Urban Parks and Gentrification

How park proximity and economic indicators intersect in Tampa block groups.

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Introduction

- Widespread urbanization shapes the urban environment, extending to accommodate increasing populations.
- While these changes often happen at the fringe of sprawl, they also occur toward urban centers, marked by gentrification and redevelopment.
- These changes for often see renewal projects to make places more “livable,” including green spaces and parks.

Urban Parks and Gentrification

- Urban parks often benefit cities, either in the perceived beauty or in residents' health.
  - Parks help promote individuals' personal health (Moyle & Weiler, 2017; Maller et al., 2006).
- Parks are often a privilege, as low-income and minority groups often have less access to well-maintained parks and green spaces (Rigolon, 2016).
- When well-maintained parks do come to lower-income neighborhoods, it can attract new businesses and increase nearby housing values (Wang et al., 2024).
- These changes can then contribute to gentrification, where higher-income families displace and/or replace lower-income families (Hamnett, 2021)

Objective and Study Area

- The objective of this research looks at how changes in statistical indicators of gentrification are spatially distributed near urban parks.
- Study Area: The city of Tampa has experienced significant growth over the last few decades.
  - Studies regarding gentrification in Tampa (Tedesco et al., 2022; Buckman et al., 2019) have used case studies of redevelopment projects and county-scale analyses.
  - Additional attention toward park proximity can highlight their role in supporting gentrification.
- Statistical Indicators: the statistical indicators used to represent gentrification are median house value and household income
  - House values can increase due to park proximity as an amenity for living in the area.
  - Household incomes can change to reflect the socioeconomic status of nearby residents.
  - Data retrieved from United States Census Bureau (USCB)

Methods

- To find near-park neighborhoods and attach statistical data to them, GIS can help with this process.
- Using city park locations (City of Tampa, 2018), we can use a 0.25-mile buffer around each to find nearby block groups.
  - The 0.25-mile buffer represents a relatively accessible distance to these parks by foot if no other means of transportation are available.
  - Block groups represent neighborhoods as census tracts would be too generalizing, and data for individual blocks were unavailable. Block group location data comes from USCB.
- Exporting block groups intersecting with the buffer gives us locations to subset the statistical data.
  - A city of Tampa boundary (2024) was used to export these block groups again, so only groups in the city were of focus.
  - An identical-to spatial join between 2013 and 2022 block groups helped to find identical areas.
- Statistical data can then be joined to matching block groups and exported for comparison

Methods

- With the spatial subset, using statistical data from the USCB can help signify any neighborhood changes.
  - Estimate Median House Value B25077 for 2013 and 2022.
  - Estimate Median Household Income B19013 for 2013 and 2022.
    - 2013 were adjusted for inflation to match 2022.
- Data from each year and topic will be compared using paired t-tests to determine if house values and household incomes have significantly changed over time.
- House value and income growth will also be calculated using the formula:

$$PR = \frac{(V_2 - V_1)}{V_1} \times 100$$

PR = Percentage Rate (%) V_2 = Value in 2022 V_1 = Value in 2013

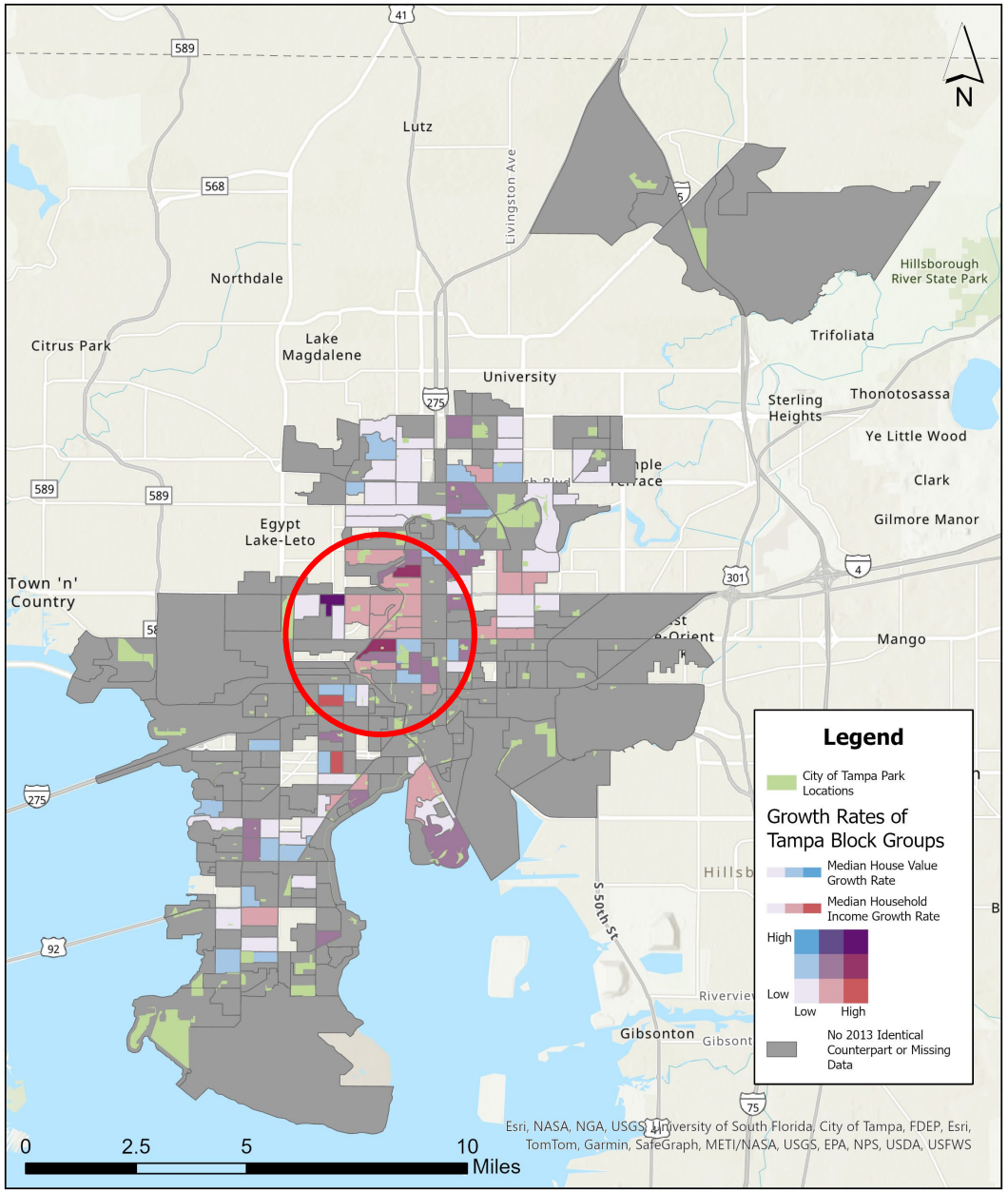
- A map and graphs of house value and income growth rates will also help to show spatial and statistical trends amongst the block groups.

Mapping

- While most block groups are within 0.25 miles of a park, only a portion have remained spatially consistent between years.
- Bivariate symbology helps to show the diverse combinations of growth rates between house values and incomes.
- Most block groups have seen relatively low growth of both house value and income.
- Higher house values with lower income change are distributed throughout Tampa.
    - Property values are going up, but resident populations likely remain consistent over time.
- Low house values increases and higher income change cluster in the center of the map.
    - These areas may be experiencing gentrification, as the increase in median income can represent wealthier families moving into the area.

Growth Rates of Estimate Median House Values and Household Incomes in Tampa Park-Adjacent Block Groups 2022

Map by Nicholas Stanley



T-tests

- T-tests between median house values and median income show significant differences between 2013 and 2022.
- Median house values see an average increase of more than $170,000.
- Median incomes see an average difference increase of more than $20,000.

Year	*Mean*	*Standard Deviation*	*Standard Error of the Mean*	*Number of Observations*	*Mean Difference*	*t-Statistic*	*Degrees of Freedom*	*p-Value*
2022	417041.1	348001.7155	32883.07125	112	178684.447	5.222	111	<0.0001
2013	238356.6	208735.0425	19723.60759	112				

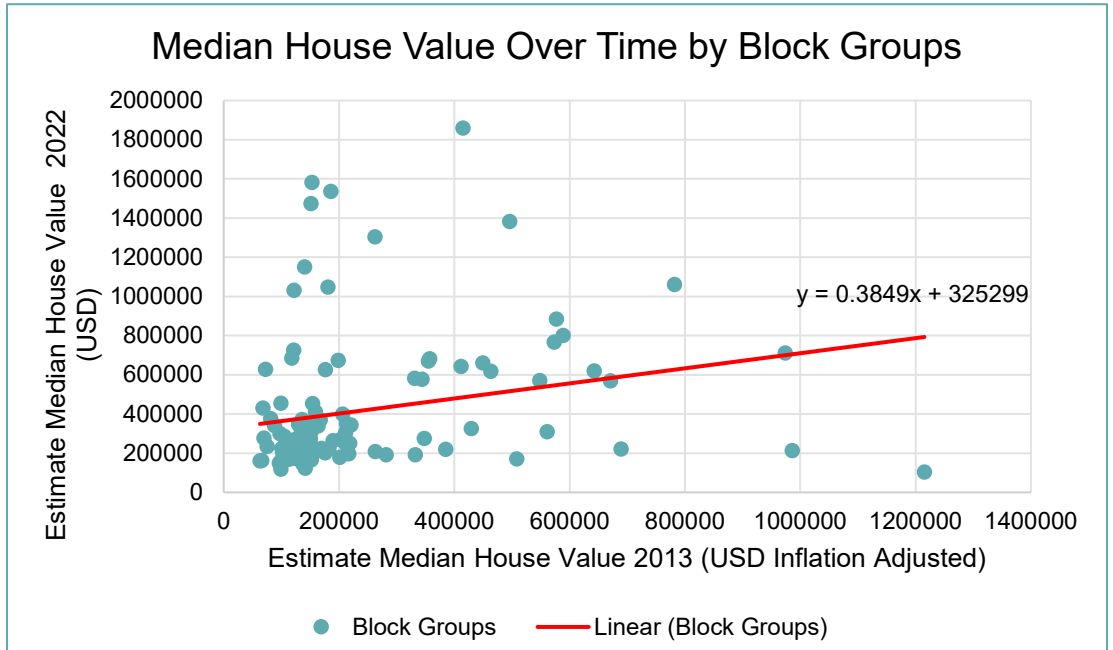
Paired t t-test results for Estimate Median House Value by Block Group

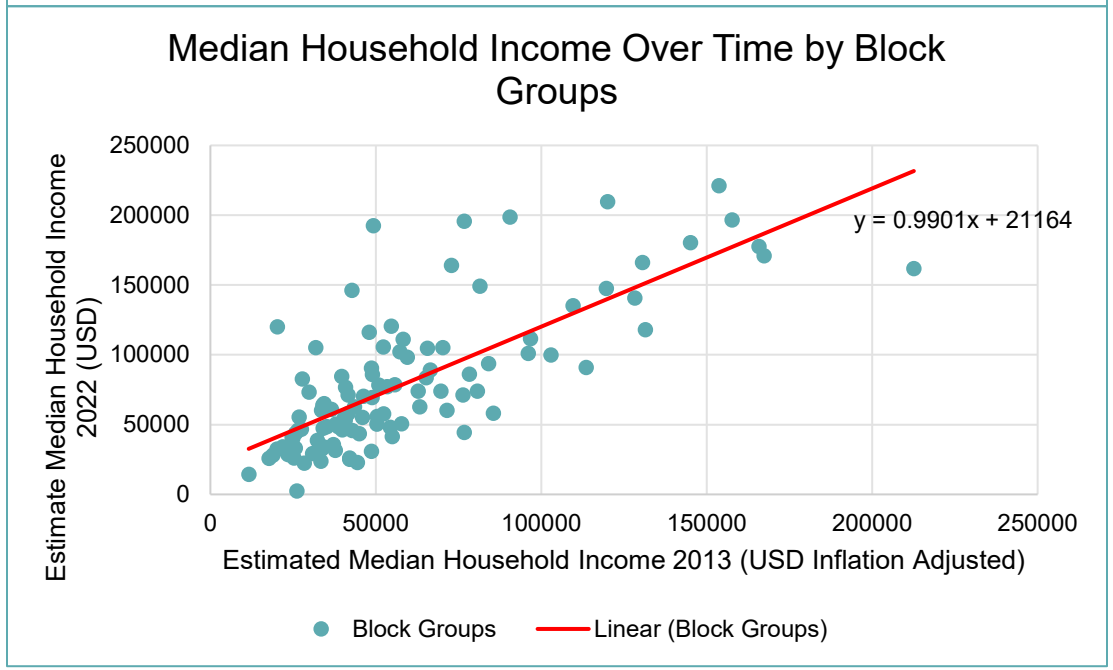
Year	*Mean*	*Standard Deviation*	*Standard Error of the Mean*	*Number of Observations*	*Mean Difference*	*t-Statistic*	*Degrees of Freedom*	*p-Value*
2022	79894.19	49932.05045	4872.8691677	105	20549.95356	6.4097	104	<0.0001
2013	59344.23	37960.29195	3704.545168	105				

Paired t t-test results for Estimate Median Household Income by Block Group

Graphing

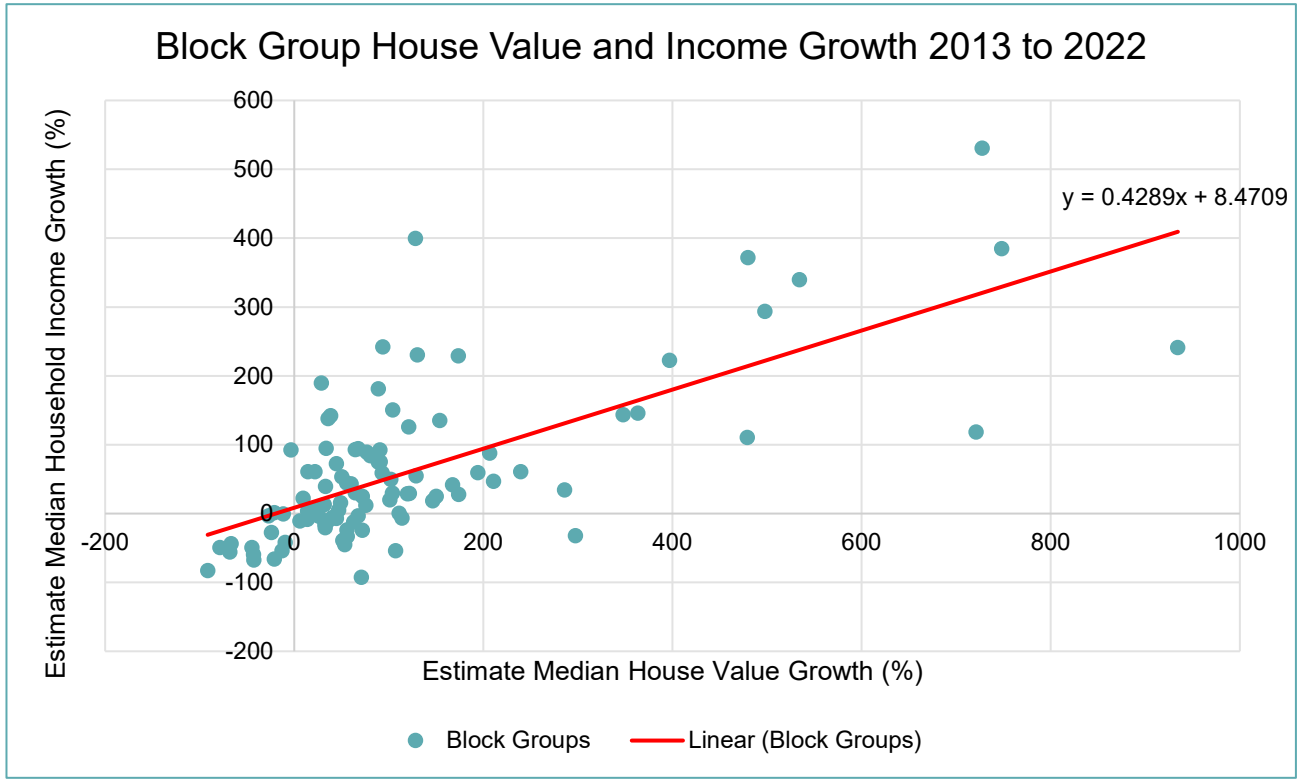
- While both see increasing trends, house values have a gradual increase while incomes are more consistent.
- Some block groups with median house values around $200,000 in 2013 have increased over $1,000,000.
  - Some groups appear to lose median value.
- Several block groups with increased median incomes show large differences above the trend line.
  - These changes are located towards the left side of the graph, where incomes were previously lower in 2013.
- Both graphs show significant changes within individual block groups.





Graphing

- Comparing growth rates of both topics helps to see the relationship between changes.
- While most block groups are clustered around similar values, several have higher increases in house value, income, or both.
- Block groups with higher house value growth compared to income should be of notice.
  - A quartile difference between direct housing and income values reflects areas of potential gentrification (Bunten et al., 2024).



Discussion and Limitations

- Wider growth in house values and income contains more diverse combinations.
  - Differences in the relative growth rates could present different situations between block groups.
  - Negative growth rates were also present within the broader increases.
- Further investigations into block groups with higher house values and lesser income growth are especially worth further research to identify areas of gentrification.
  - Gentrification in these block groups may have consequences in the future for adjacent groups.
- Research limitations:
  - Proximity to parks could better reflect actual distances, as generalization by the 0.25 buffer leaves out the nuance of real-world distances.
  - House values may not be an appropriate indicator of the costs for other kinds of housing, such as rentals (Bunten et al., 2024).
  - Park locations were not stagnant between 2013 and 2022 and was unable to account for any changes that could affect park availability such as openings or closures.
  - Containing the study area to within the city's boundaries does not wholly reflect the local urban environment as built areas exist outside.

Conclusion

- Gentrification and redevelopment are a complex aspect of cities and the urban environment.
- While efforts to renew can increase the amount of parks and green spaces available, unintended consequences can result in the displacement of local families.
- Having methods to locate gentrifying areas or those at risk can help to connect the phenomena to the landscape.
- Future research can look more closely at the individual and community scale, seeking direct perspectives of park access and housing amongst socioeconomic groups.
- Exploring considerations on how communities can benefit in the increase of park access without the risks associated with gentrification and redevelopment

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