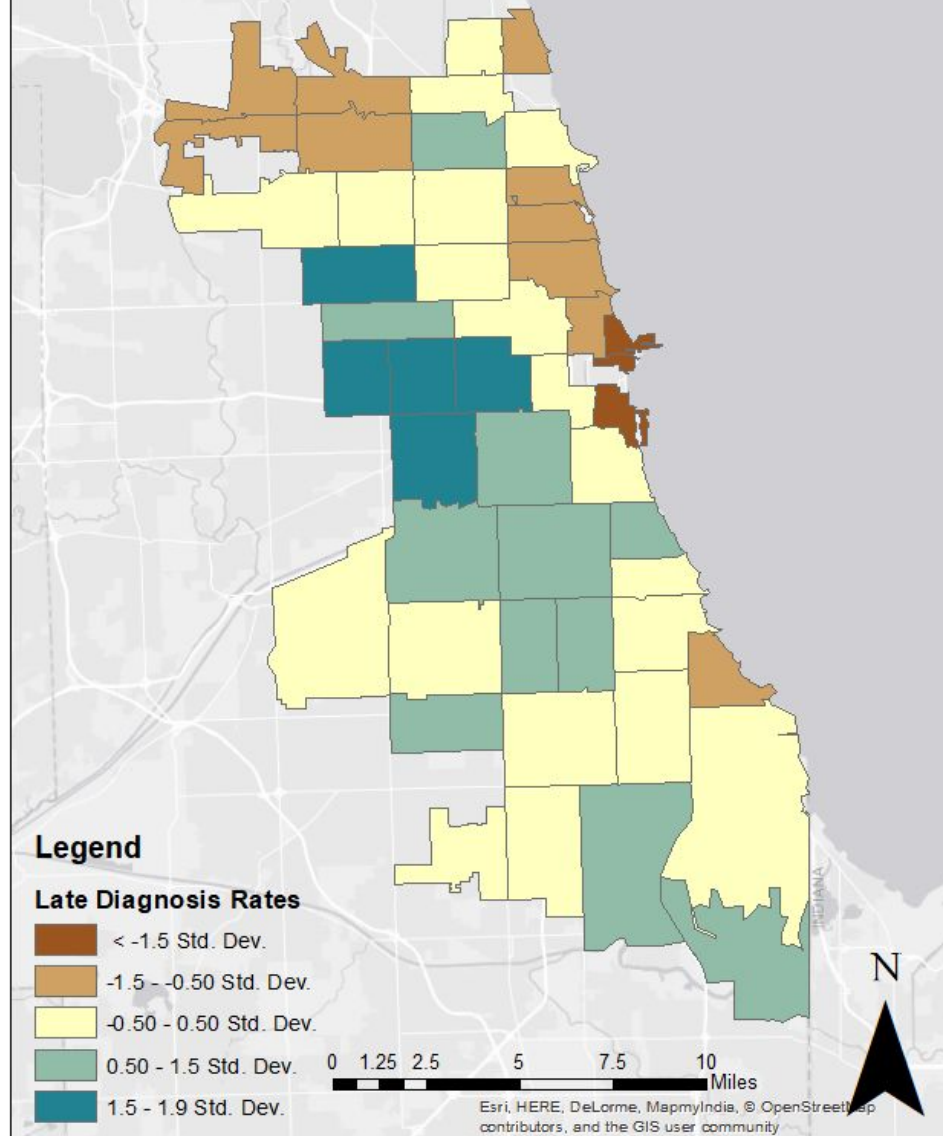Alberto Melendez
February 23, 2018
Assignment 5
GEOG 461

The methodology of global clustering I had to choose "Spatial Weight from file" for Conceptualization of Spatial Relationship to find if there was any positive spatial autocorrelation. Since the Moran's I index was a positive value and equaled 0.54, and the Z Score being 5.81 standard deviation, it meant the pattern of late breast cancer diagnosis was not a coincidence. This led to having to do a local cluster analysis on the zipcodes in Chicago.

In the global cluster map, on the center-left we see the highest rates, in the center we see slightly lower rates. Though, in the center-right, there are small areas where late diagnosis rates are lowest, and further North are couple clusters of moderately low rates as well. After mapping the local clusters, we then can see that those areas still have the highest (HH) and low (LL) rates. However, in the Northwest part you also see that it has the low-low rates (LL) as well despite the global cluster map having a moderate low rate in that area.

In the GI* analysis I performed on the last map, I used "Fixed Distance Band" since I wanted to see the data a fixed spatial scale. Interestingly, the same clusters appeared in the center, though there is a outlier for a hot spot of 90% confidence that is somewhat detached from the hot spot cluster of 99%. However, it shouldn't be too surprising since it is right below an area of what was High-high (HH) in the local cluster map.

Global Cluster Late Breast Cancer Diagnosis
Chicago, Illinois, 2010

Cluster Analysis from Chromley, EK and McLafferty SL.
2012. GIS and Public Health, 2nd Edition

Legend

Late Diagnosis Rates

< -1.5 Std. Dev.

-1.5 - -0.50 Std. Dev.

-0.50 - 0.50 Std. Dev.

0.50 - 1.5 Std. Dev.

1.5 - 1.9 Std. Dev.

0 1.25 2.5   5   7.5   10
Miles

N

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap
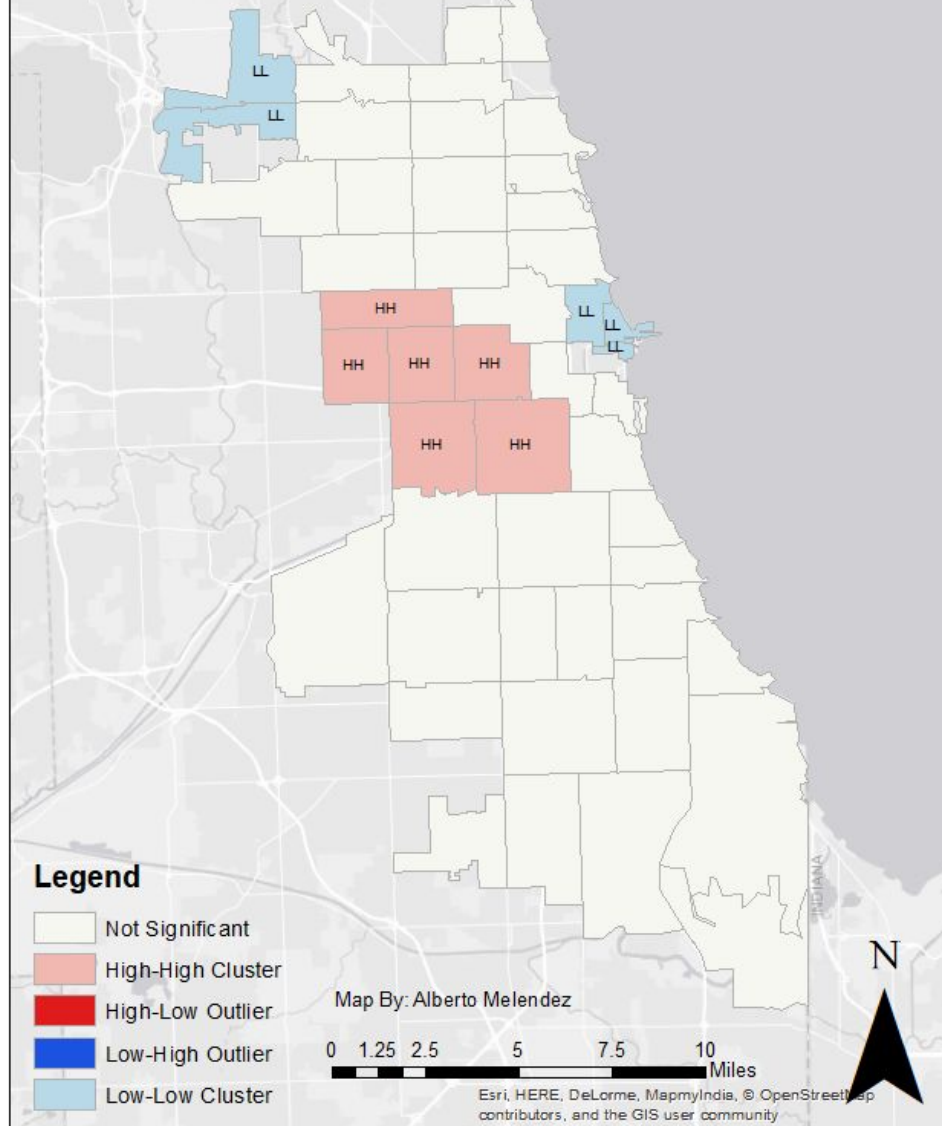contributors, and the GIS user community

Local Clustering Late Breast Cancer Diagnosis Chicago, Illinois, 2010

Cluster Analysis from Chromley, EK and McLafferty SL.
2012. GIS and Public Health, 2nd Edition

LL
LL

HH
HH HH HH
HH HH

LL
LL
LL

INDIANA

Legend

☐	Not Significant
☐	High-High Cluster
☐	High-Low Outlier
☐	Low-High Outlier
☐	Low-Low Cluster

Map By: Alberto Melendez

0   1.25 2.5   5   7.5   10
Miles

N

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contributors, and the GIS user community

Late Breast Cancer Diagnosis Hot Spots
Chicago, Illinois, 2010

Cluster Analysis from Chromley, EK and McLafferty SL.
2012. GIS and Public Health, 2nd Edition

Legend

HotSpots

- Cold Spot - 99% Confidence
- Cold Spot - 95% Confidence
- Cold Spot - 90% Confidence
- Not Significant
- Hot Spot - 90% Confidence
- Hot Spot - 95% Confidence
- Hot Spot - 99% Confidence

Map By: Alberto Melendez

0 1.25 2.5   5   7.5   10
Miles

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