BU Spark

Southwest DC City Council

Team 2 - Members

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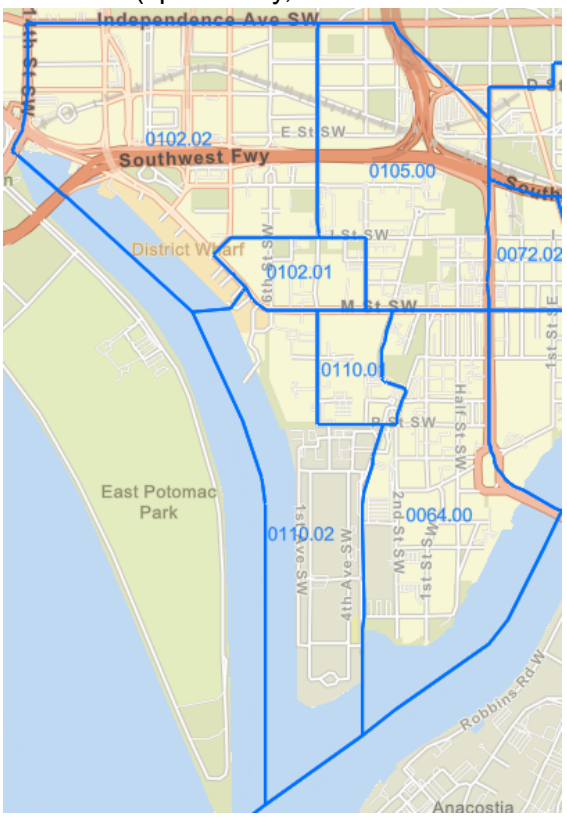
Structure

Overview & Goal of Project

The Southwest District has seen a lot of change in the last few years and certain areas have been completely overhauled (construction of wharf, stadiums, etc.). This has caused a clear distinction between the west and the east part of the district (specifically, Tracts 102 and 110 on the west, and Tract 64 and 105 on the east).



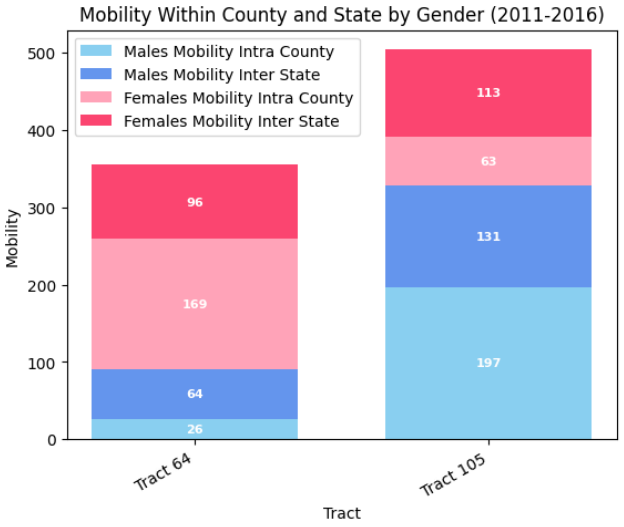
There also are 3 big public housing communities (Greenleaf Gardens, Syphax Gardens, and James Creek) in the east part of the Southwest District and this so called “neighborhood within a neighborhood” faces a lot of problems that are associated with generational poverty, such as high rates of unemployment, community violence, substance use, chronic disease, teen pregnancy, and food insecurity.

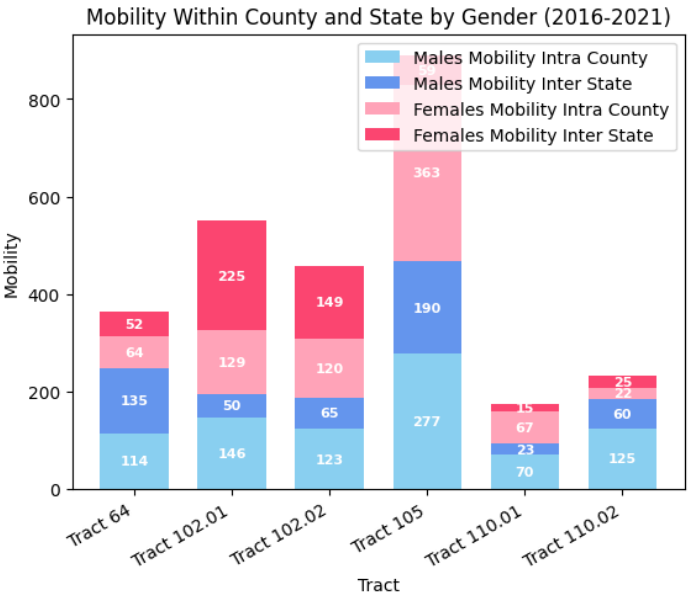
The goal of this project is to provide a data dashboard which shows that these issues exist, so that these visualizations can be used as arguments to convince stakeholders in this district to aim for change. Furthermore, by analysing certain variables and inspecting correlations between them, we aim to detect underlying issues that perpetuate the issue of generational poverty so that decision-makers have an easier time approaching the task of improving the status-quo of this district.

Analysis - After Deliverable 2

Mobility

1. Mobility by Sex (Revathi)





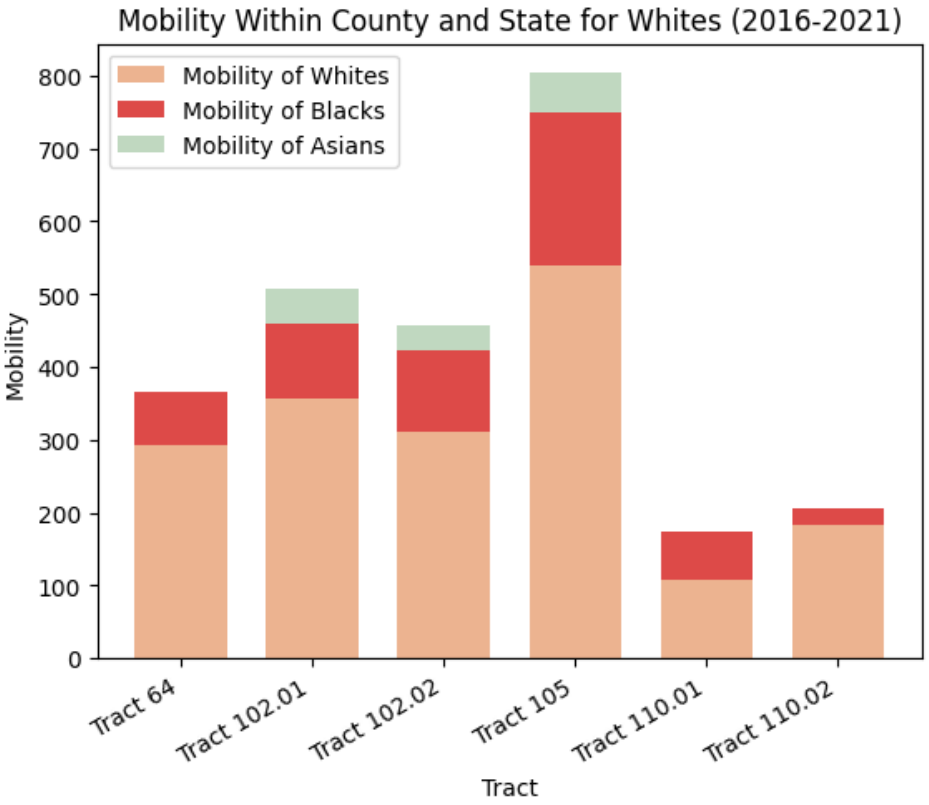
From the given data, we can infer that a higher proportion of men have moved within the county, within the state, and from a different state compared to women in Tract 64 and Tract 110.02. This suggests that men are more mobile than women in terms of changing their place of residence.

The lower percentage of women who have moved within the county, within the state, and from a different state in Tract 64 may indicate that women are more likely to stay in their current location, possibly due to family or work-related reasons. It could also be a result of cultural or societal norms that place greater emphasis on men being the primary breadwinners and having more opportunities to pursue career growth or explore different locations.

However, in Tract 102.01, Tract 102.02, Tract 105, Tract 110.01 we don't find any disparities.

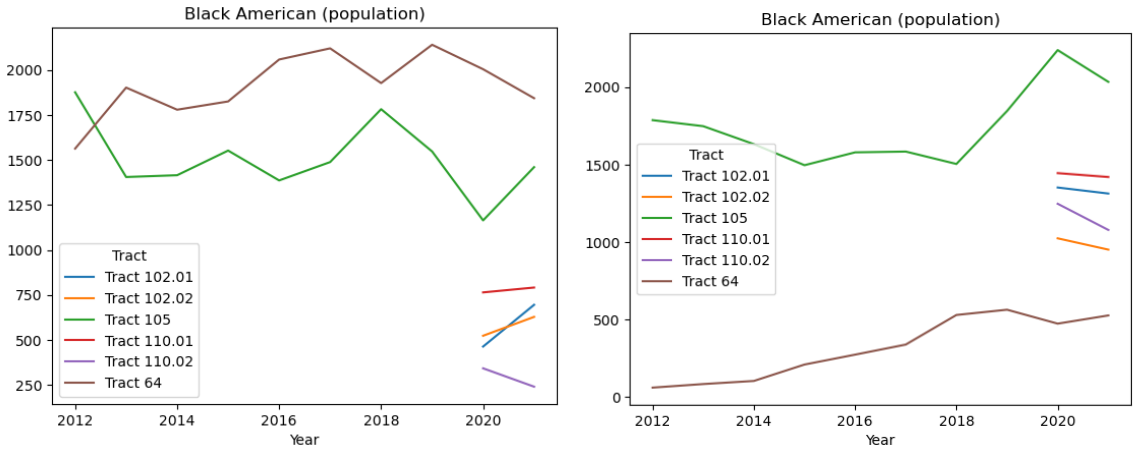
It can also be observed that the mobility among women has increased over the decade in Tract 64 and decreased in Tract 105.

2. Mobility by Race (Revathi)

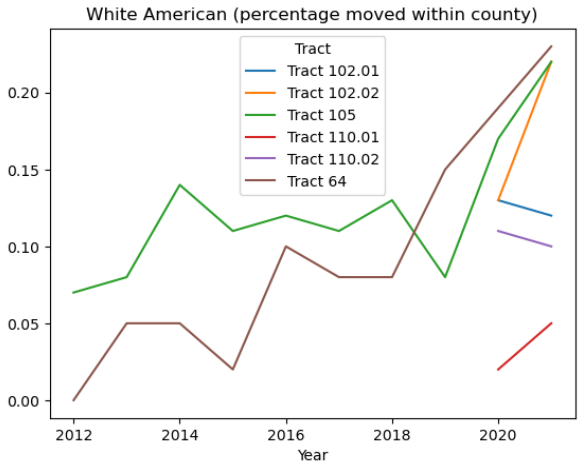


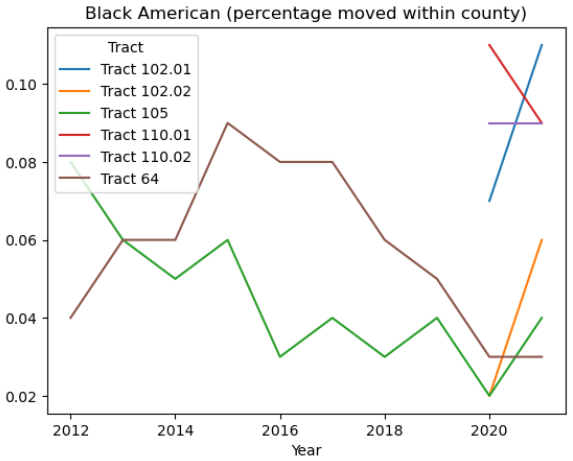
The mobility among African Americans is consistently less than the mobility among White people.

3. Mobility of Population of different races - cont. (Chengjie Gu)

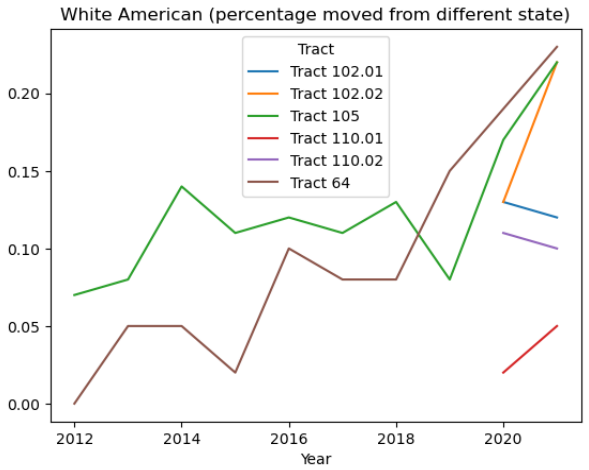


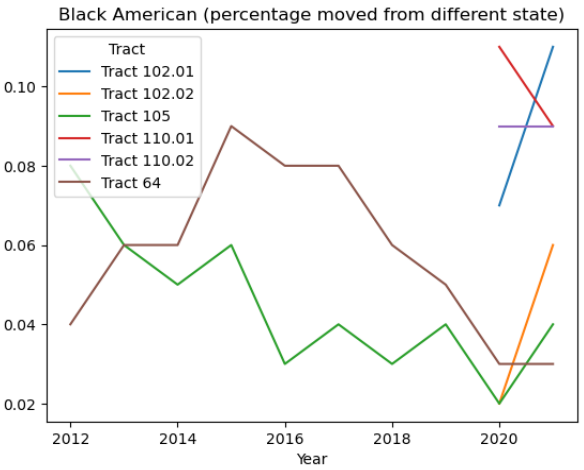
From the graph, there is a clear complementarity between Tract 64 and Tract 105, with one;s population's downshift coincides with the increase of the counterpart. It is highly possible that a consistent inter-flow of population is happening in these districts.



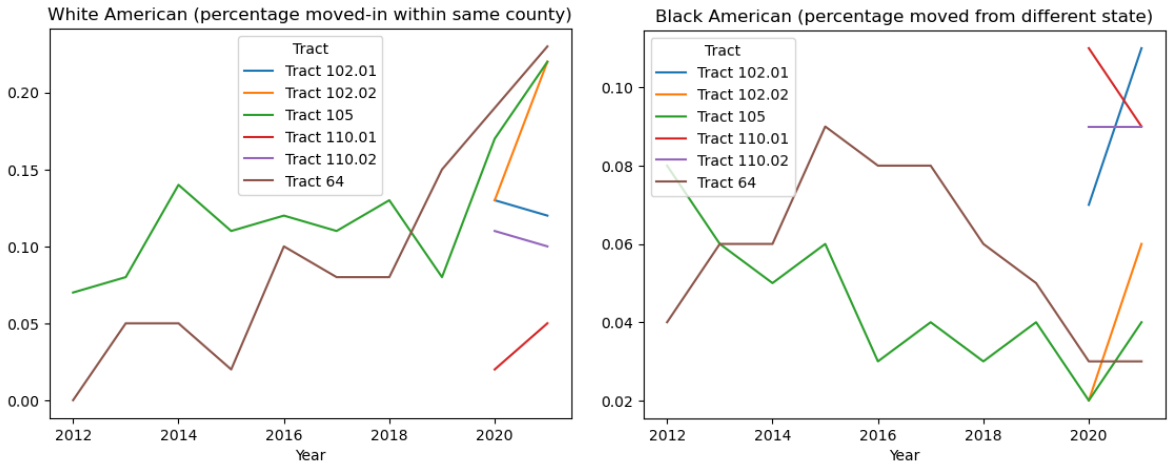


There is a clear increase in the movement of white citizens in most census tracts of Southwest D.C.. There is only a minor change of black citizens within the county for all census tracts.





There’s a significant increase of inflow of white population into all tracts of the Southwest D.C..
There’s a significant decrease of inflow of black population into all tracts of the Southwest D.C..
From the previous findings, African Americans comprise the largest proportion of the population under poverty.



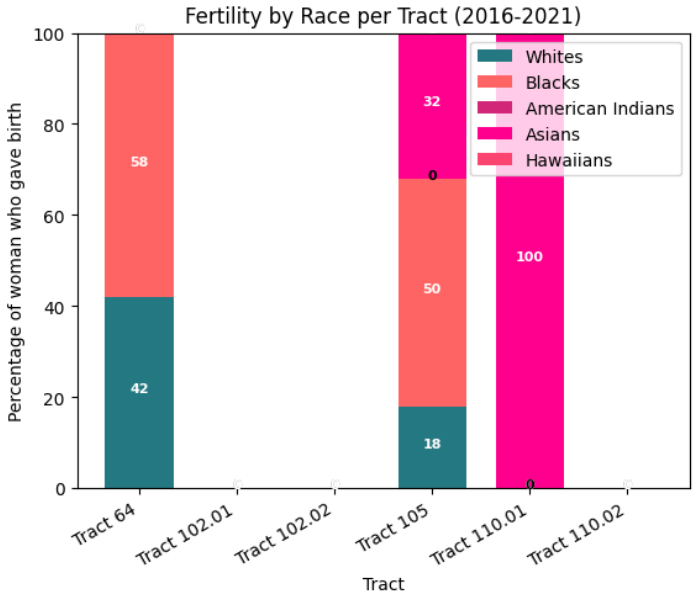
It is clear that African Americans, and Hispanics, have a significantly lower tendency of moving within the same county (in this case, Washington D.C.). Meanwhile, analysis on the geographical movement of the white population sees an uprising moving rate within D.C.. Also, there is a lower geographical movement percentage of residents in the low-income tract (Tract 64) compared to the ones in higher-income tracts.

It is possible to predict that , with demolishing financial conditions, residents would fail to afford the life in those tracts with convenient while expensive QOL, and moving to tracts with lower cost of living. This explains why, though other tracts see a economical thrive in the last decades, the average income of the low-income tract (Tract 64) didn't benefit as much as others.

To make policy suggestions, it will be regionally beneficial for the local government to make infrastructure upgrades through districts to make moving from tracts to tracts indifferent. Furthermore, a deep analysis in the reasons and feedback of residents moving within the county is needed to be made for accurate policy decisions.

Fertility

1. Fertility by Race (Revathi)

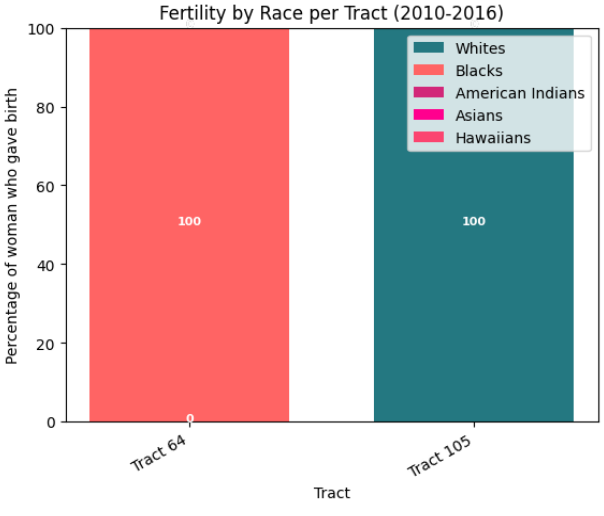


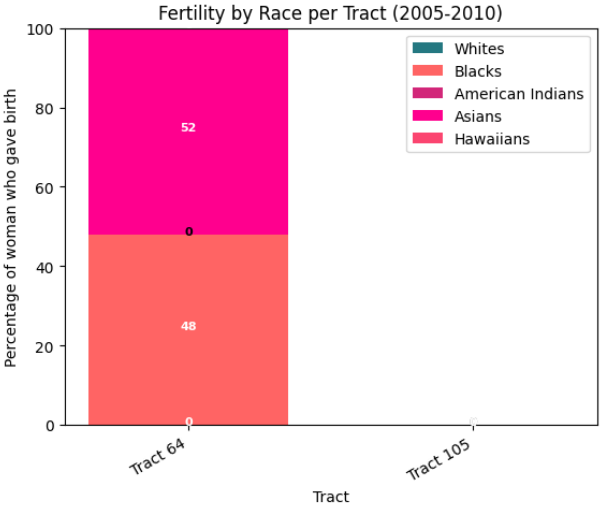
The graph presents an interesting pattern where, despite the Black population in Tract 64 being three times that of the White population, the percentage of White women who have given birth is similar to that of Black women. This could indicate a potential disparity in healthcare access and resource availability for Black women in the area, which is further compounded by higher poverty rates among the Black population in Tract 64.

Poverty can act as a barrier to accessing healthcare services and limited family planning among low-income individuals. The higher poverty rate among the Black population in Tract 64 suggests that Black women may face additional challenges in accessing affordable and high-quality healthcare services to support their reproductive health.

Moreover, the lack of resources and financial constraints experienced by Black women may further contribute to the disparity in birth rates observed in Tract 64. For example, limited access to transportation or the inability to take time off work may make it difficult for Black women to attend healthcare appointments, resulting in missed opportunities for family planning and other preventative care.

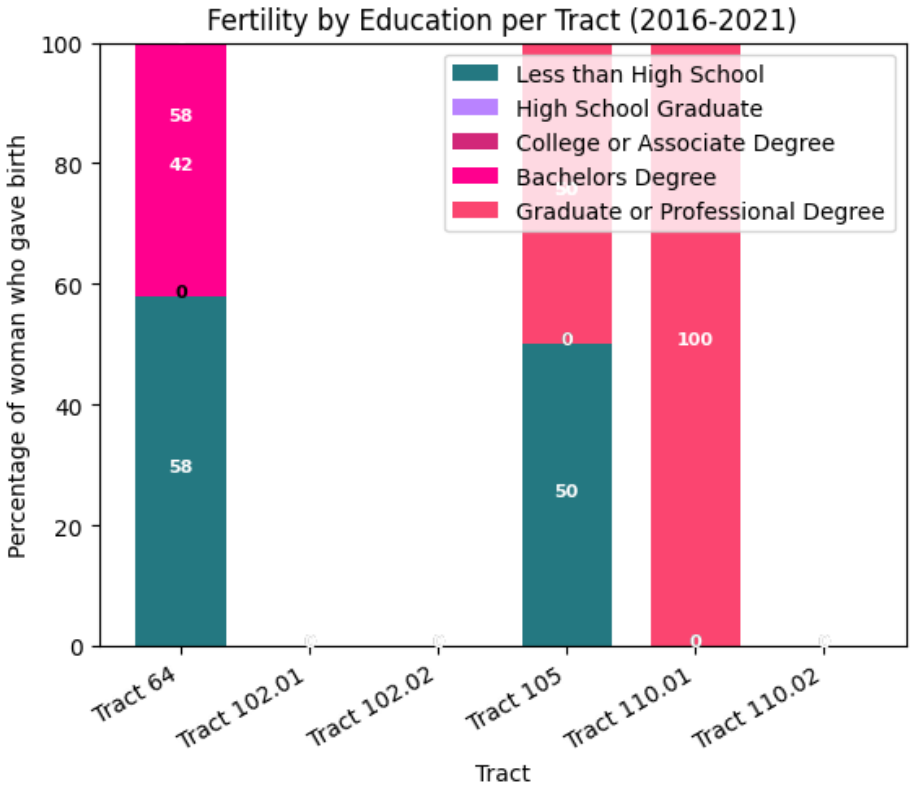
The trend is quite opposite in Tract 105, thereby further confirming the above analysis.

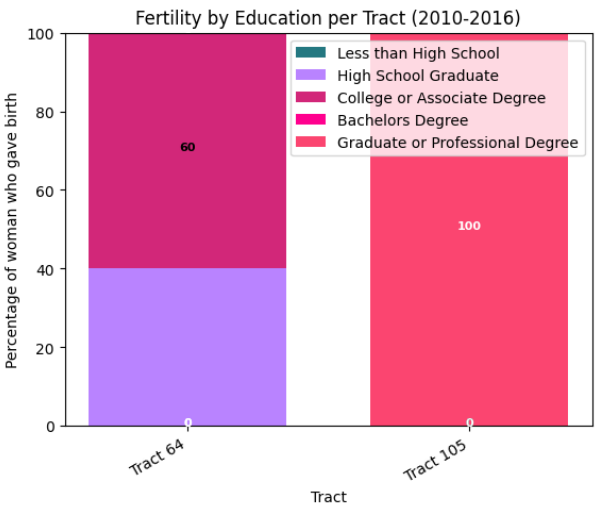


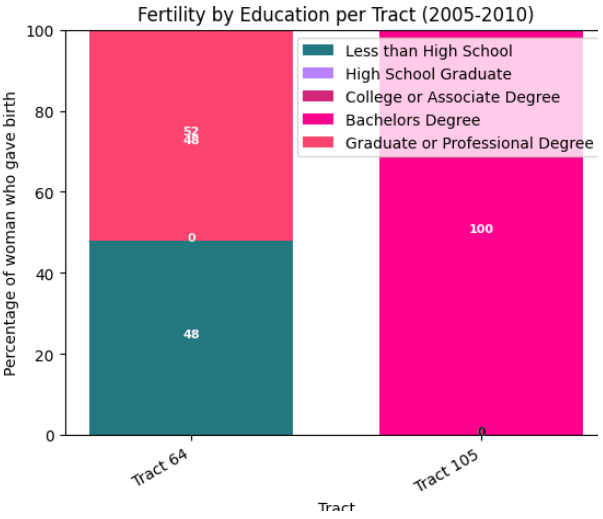


Although we don’t have sufficient data, it can inference that the trend is on a negative curve over the span of 10 years as there is a considerable decrease in percentage.

2. Fertility by Education







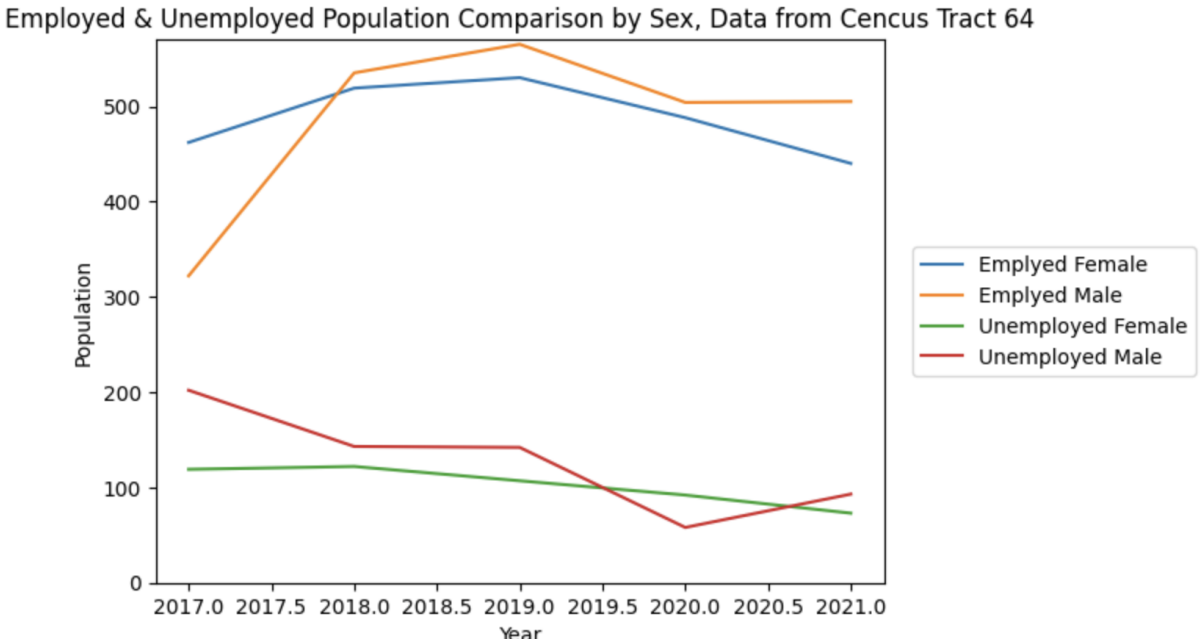
According to 2016-21 Analysis, the data shows that Tract 64 and 105 have a higher percentage of women who have given birth with education levels below high school, while Tract 110.01 has a high percentage of women with graduate or professional degrees. The differences in educational attainment levels could be due to several factors such as lack of access to educational resources, financial constraints, or other systemic barriers.

However, poverty rates in Tract 64 and 105 likely contribute to the disparities in educational attainment and birth rates. Poverty can limit access to resources and opportunities, making it more challenging for individuals to pursue education and career opportunities. This may be especially true for women, who may face additional challenges such as caregiving responsibilities and gender-based discrimination.

Observing the graphs generated for 2010-1015 and 2005-2010, we can observe that in Tract 64, the situation has gotten worse as Level of education among woman who given birth within the duration has considerably dropped over the span of 10 years, while in Tract 105, it has improved.

Employment

1. Employment by Sex (Mingxin)



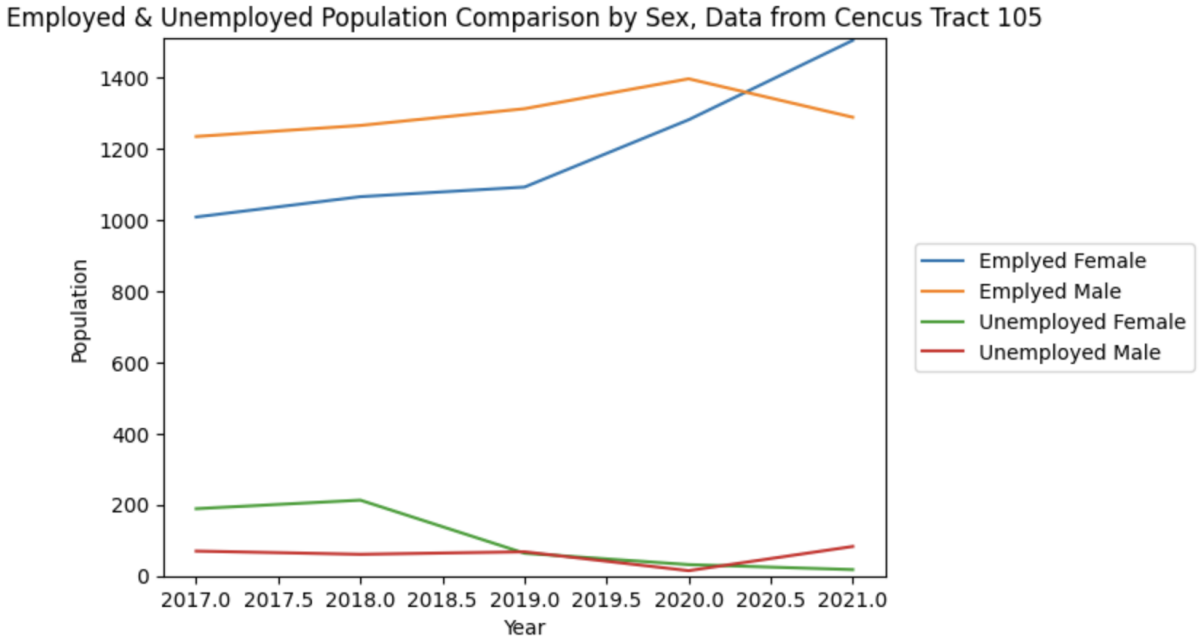
From the given data across five years for Census Tract 64, we can observe the following:

1. The Labor Force Participation Rate has fluctuated over the years, with 2018 showing a significant increase compared to the other years.
2. The Employment/Population Ratio is generally higher for males compared to females from 2018.

From the differences between the two sexes, we can observe the following:

1. The Employment/Population Ratio is higher for males compared to females in most of the years, indicating that men are more likely to be employed than women.
2. The Labor Force Participation Rate for females is generally lower than for males, suggesting that fewer women are actively seeking employment opportunities compared to men.

This gender gap in employment opportunities can result in poverty among women, particularly in households headed by single mothers.
The data suggests that while there has been some improvement in the employment situation in Census Tract 64 over the past five years, there still exists a significant gender gap in employment between males and females. This could perhaps be due to a lack of opportunity for females or the necessity (especially for single mothers) to care for their child(ren) and the feeling that they are unable to look for a job, as they do not have enough time.
This could perhaps be fixed with measures such as affordable childcare and flexible work arrangements, among others.



From the given data across five years for Census Tract 105, we can observe the following:

1. The rate of female individuals who are employed (as indicated by the Employment/Population Ratio) has generally increased from 2017 to 2021. This suggests an improving female employment situation in this area.
2. The Labor Force Participation Rate has remained relatively stable over the years. Although the Employment/Population Ratio is generally higher for males compared to females in 2017 and 2018, the opposite scenario is more evident in 2020 and 2021.

Comparing Census Tract 105 with Census Tract 64, we can observe the following:

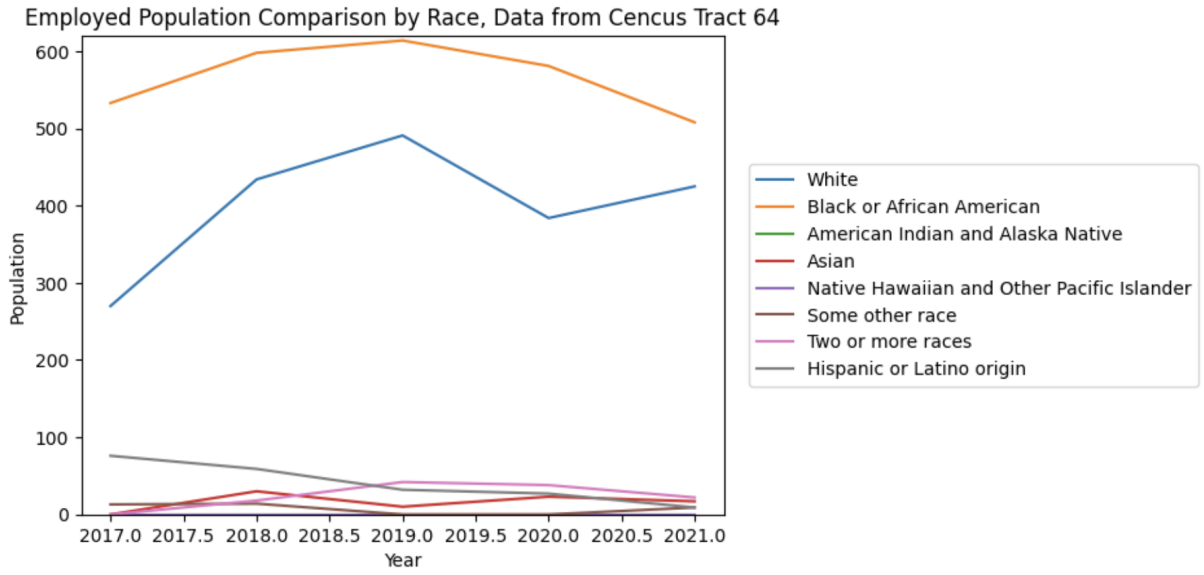
1. The Employment/Population Ratio for Census Tract 105 is generally higher than for Census Tract 64 in all years except 2017, suggesting a better employment situation in Census Tract 105.
2. The Labor Force Participation Rate for Census Tract 105 is higher than for Census Tract 64 in most years, indicating a higher proportion of individuals seeking employment opportunities in Census Tract 105.
3. The Employment/Population Ratio is generally higher for males in both Census Tracts, but the difference between males and females is smaller in Census Tract 105 compared to Census Tract 64.

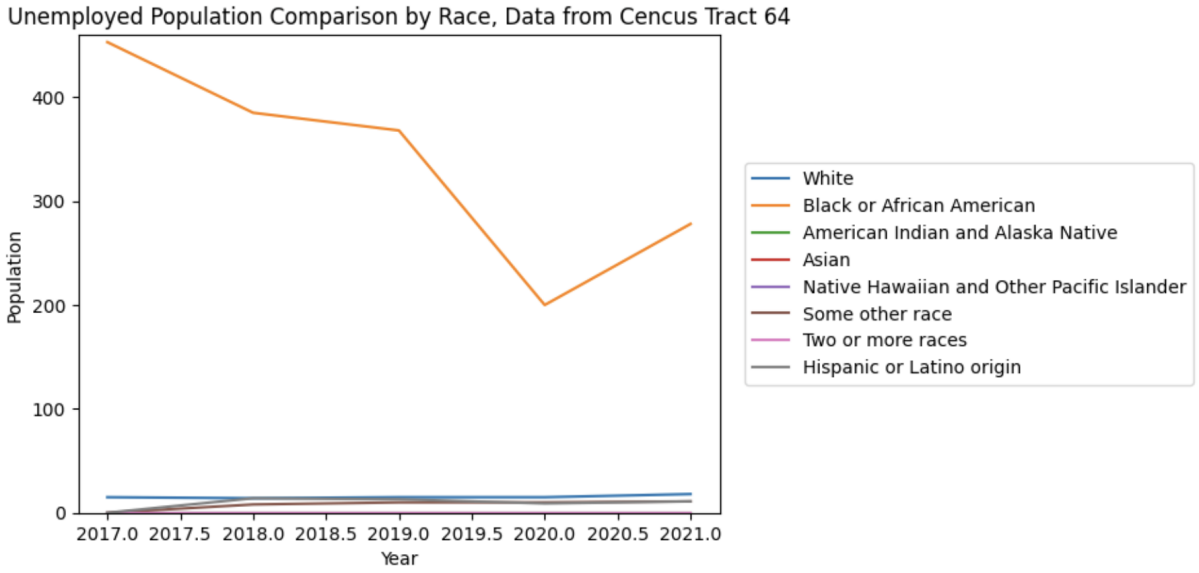
The data provided for Census Tract 105 indicates an improving employment situation for females in this area. The increase in the Employment/Population Ratio for females from 2017 to 2021 suggests that more women are gaining access to employment opportunities, which can help reduce poverty and income inequality among females.

Although the Employment/Population Ratio is generally higher for males in both Census Tracts, the gender gap in employment opportunities is smaller in Census Tract 105 compared to Census Tract 64. This can help reduce income disparities between males and females, which can contribute to lower poverty levels overall.

Overall, the data suggests that a healthy labor market with equal employment opportunities for both genders can help reduce poverty and income inequality in an area. Policies that promote equal access to education and training, affordable childcare, and flexible work arrangements can help address employment disparities and reduce poverty levels.

2. Employment by Race (Mingxin)

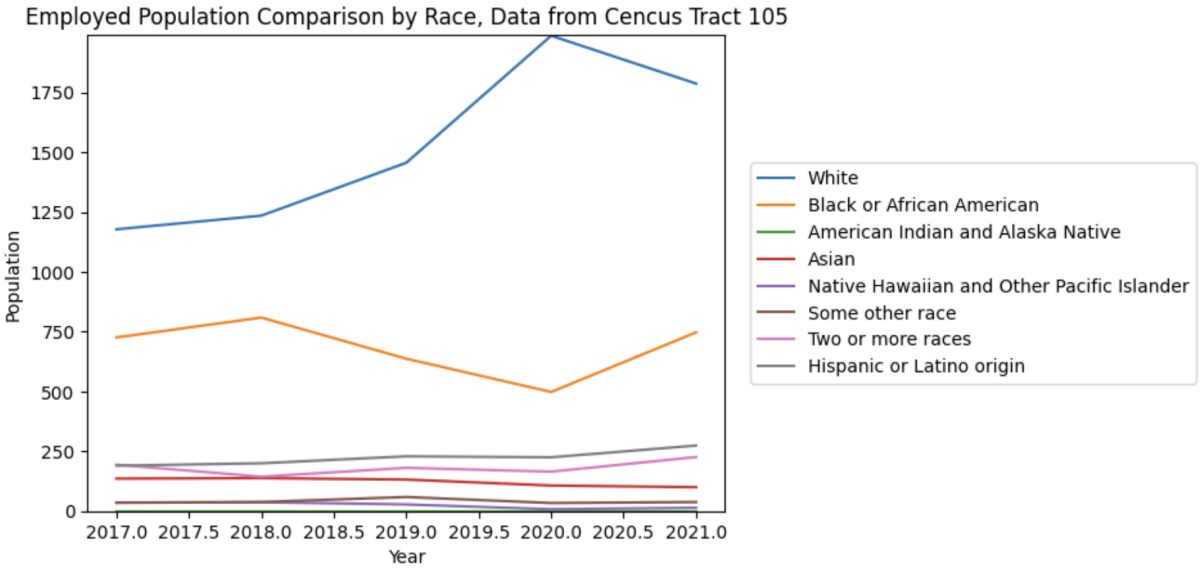


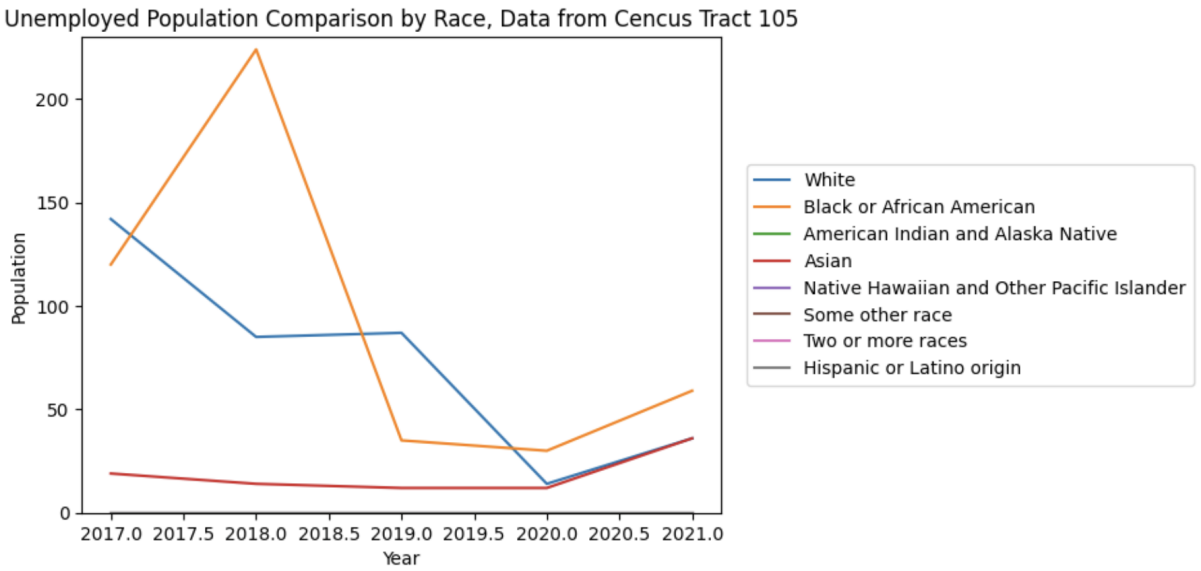


From the data among 5 years, we can see that the labor force participation rate and employment/population ratio have fluctuated for all races in Census Tract 64.

The data from Census Tract 64 highlights the existence of significant disparities in employment opportunities and labor force participation rates between different racial groups. These disparities can have a significant impact on poverty levels and income inequality in the area.

The disparities in employment opportunities between different racial groups may be the result of systemic issues such as discrimination, lack of access to education and training, and insufficient investment in job creation in certain communities. Addressing these systemic issues can help reduce disparities in employment and labor force participation rates, which can contribute to reducing poverty levels and income inequality in the area.





From the data among the 5 years, we can see some trends in the labor force participation rate and employment/population ratio for different racial groups in Census Tract 105:

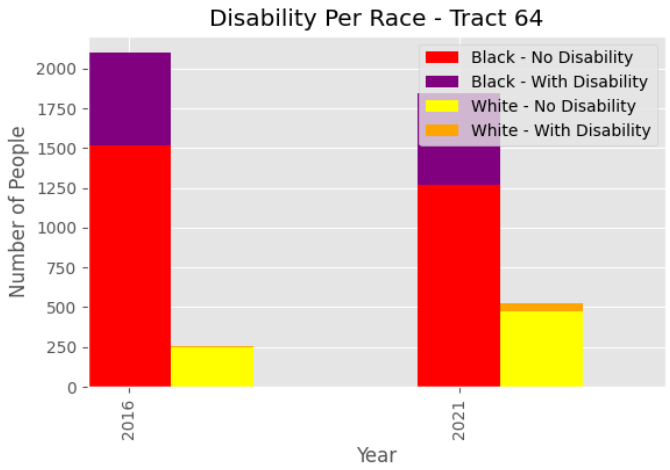
Labor force participation rate: The labor force participation rate for Hispanic or Latino origin (of any race) has increased from 74.8% in 2017 to 93.2% in 2021. The labor force participation rate for Black or African American alone has fluctuated, with a low of 44.8% in 2019 and a high of 56.1% in 2021. For other racial groups, the labor force participation rate has remained relatively stable.

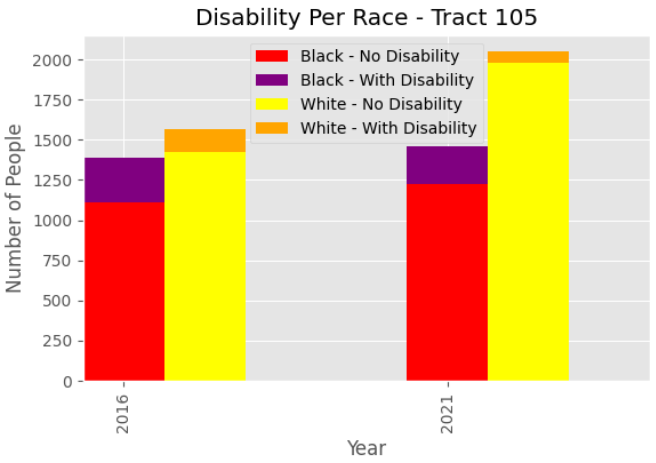
Employment/population ratio: The employment/population ratio for Hispanic or Latino origin (of any race) has increased from 9.8% in 2017 to 0% in 2021. The employment/population ratio for Black or African American alone has fluctuated, with a low of 2.5% in 2019 and a high of 4.5% in 2021. For other racial groups, the employment/population ratio has remained relatively stable.

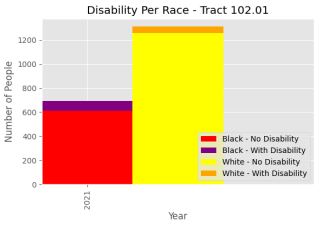
The data suggests that there are significant disparities in labor force participation rates and employment/population ratios between different racial groups in Census Tract 105. These disparities indicate that there may be underlying systemic issues related to employment and labor force participation that disproportionately affect certain racial groups, particularly Black or African American alone. These disparities could contribute to economic and social inequality, as individuals who are not participating in the labor force or who are unemployed may be at a higher risk of experiencing poverty.

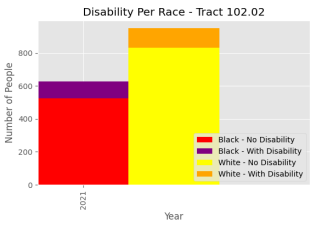
Disability

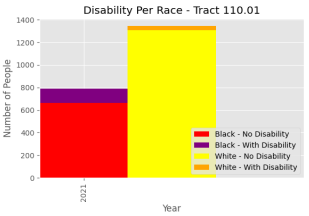
1. Disability Per Race (Jonas)

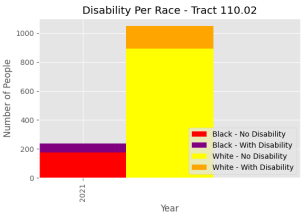






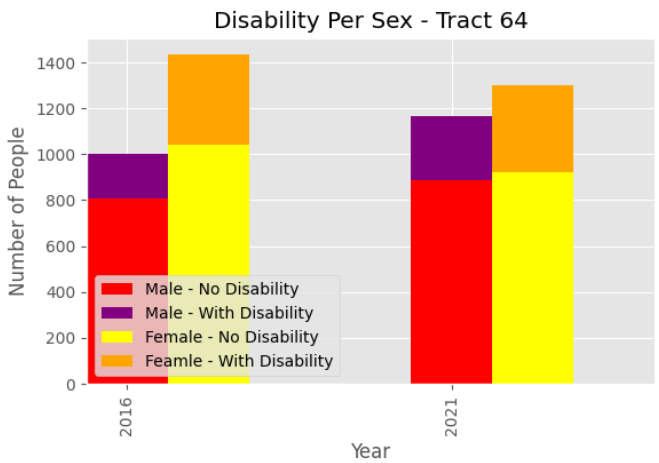


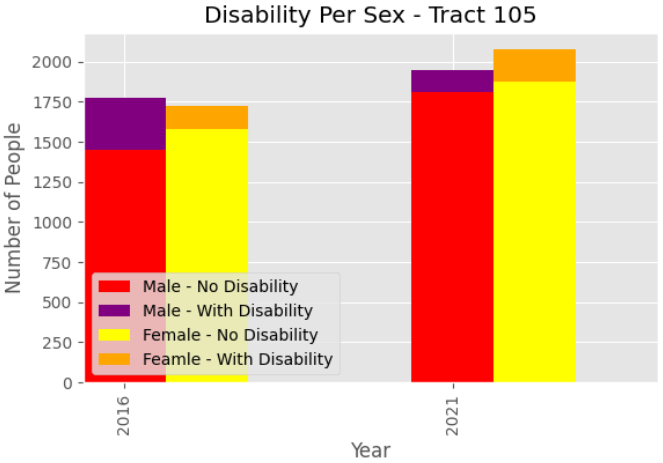




The White people living in Southwest have a relatively low disability rate across all tracts. Interestingly, the African American population has a significantly higher rate of disability than the White population in Tracts 64 and 105 (i.e. in those tracts that are “plagued” with generational poverty). In Tract 64, a fourth of the African American Population (that filled out this survey) is disabled.

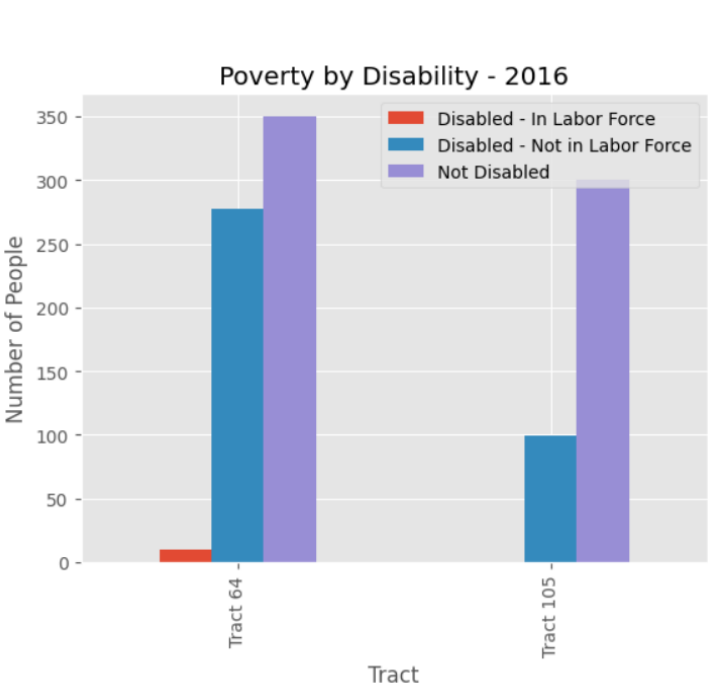
2. Disability per Sex (Jonas)

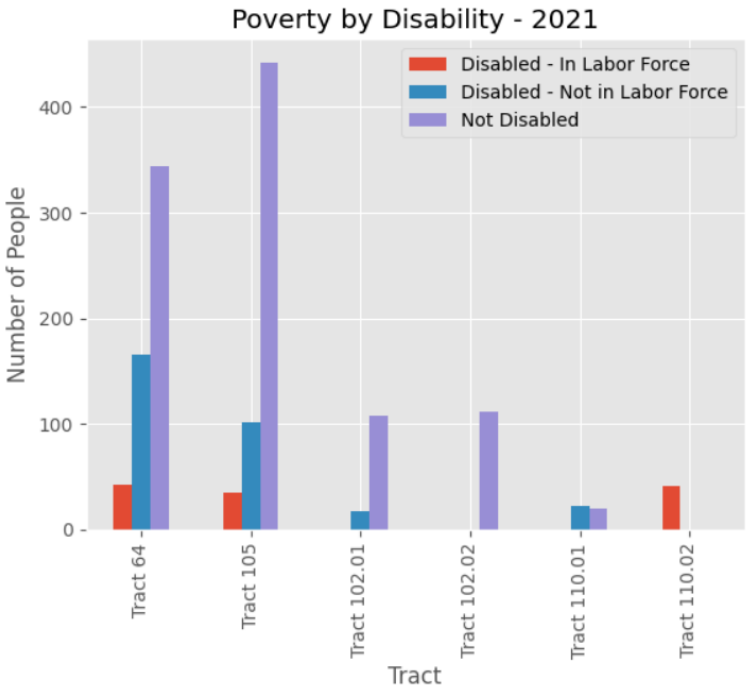




There does not seem to be a significant difference in disability across males and females in any tract.

3. Poverty by Disability (Jonas)





From the above graphs, we can clearly see that most disabled people are not in the labor force. Thus, especially in tracts that have a larger number of disabled people (i.e. Tract 64), this subgroup of individuals explains a portion of the below-poverty population.

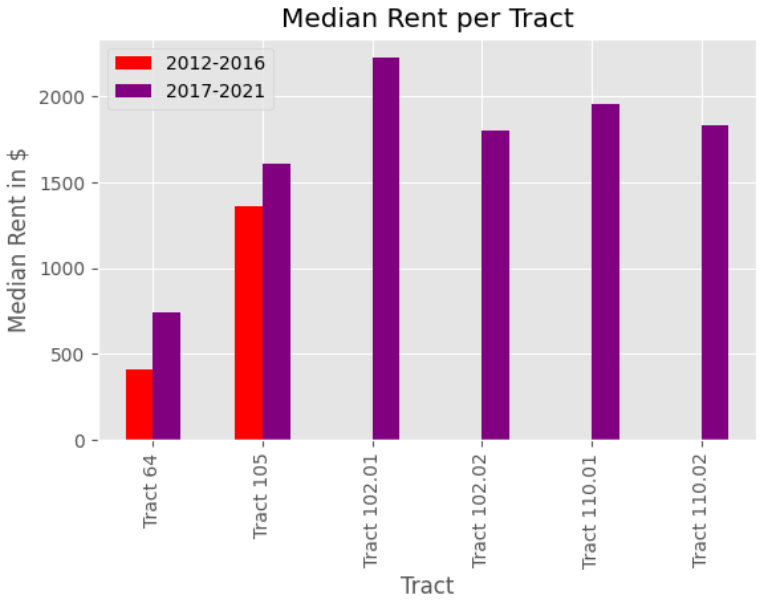
Following this line of interpretation, it is possible that it is not only the actually disabled population of tracts that affects poverty rates. Especially since many disabled individuals are not actually in the labor force, it can be reasonably assumed that they have relatives that care for them. This implies that these relatives - usually from the same race - spend time and money on their disabled family member, which could mean that they have less time, energy, and resources to get out of their poverty-affected situation. Thus, it is not far-fetched to argue that it is not only the disabled subgroup of people that affects the poverty rate. It is also affected by the people that take care of the disabled subgroup.

Since the graphs show that more African American people tend to be disabled in Tracts 64 and 105, it would also be the case that more African American family members would be affected and that some might have less opportunity to “fight against” their poverty (e.g. less time to look for employment or to actually engage in an employment), as they take care of their disabled relatives.

Moreover, as there is a significant difference in disability numbers between the White and the African American population (with the African American population having a significantly higher rate), the variable disability could be a potential indicator for increased poverty rates.

Rent

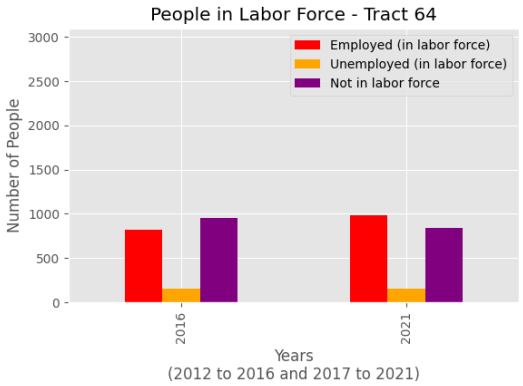
1. Median Rent (Jonas)

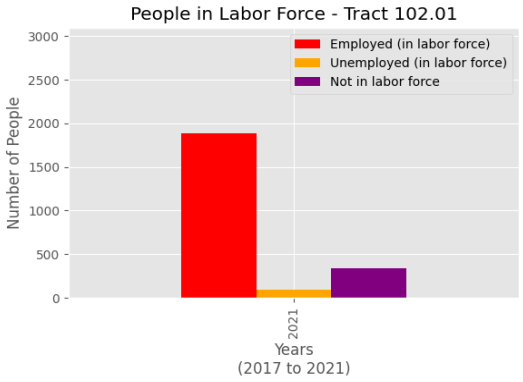


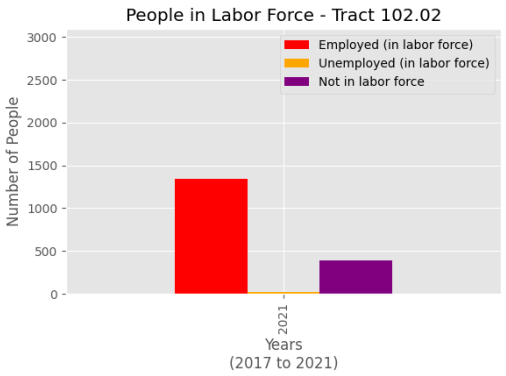
It is clearly visible that Tract 64 is the tract with the lowest median rent. This indicates that the living quality there is not particularly high, especially when the rent in tracts very close to it is almost three times as much. Essentially, there must be a reason for this stark difference in price, be it a lack of safety, the missing “niceness” of the area, lacking proximity to public transport, etc. Thus, it is evident that there exists a very stark difference between the tracts in terms of living quality, especially when looking at Tract 64 vs the other tracts in Southwest. It is notable, however, that the median rent has risen in the time frame from 2012 - 2016 to 2017-2021. This indicates that things may have improved in the last few years.

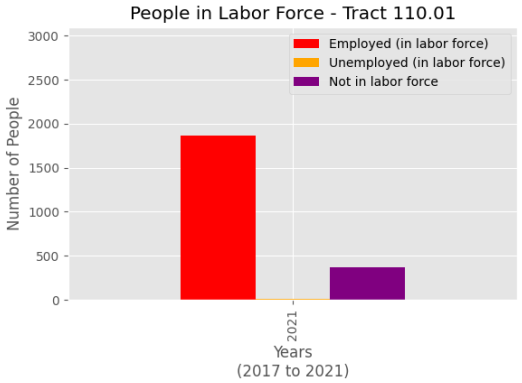
Labor Force

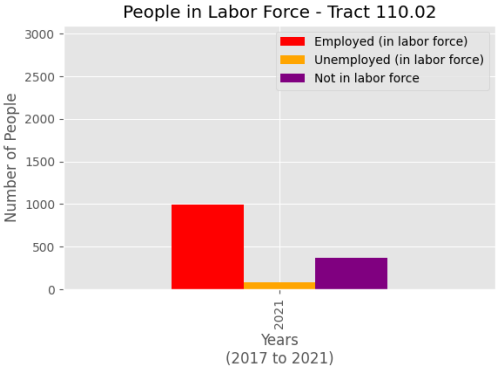
1. Labor Force











There exists a very large portion of people in the east side of the Southwest District that is not in the labor force (i.e. they are not actively looking for employment). This portion is especially large in Tract 64 where almost 50% of the people are not in the labor force.

One possible explanation for this is a large population that is retired.

By looking at plot above, we can see that there are indeed quite a few old people in Tract 64. Given the average retirement age of 67 in the District of Columbia[1], the group of retired people accounts for roughly 20-30% of the entire population of Tract 64. This leaves another

[1] https://www.madisontrust.com/information-center/visualizations/average-retirement-age/

approximately 20-30% of the population unaccounted for, indicating that there still exists a large portion of people (who are not yet in the retirement age) that are not in the labor force.

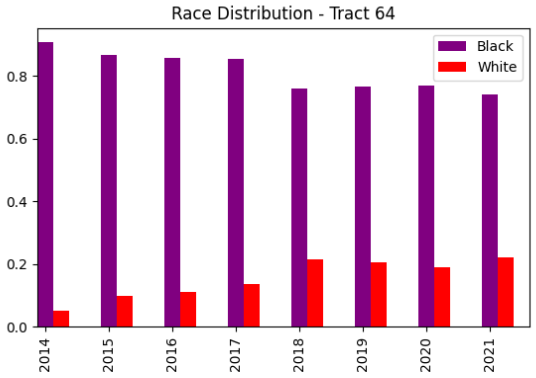
This further implies that there might be a lack of opportunity for some people (i.e. there might be a feeling of “even if I would look for employment, nothing would come from it”).

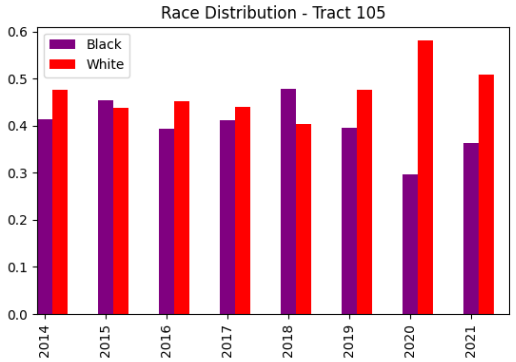
In Tracts 102 and 110, the proportion of people that are out of the labor force approximately matches the number of people who are above the average retirement age.

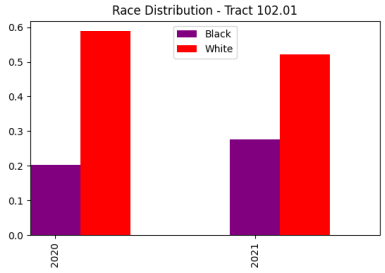
Analysis - From Deliverable 2

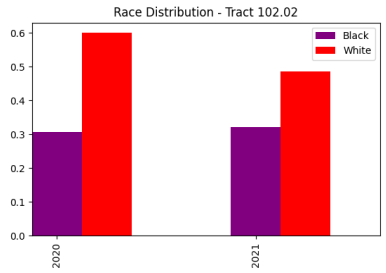
Note: the plots will still be updated before the final deliverable date (i.e. x-axis and y-axis labels will be added)

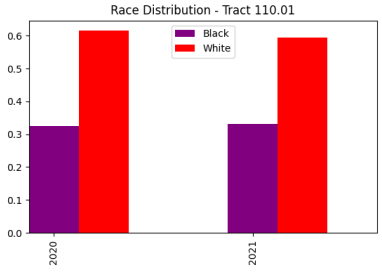
1. Race per Tract (Jonas)

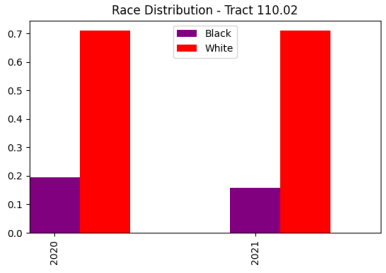








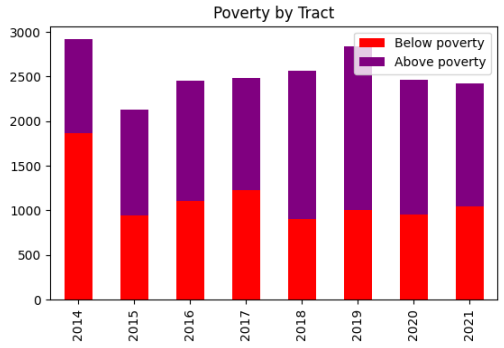




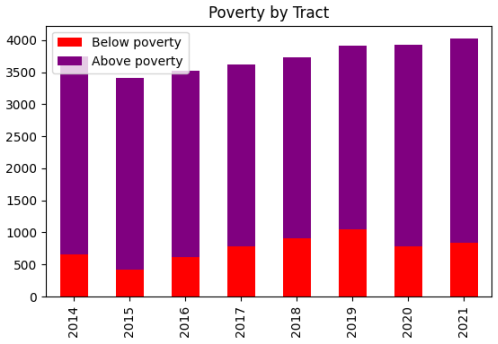
In Tracts 102 and 110, the ratio of Black population vs White population is fairly constant and is at around 2 White people per 1 Black person. This ratio, however, drastically changes when looking at Tracts 64 and 105. In Tract 105, the ratio is approximately 1:1, but there has been an increase in the White population in the most recent years (perhaps due to additional gentrification?).

This trend of the White population slightly increasing also exists in Tract 64. However, here the ratio is a lot more imbalance at about 4 Black people per 1 White person.

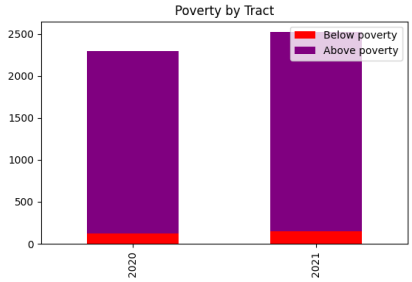
2. Poverty Per Tract (Jonas)



Tract 64



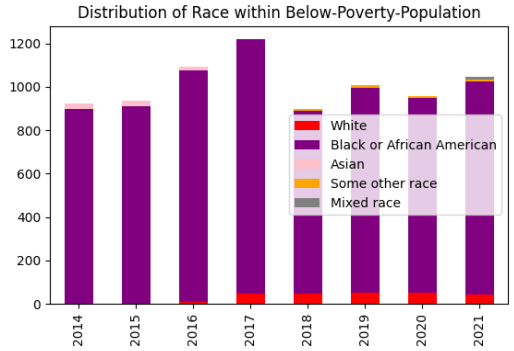
Tract 105

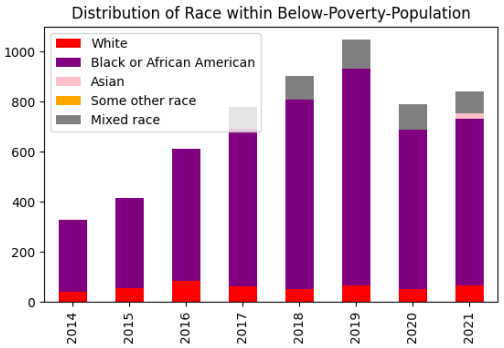


Tract 102.02 (shown to the left) and the other 3 tracts look like this. Barely any poverty.

The above plots indicate that the west side of the Southwest District (i.e. Tracts 102 and 110) experience barely any poverty. The east side, on the other hand, suffers quite a bit from it: almost 50% of the population in Tract 64 lives below the poverty level in 2021. In Tract 105, this percentage is only at about 20%, but it is still significantly larger than in the west side of Southwest.

3. Distribution of Race Of Below-Poverty Population (Jonas)



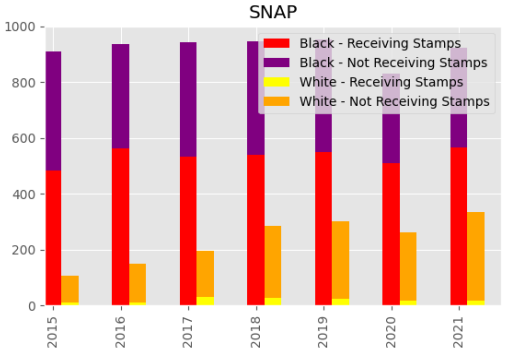


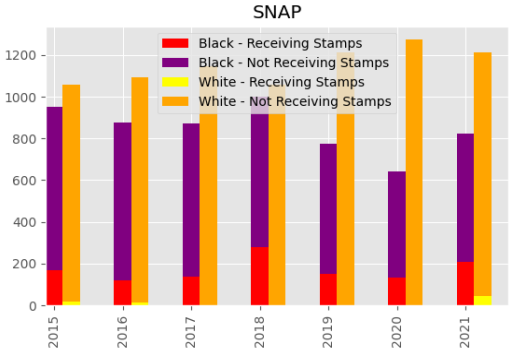
Tract 64 Tract 105

When further inspecting the two tracts that experience the highest amounts of poverty (Tract 64 and 105), it is clearly visible that it is predominantly the Black or African American community that experiences poverty.

This indicates a clear discrepancy in wealth between the Black population and the White population, especially in the east side of Southwest, suggesting that the recent gentrification had particularly negative impacts on the former Black community of old Southwest (which are now mostly in the east part of Southwest).

4. SNAP Receivers (Jonas)

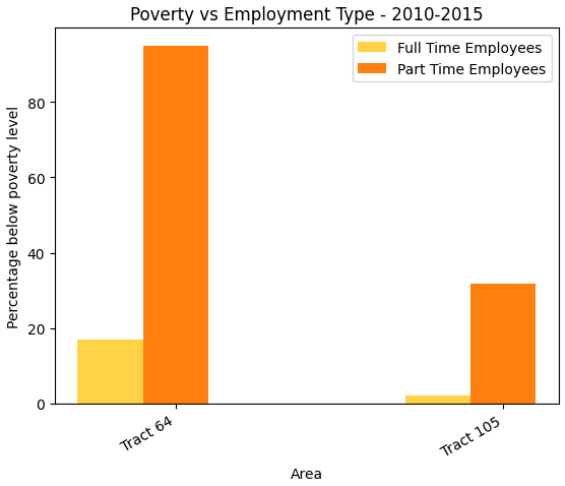


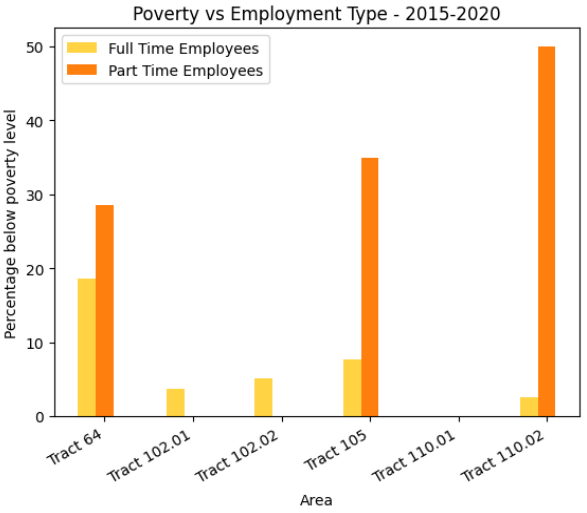


Tract 64 Tract 105

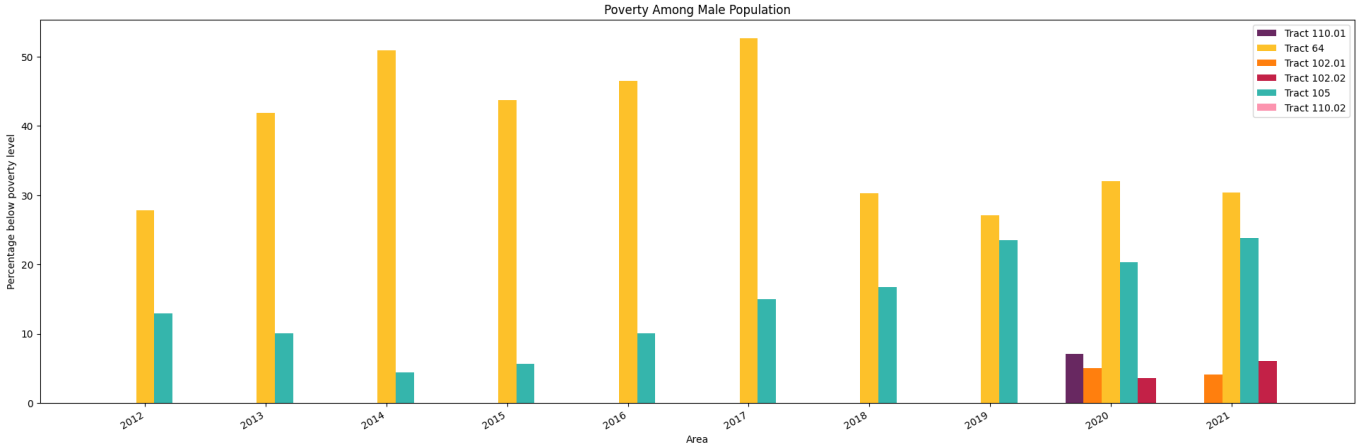
This clear discrepancy is further shown by the people who receive food stamps in Southwest. It makes absolute sense that the people below the poverty level would depend on food stamps, which is, in fact, the case. In the poverty-stricken tracts (Tract 64 and 105), the receivers of food stamps predominantly belong to the Black community, while White food stamp receivers make up an almost negligible portion.

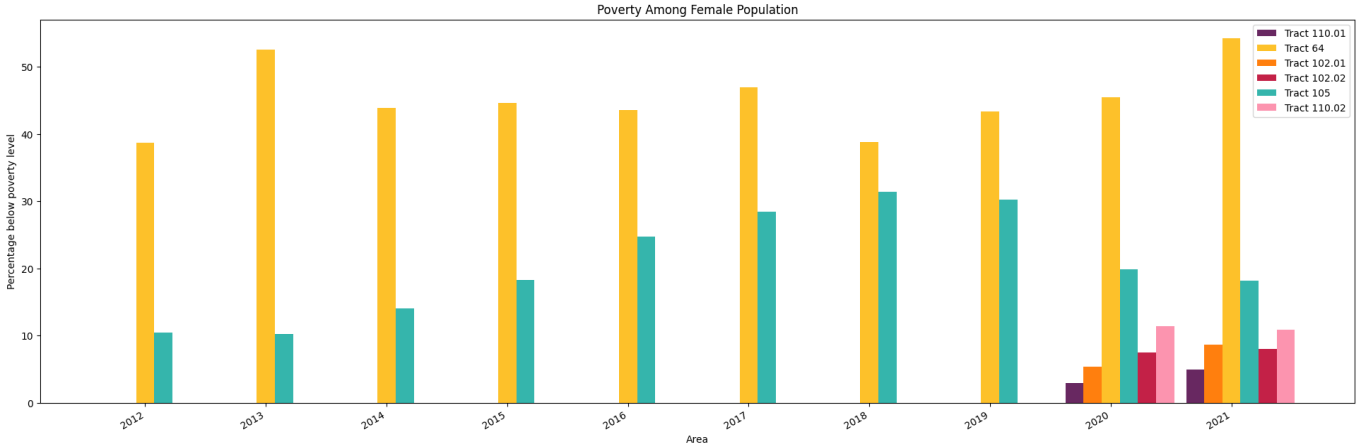
5. Poverty Per Employment Status (Revathi)



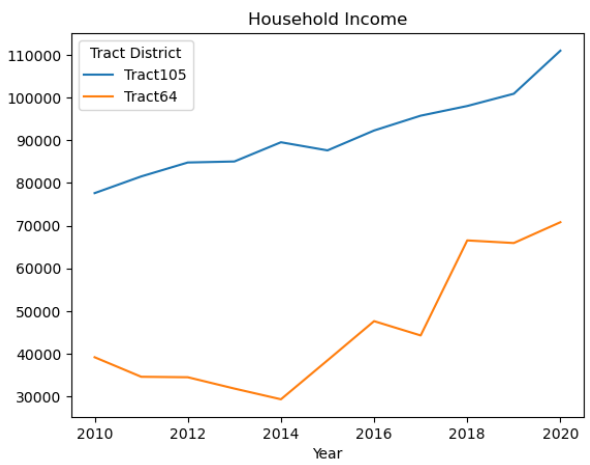


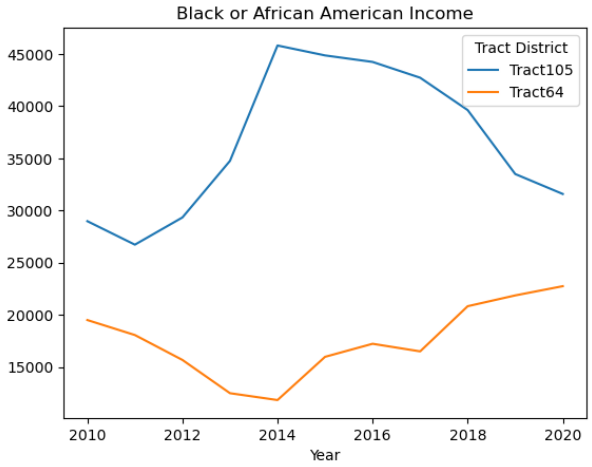
6. Poverty Per Sex (Revathi)

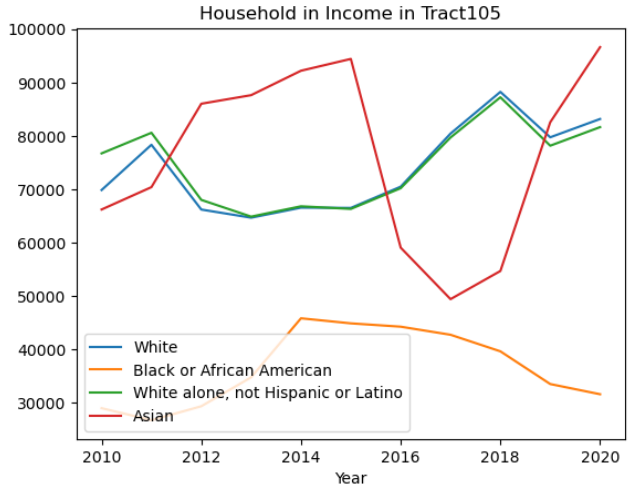


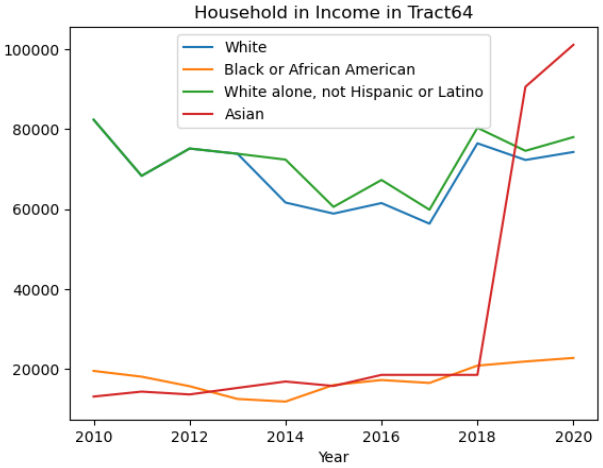


7. Household vs Tracts & Races (Chengjie Gu)

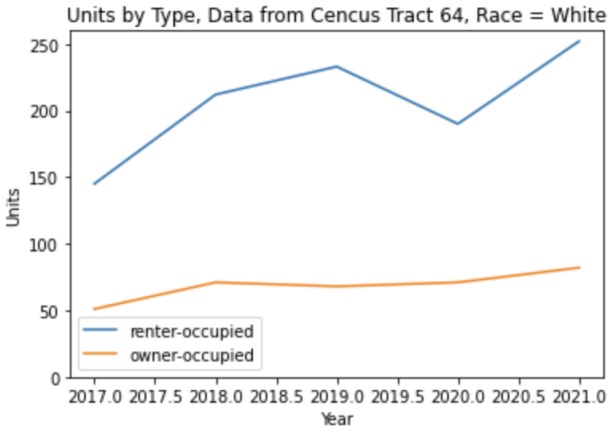


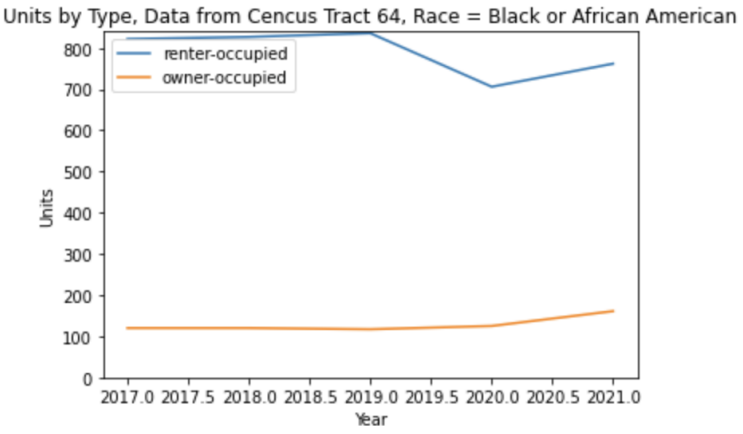


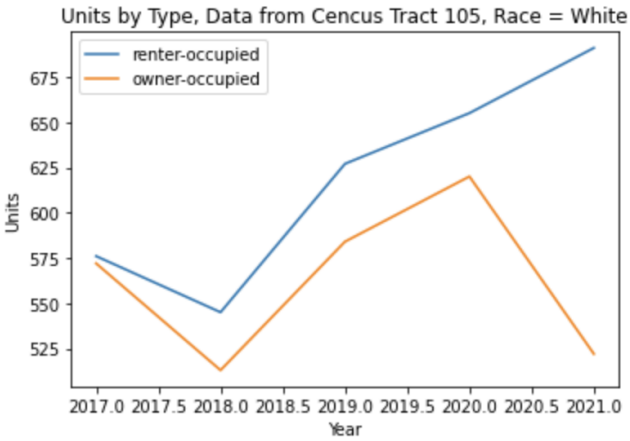


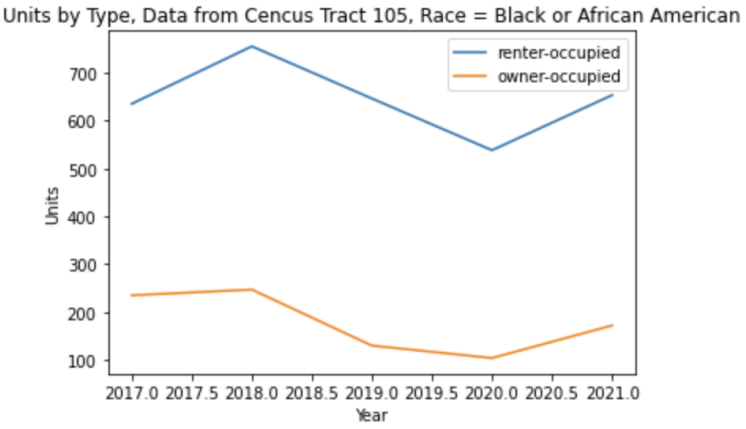


8. Homeownership by Race (Mingxin)









Looking at the data, we can see that both Census tracts have a higher percentage of renter-occupied housing units than owner-occupied housing units. In Census tract 64, the percentage of renter-occupied housing units was consistently higher than owner-occupied housing units each year, with the percentage of renter-occupied housing units increasing from 51% in 2017 to 67% in 2018 and then remaining around 70% in 2019, 2020, and 2021. In Census tract 105, the percentage of renter-occupied housing units increased from 50% in 2017 to 55% in 2018 and then remained around 60% in 2019, 2020, and 2021. This trend suggests that more people are choosing to rent rather than own homes in these Census tracts over time.

In terms of racial demographics, both Census tracts have a majority Black or African American population. Census tract 64 has a higher percentage of White and Hispanic or Latino residents than Census tract 105. However, both Census tracts have similar percentages of Asian, Native Hawaiian and Other Pacific Islander, and Some other race residents. It's worth noting that the percentage of residents who identify as Two or more races is relatively small in both Census tracts.

There could be several reasons for the differences and changing trends observed in the provided data, including geographic and ethnic factors. Here are some possible explanations:

1. Geographic factors: The differences and trends observed in the data could be influenced by the location of the census tracts. For example, some areas may be experiencing gentrification, leading to an increase in the number of owner-occupied housing units and a decrease in renter-occupied units. Similarly, areas with high levels of poverty may have a higher percentage of renter-occupied units.

1. Ethnic factors: The differences and trends observed in the data could also be influenced by ethnicity. For example, the data shows that there are more renter-occupied housing units in areas with a higher percentage of Black or African American residents. This could be due to historical and systemic factors, such as redlining and discrimination in housing. Additionally, areas with higher percentages of Hispanic or Latino residents may have higher rates of multi-generational households, which could influence the number of occupied housing units.

2. Economic factors: Changes in the local economy could also impact the differences and trends observed in the data. For example, if an area experiences job growth and higher wages, this could lead to an increase in the number of owner-occupied housing units. Conversely, if an area experiences job losses or a decline in wages, this could lead to an increase in the number of renter-occupied housing units.