

Background

Gentrification is a hard term to define and even harder to quantify. In general, there is an accepted definition that gentrification involves the movement of younger, wealthier, and higher educationally achieving persons into an area on the lower socioeconomic spectrum of an urban area. For this study, a definition was derived from the article "Displacement or Succession?: Residential Mobility in Gentrifying Neighborhoods." by Lance Freeman. This article has been one of the most frequently cited on the subject. This study adapts his definition. The criteria for gentrification are that:

1. A tract must have a median home value in the bottom 40th percentile of all tracts within a metro area at the beginning of the decade.
2. The percentage increase in a tract's inflation-adjusted median home value was in the top third percentile of all tracts within a metro area at the end of the decade.
3. The increase in a tract's educational attainment, as measured by the percentage of residents age 25 and over holding bachelor's degrees, must be in the top third percentile of all tracts within a metro area at the end of the decade.

This study focuses on gentrification in Philadelphia County between 1980 and 2010. The location and time period were chosen because Philadelphia had experienced significant urban economic growth during this period, after decades of suburbanization, "white flight" and urban decay.

With redevelopment focused on creating new white collar jobs in the central city and building a tourism industry, Philadelphia's economic revitalization lead to the gentrification.

Methods

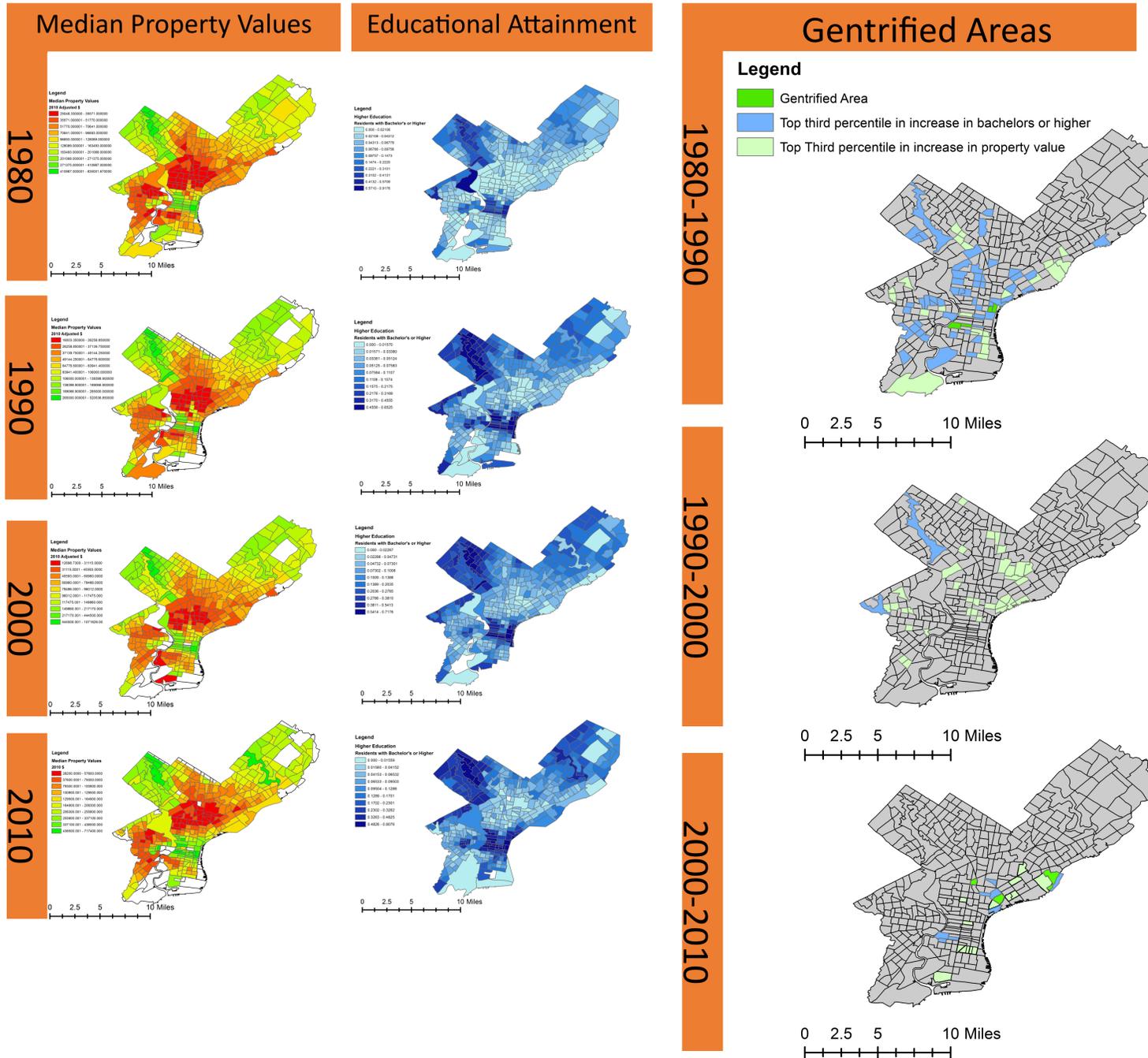
First, maps of property values were created using historical census data obtained from NHGIS. All property values were adjusted to the 2010 level of inflation. Percentage changes in property values over each decade intervals were calculated. The census tracts which were in the bottom 40th percentile property values were cross referenced with those that experienced the top third percentile of growth in order to obtain the tracts which were eligible to gentrify.

Next, maps of educational attainment as determined by percentage of the population holding bachelor degrees or higher were mapped. This mapped data was cross referenced across decades to obtain growth rate of the highly educated population. The tracts with a growth rate in the top third percentile were eligible to gentrify.

Finally, the property-value eligible and educationally-eligible maps were cross referenced to produce the final maps of census tracts which gentrified over the decade. Both the property value eligible and educationally-eligible tracts are also included in the the final maps.

Gentrification in Philadelphia County:

Changes in Land Value and Educational Attainment from 1980-2010



Picture 1: A gentrifying neighborhood in Philadelphia

WGS_1984 Arc System Zone_1
Equidistant Cylindrical

Created by Jared Glaser
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GIS101

Data Sources:
NHGIS Census Data 1980, 1990, 2000, 2010
ESRI DataMap10
Works Cited:
Freeman, Lance. "Displacement or Succession." *Sage Journals*, March 1, 2005.
Picture 1: Carroll, Thom. "Brewerytown Gentrification." Digital image. Philly Voice.

Results

One of the major findings of this study was that the greatest number of tracts gentrified in east Philadelphia. This gentrification took place in the periods between 1980-1990 and 2000-2010. The distribution of property-value eligible areas and educationally-eligible areas is reasonable well distributed in 1980-1990 and 1990-2000. Between 2000-2010, there were fewer property-value and educationally eligible areas, however they were clustered in the same areas, thus qualifying 3 census tracts as gentrifying. The most surprising finding was that no gentrification, as defined by Freeman occurred between 1990-2000. Due to discrepancies in the census data, such as the merging and splitting of census tracts, not all data for every census tracks was available for temporal analysis. This leads to the possibility that gentrified areas may be omitted from the final analysis. Furthermore, data was not available for block groups which may have shown smaller pockets of gentrification.

Conclusions

While this study was able to identify areas of gentrification, there are significant limitations to this method. Due to the strict definitions of Freeman's gentrification, a scalar measure could not be developed. If gentrification could be analyzed in a more scalar manner, it would be easier to visualize trends.

Further analysis on this subject could test how clustered the gentrified areas are, or apply this method to another major city such as New York which has experienced rapid gentrification over the past two decades. Spatial correlation could also be tested for such as clustering, through Local and Global Moran's I.

Gentrification has both positive and negative social effects that could be studied spatially. One negative effects that could be studied is the displacement effect of gentrification on poorer and often minority populations. One positive effect that could be studied is the correlations between lower crime rates and gentrification. These trends have significant impact on urban planning and policy.

