

Measuring the Degree of Gentrification in Texas

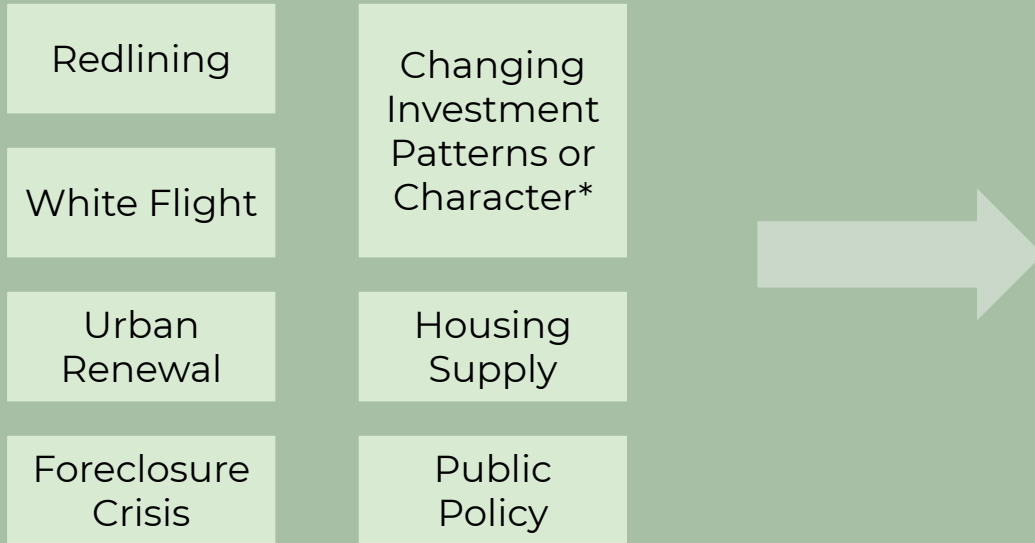
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Dietrich Senior Honors Thesis
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Research Questions:

- ❖ Are Houston, Dallas, Austin, and San Antonio experiencing gentrification?
- ❖ If so, what is the degree of gentrification?

What is Gentrification?



Gentrification

Renewal and rebuilding of often low income, blue collar, minority neighborhoods

Influx of educated, often white, middle class residents

The original neighborhoods are often physically deteriorating and the residents are displaced due to higher cost of living.

*: Think of high-end expensive yoga/barre studio in a lower middle class, blue-collar community.

Example of Gentrification: Houston



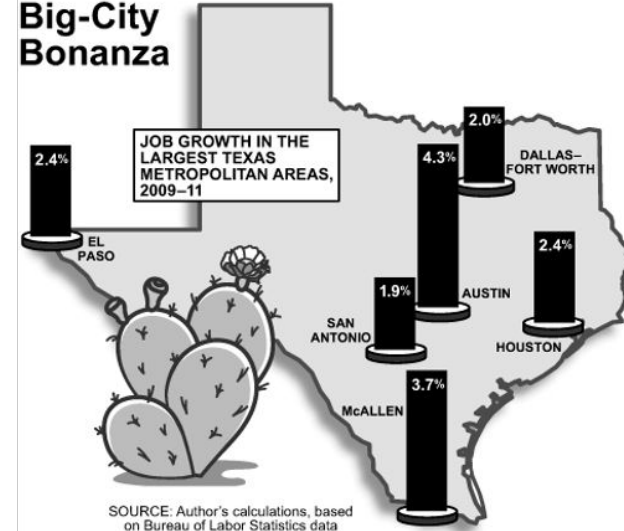
Qualitative Narrative

There's a lot of information on gentrification in Texas from news papers, nonprofits studying changing neighborhoods, as well as The Federal Reserve of Dallas. From these sources I found how gentrification in Texas differs from the narrative nationally:

- ❖ Gentrification might not manifest in the usual form of lower income communities of color being driven out by unaffordable housing as housing is relatively more affordable
- ❖ Texas is home to many races. Unlike other cities in America: cities in Texas are not a black white dichotomy. Texas is home to many Hispanic residents that changes how we might see gentrification
- ❖ Houston, Dallas, Austin are growing at incredibly fast rates compared to the national average
- ❖ San Antonio is growing slower than the other three cities and is less diverse
- ❖ After the 2020 census, Texas gained two congressional seats due to a larger influx of residents and businesses

Figure Five

Big-City Bonanza



Difficulty in Quantifying Gentrification

Snapshot Style of Analysis

Researchers compare plots from two different years



significant changes?

Gentrification's happening

These may fail to adequately capture smaller yearly residential changes in that metropolitan area if it isn't some pointed event like San Francisco's second tech boom.

Lack of Viable Datasets

- ❖ Researchers often only have access to datasets with spatial units that are larger than the neighborhood level
 - By zip code, census tract, etc. but these areas of space might be far too large

Gentrification can be seen within a neighborhood, from one block to another. Aggregated datasets are often too large to see the slow movement of communities in and out of a certain neighborhood.

Datasets and Important Variables

Datasets

- ❖ US Census Data - American Community survey (5 year summaries) for 2010 to 2019
 - Merged individual datasets for Economics, Demographic, Housing, and Social variables

Variables in my Analysis

- ❖ household income
- ❖ home value
- ❖ median rent
- ❖ percent black
- ❖ percent Hispanic
- ❖ age group
- ❖ percent who have received their bachelor's degree
- ❖ total population of a tract

Methods and Results

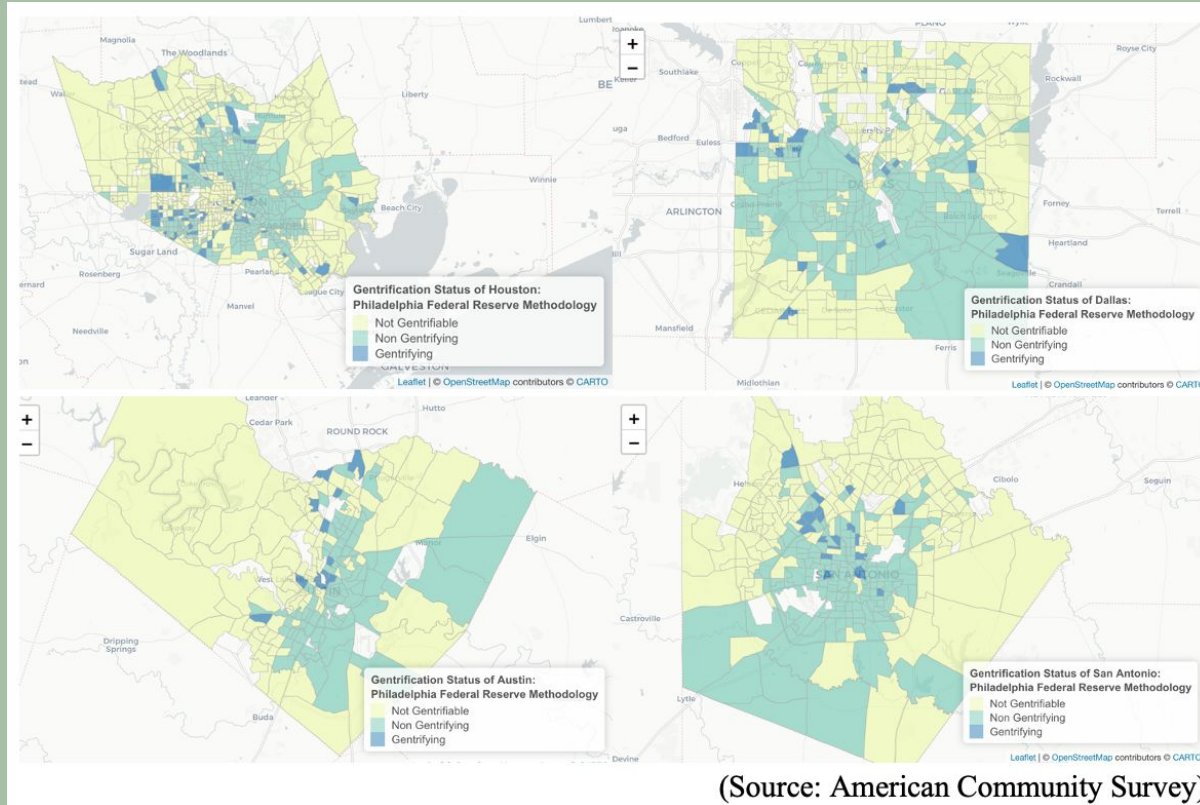
The three main methods I used in analysing the existence and degree of gentrification are:

- ❖ Gentrification maps (as explained above)
- ❖ Generalized Linear Models (GLM) is a flexible generalization of ordinary linear regression that allows for response variables that have error distribution models other than a normal distribution.
- ❖ Generalized Additive Models (GAM) which are very similar to GLMs but they provide more flexibility. They are not restricted to linear interpretations of the variables and the datasets.

Overall we find that:

- ❖ *Gentrification is happening* at various degrees in Texas
- ❖ Houston is gentrifying the most, then Dallas, Austin and finally, San Antonio
 - Based on *race, housing prices (rent and home value) and gentrification levels*
- ❖ We find that over the past 10 years more *white and educated people have moved into city centers* and that home values are increasing in those areas, previously predominantly rental area.
- ❖ Further, that most of these *relationships aren't linear*. Home value follows a negative parabola, percent educated is logarithmic and underprivileged minority percentage is linear

Existence of Gentrification

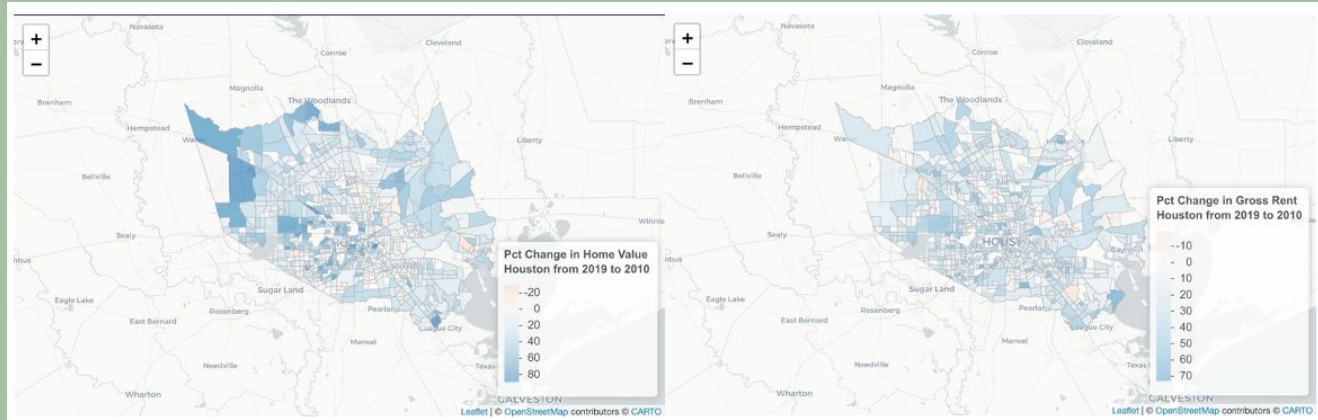


From top left
clockwise: Houston,
Dallas, Austin, San
Antonio

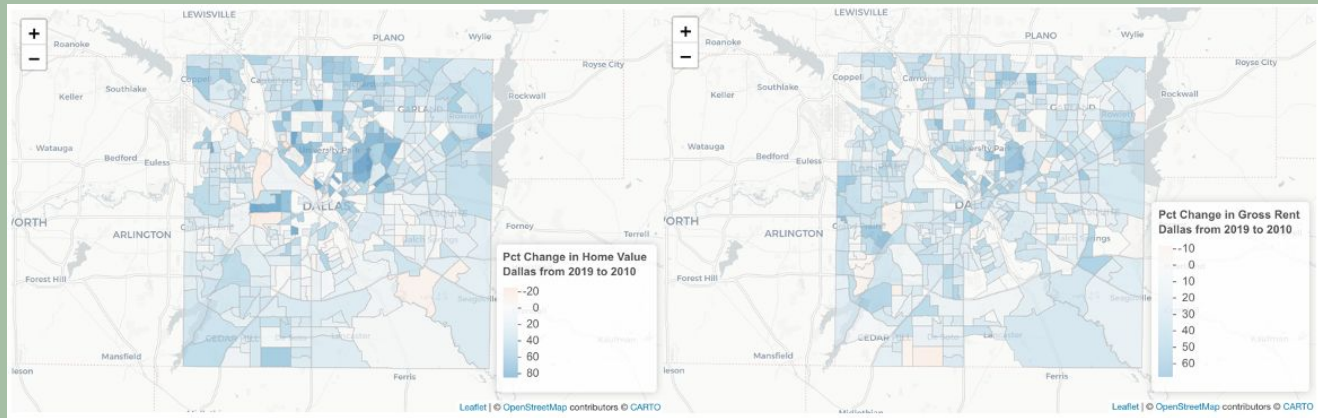
(Source: American Community Survey)

Degree of Gentrification – Economic Factors

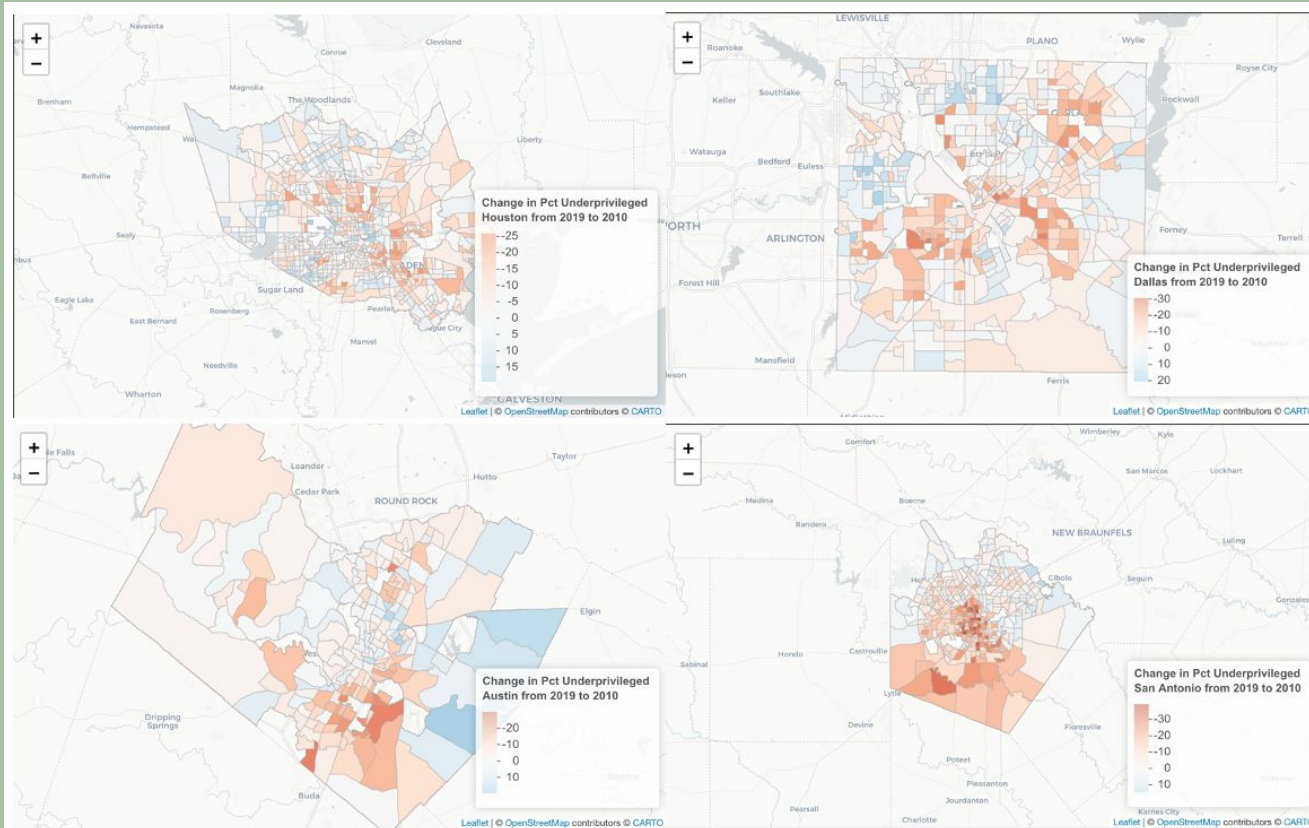
Houston:



Dallas:

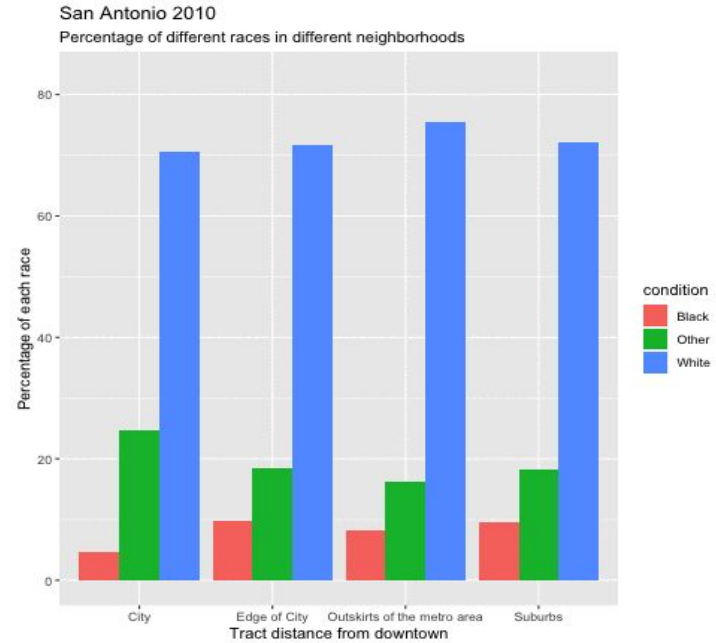
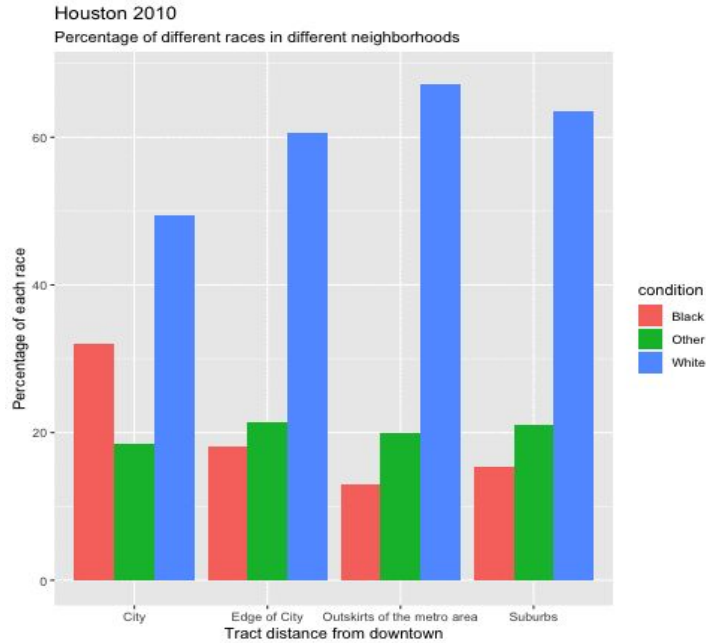


Degree of Gentrification - Racial Factors

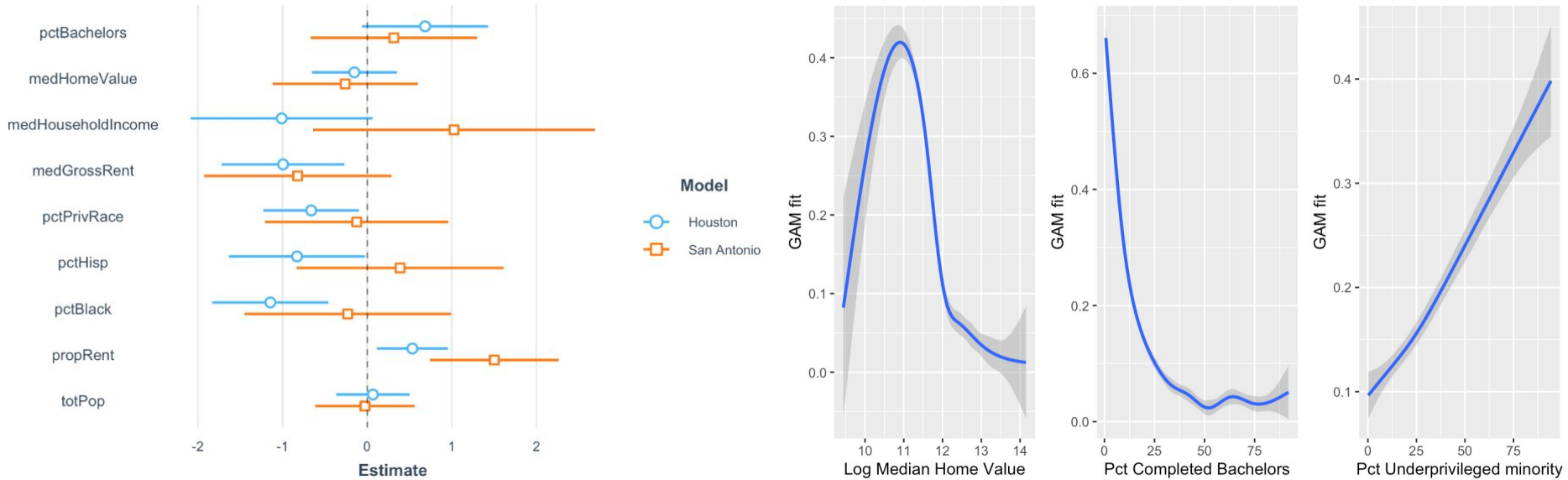


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Relationship between Gentrification, Economic Factors, and Race



GLM and GAM



Left: Generalized Linear Model (GLM) variable confidence intervals

Right: Generalized Additive Model (GAM) predicted values for certain variables

Main Takeaways

- ❖ Gentrification is happening in Texas
- ❖ Houston is gentrifying the most, followed by Dallas, Austin, and lastly San Antonio
- ❖ Gentrification looks like higher income, white, educated residents moving into the city centers
- ❖ Not a clear trend where minority residents that left, moved to
- ❖ Negative parabolic relationship for property value, Logarithmic relationship for percentage of residents educated and a linear relationship for percent underprivileged minorities
- ❖ In the future, I'd like to include a variety of data sources(hopefully with more granular data) and study gentrifications effects on public education.

Thank You!