



# Gentrification and Ischemic Heart Disease in the Bronx

by Spiro Korizis

Masters of Public Health Program at Lehman College

Capstone Advisor: Dr. Glen D. Johnson



# Gentrification---A Look Back

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- In aristocratic England, the gentry were affluent individuals considered to be the nobility.
- When they moved to poorer neighborhoods, those neighborhoods were considered to have gentrified

# Gentrification Today

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- Today, gentrification occurs when affluent individuals move to poor and working class neighborhoods
- Doesn't necessarily have a racial component, but in the U.S. it does; usually affluent Whites move to poor African American and Hispanic neighborhoods

# Causes of Gentrification

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- Caused by a) social and cultural factors or b) economic factors
- Economic factors: rapid job growth, tight housing markets
- Social and Cultural factors: preference for a vibrant city life, public housing policy, mortgage market regulation
- Many argue that it is a combination of both

# Effects of Gentrification

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- Tangible and intangible effects
- Rising housing prices, rising rents, displacement, reduced crime
- Increase in mental health problems, increasing tax revenue, changing community leaders and power structures, loss of feeling of ownership in a community
- Benefits of gentrification tend to go to “newcomers,” not to existing residents

# The Gentrification Process

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- Occurs in stages. In each stage displacement and conflict increases
- First stage: Newcomers buy and revitalize vacant areas (no displacement)
- Second stage: Knowledge of the rent gap and the area increases (displacement begins)
- Third stage: Home and rent prices soar (heavy displacement)
- Final Stage: Residents believe they have lost their neighborhood (racial undertones)

# Health and Gentrification

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- Displaced residents more likely to be exposed to hazardous substances
- Shorter life expectancies
- Higher infant mortality rates
- Higher rates of chronic diseases
- Health disparities, or inequities, are worsened
- Health problems linked to displacement

# The South Bronx

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- One of the poorest areas in the country
- Lowest life expectancies
- Has recently begun to gentrify
- Home prices are up in Mott Haven, Port Morris, and Hunts Point
- In June of 2015, Department of Buildings issued 759 new permits for new residential buildings; most in a single month for any borough since 2005

# Ischemic Heart Disease

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- Also known as coronary heart disease; most common form of cardiovascular disease
- Leading cause of death for both men and women
- Cost of heart disease: 108.9 billion dollars
- In NYC, Brooklyn has the highest rate, followed by the Bronx
- However, the Bronx has the highest rate of risk factors, such as obesity, hypertension, and diabetes

# Ischemic Heart Disease Disparities

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- Death from heart disease highest for African Americans
- African American women three times more likely to die than white women
- Disparities in risk factors, as well
- Physical inactivity and obesity are fastest growing risk factors
- Hispanic women get the least amount of exercise
- Diabetes more common in African Americans and Hispanics than Whites

# Research Questions

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- Is there an association between gentrification and prevalence of ischemic heart disease in the Bronx?
- Is there an association between food deserts and gentrification in the Bronx?

# Determining Gentrified Census Tracts

- Acquired 2000 and 2010 Census Data (2010 data from American Community Survey 2009-2013)
- Three variables: Median Income, Median Home Value, Educational Attainment (Bachelor's Degree or Higher)
- Calculated percentage change for all three variables
- Census tracts that were in the bottom 40% in any of the three variables were considered eligible to gentrify
- Any census tract of those eligible, that were in the top 33% of all Bronx census tracts in two of the three variables were deemed to have gentrified

# Note on 2000 vs 2010 Census Tracts

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- Census Tracts do NOT have the same physical geography in 2000 and 2010
- 198 census tracts do have the same geography; the rest have split, merged, or fragmented
- Study limited to those 198 census tracts because we do not know precise spatial distribution of ischemic heart disease

# Hospital Discharge Data

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- Hospital discharge data (SPARCS) does collect data by the census tract of patients
- However, due to privacy concerns, any tract with less than 10 cases is left with an asterisk. This is also done with payor information.
- ICD-9 Codes 410-414 was used to identify ischemic heart disease

# Comparing Ischemic Heart Disease

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- Summed ischemic heart disease for 198 tracts in 2000 and 2010
- Calculated percentage change in gentrified and non-gentrified tracts

# Results

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- 28 census tracts were deemed to have gentrified
- In non-gentrified tracts, ischemic heart disease decreased by 18%
- In gentrified tracts, only decreased by 3%
- Population was not a factor for this change and poverty was slightly higher in non-gentrified tracts
- Also, ischemic heart disease was found to be clustered using Average Nearest Neighbor Analysis (z-score -20.22)

# Determining Food Deserts

- Acquired poverty data for 2000 and 2010
- In ArcMap, selected tracts with >20% and >30% poverty
- Created service areas around each healthy food store
- Created 1/4 mile pedestrian-accessible routes around healthy food stores in the Bronx
- Healthy food stores acquired from previous research on anemia and healthy food stores (Bottalico, Johnson, 2015)

# Results

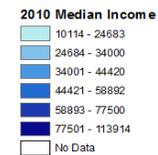
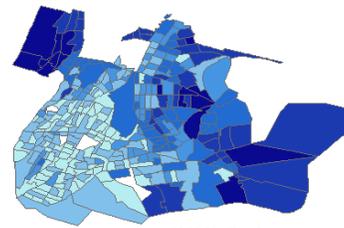
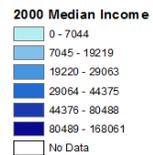
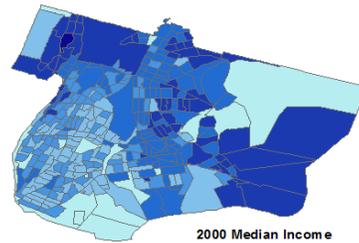
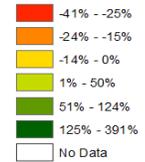
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- Only four tracts had higher than 30% poverty and were further than a  $\frac{1}{4}$  mile from a healthy food store
- Only six tracts had higher than 20% poverty and were further than a  $\frac{1}{4}$  mile from a healthy food store
- All were in non-gentrified tracts
- This is consistent with previous research (USDA, 2009)

# Maps

Mapping Gentrification: Median Income in the Bronx, 2000 and 2010

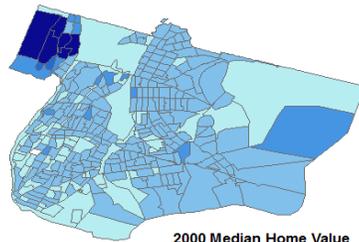
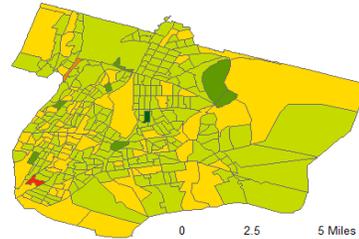
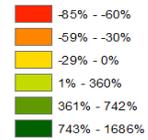
**% Change Median Income**



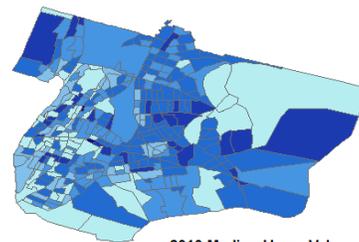
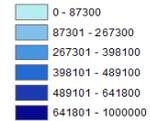
# Maps

Mapping Gentrification: Median Home Value in the Bronx, 2000 and 2010

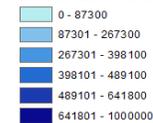
**% Change Median Home Value**



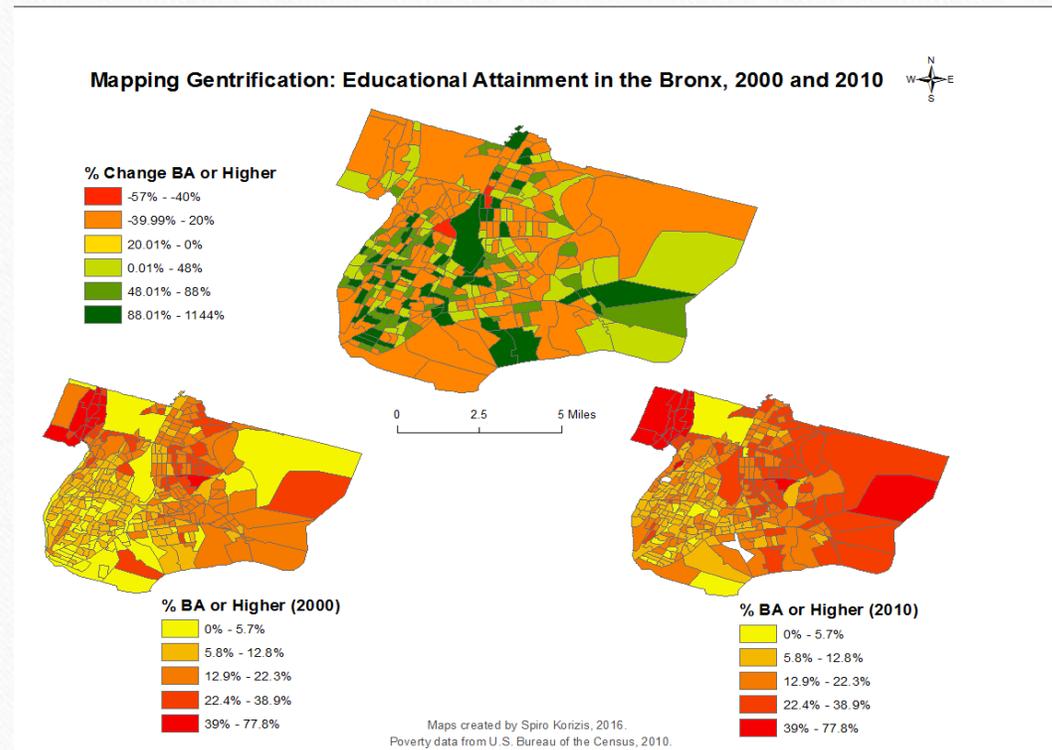
**2000 Median Home Value**



**2010 Median Home Value**

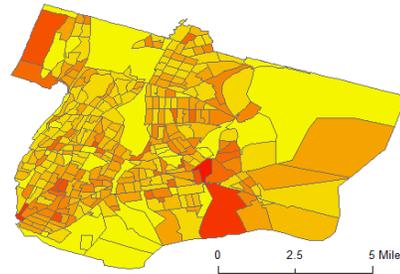


# Maps

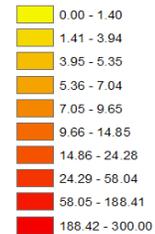


# Maps

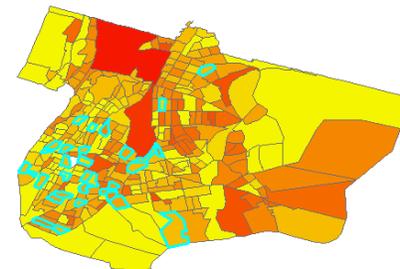
**Gentrification in the Bronx (2000-2010): Ischemic Heart Disease Rates and Gentrified Tracts**



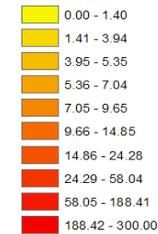
**2000 Ischemic Rate (per 1000)**



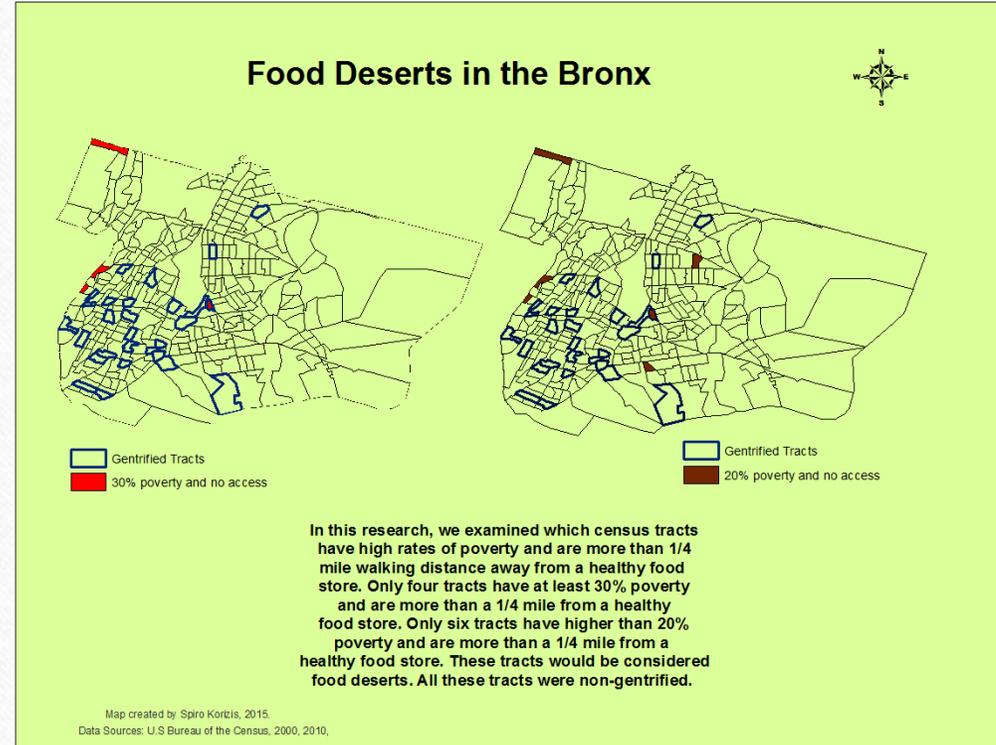
Gentrification is a highly controversial issue in the United States. In these maps, we see the ischemic heart disease rate in the Bronx in 2000 and 2010. In addition, we see the 29 census tracts that have gentrified. Ischemic heart disease decreased slightly in gentrified tracts (-3%), but decreased in non-gentrified tracts (-18%). This belies the notion that affluent newcomers improve the health of a neighborhood.



**2010 Ischemic Rate (per 1000)**



# Maps



# Proposed Solutions

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- Policies that protect tenants and homeowners
- Preservation and creation of affordable housing
- Stabilization of existing communities
- Displacement prevention
- Participatory planning

# Proposed Solutions (Continued)

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- History of disinvestment in poor, predominantly minority communities
- Housing policy, such as redlining and exclusionary zoning
- Provide vouchers that cover increased rental costs to renters and to existing business owners
- Offering low-cost guaranteed home loans
- Affirmatively promote fair housing

# Final Thoughts

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- Gentrification very controversial and polarizing
- Displacement not an inevitable consequence of development
- History of disinvestment in neighborhoods has indirectly led to gentrification
- Associated with adverse health outcomes, such as ischemic heart disease
- Health data collected at a smaller scale necessary to examine neighborhood-level effects of gentrification
- Healthy food stores not a panacea for adverse health outcomes in poor neighborhoods