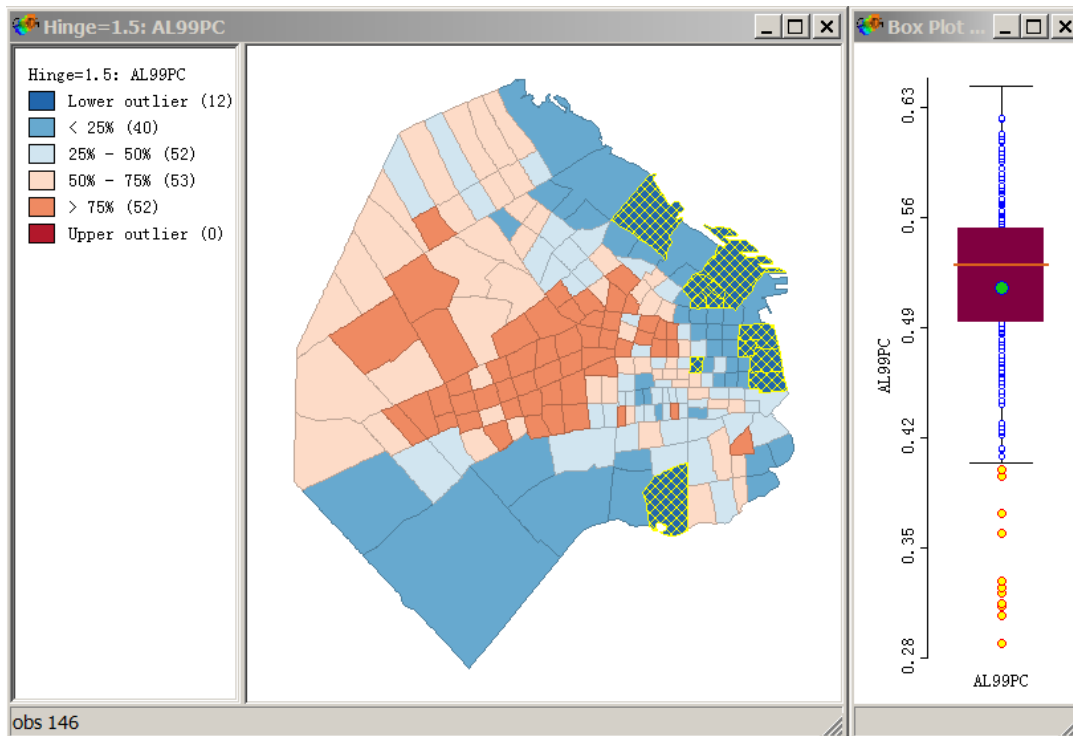# Solutions to Lab 2 - ESDA in GeoDa
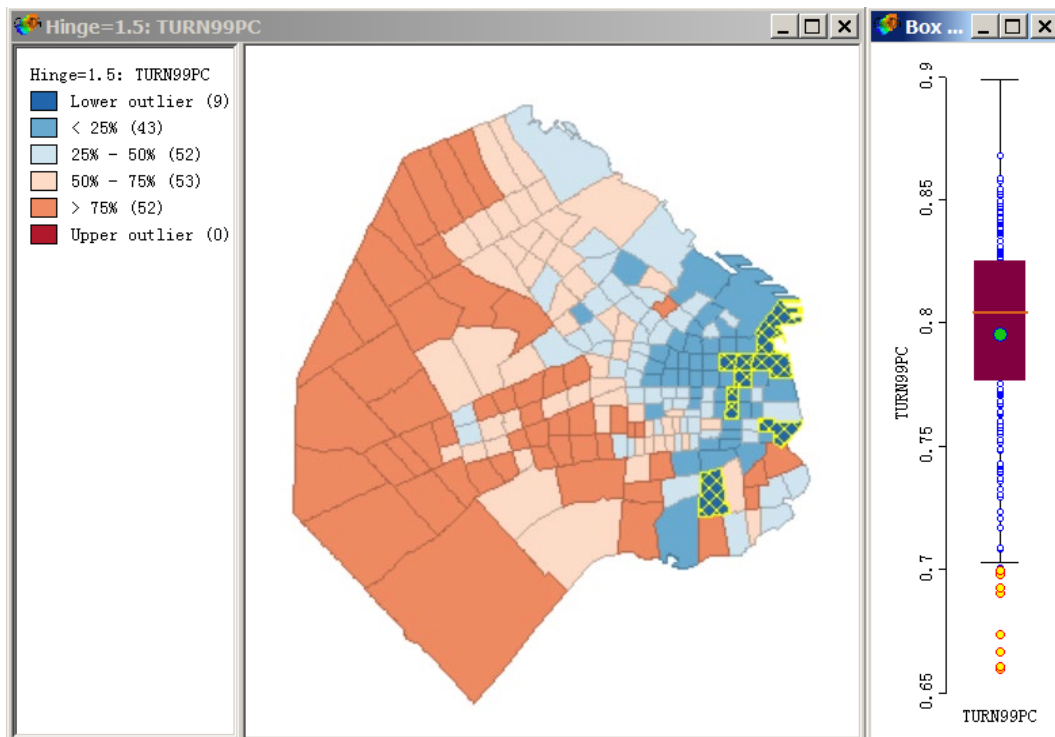
Assignment I

1. Box map and box plot of AL99PC and the highlighted negative outliers.

(1) The map pattern of the AL99PC: The high percent of Alianza votes over valid votes is clustered at the central and western parts of the City, while the other boundaries take up lower percent of Alianza votes over valid votes. Overall, the percent of Alianza votes over valid votes tends to decrease from center precincts of the city to fringe precincts.

(2) The spatial pattern of the negative outliers: The negative outliers are mainly distributed (with some clustering) at the northeastern borders of the city.
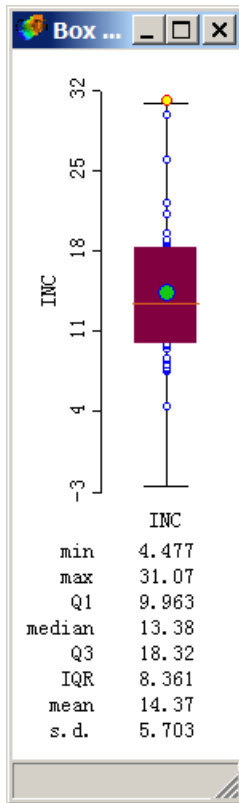
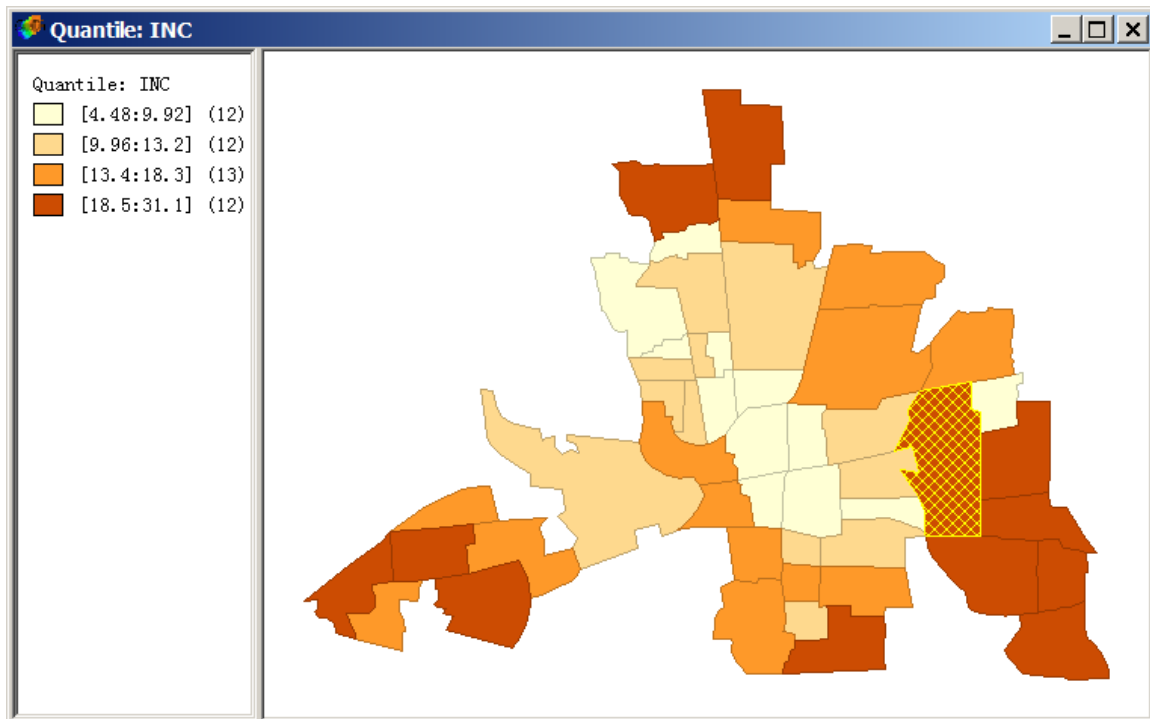2. Box map and box plot of TURN99PC and the highlighted negative outliers.

(1) The map pattern of the TURN99PC: Electoral precincts with high percent of effective votes over valid votes are mostly distributed in the west of the city. The percent of effective votes over valid votes tends to decrease from west to east.

(2) The spatial pattern of the negative outliers: Negative outliers are mainly clustered in the eastern part of the city.

Assignment II

1. Box map of INC. The observation with the highest INC value could be a potential outlier given that it is more than Q3+1.5*IQR.

2. Based on the scatterplot, the selected observation does not seem to be a potential outlier because it is extremely close to the regression line (it would have little influence on the regression line).

3. Quantile map of INC: The precinct with highest INC value in Figure 7 is within the fourth range and most of its neighboring precincts fall into the fourth, third and second ranges. It could be a meaningful peak point of its surrounding area rather than an outlier from a spatial perspective.

We may pay attention to one potential spatial outlier, the precinct identified in the figure below because it looks quite different from its surroundings: it falls into the first range but all surrounding precincts are in the third and fourth ranges.