

INTRODUCTION

In 2017, a newborn in the United States could, on average, expect to live for 78.6 years. However, research has long confirmed that not all communities in the U.S. face the same prospect for longevity.^[1] In fact, a recent publication in JAMA drew attention to the reality that life expectancy in the U.S. varies widely by income and geography.^[2] To further explore the disparities in life expectancies, we utilized a recently published data set from the Centers for Disease Control and Prevention (CDC) to examine neighborhood-level differences in life expectancy across the state of Texas.

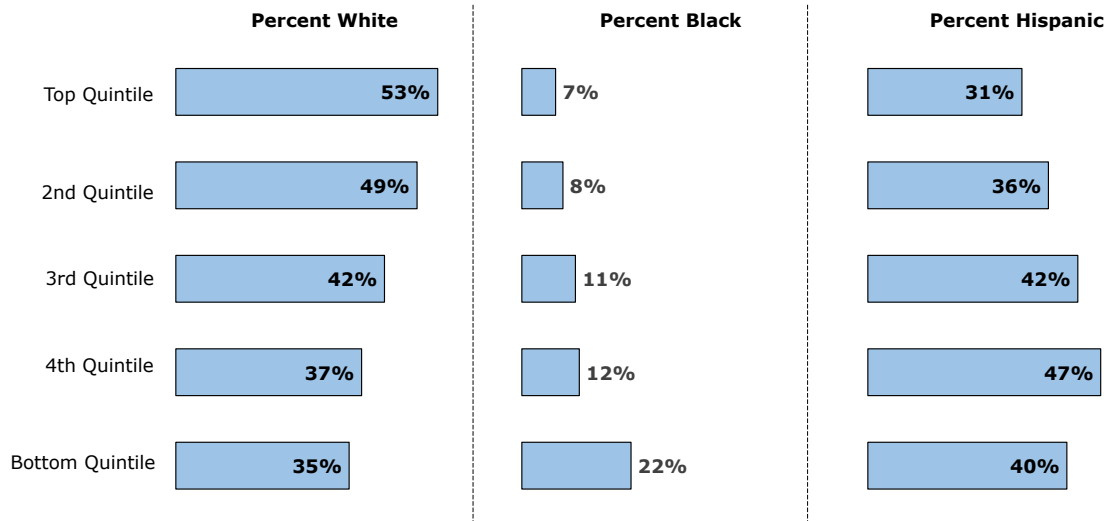
ABOUT THE DATA

In August 2018, the CDC's National Center for Health Statistics (NCHS) partnered with Robert Wood Johnson Foundation (RWJF) and the National Association for Public Health Statistics and Information Systems (NAPHSIS) to release estimates of life expectancy by census tract to enable the analysis of gaps in longevity at the neighborhood level. NCHS pooled together six years of mortality and population data from 2010 to 2015 to produce estimates of life expectancy at birth. Due to data limitations, the NCHS dataset only provides estimates for 4,709 Texas census tracts, which is 89.6% of all census tracts in the state.^[3]

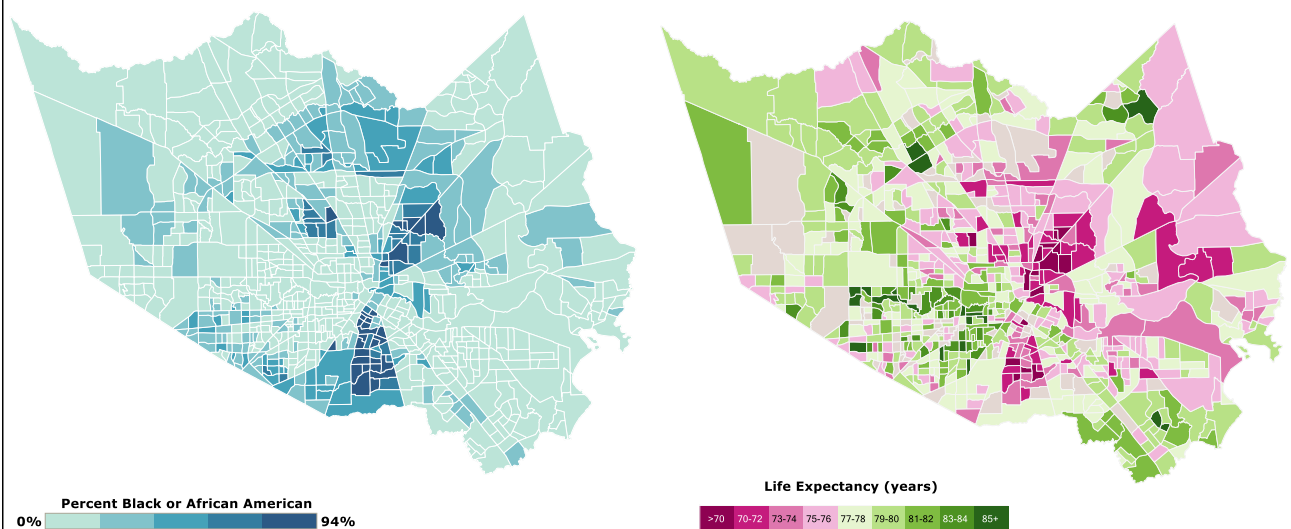
FINDINGS

There is a wide gap in life expectancy across neighborhoods in Texas. Across all the census tracts included in the dataset, the median life expectancy at birth is 77.8 years.^[4] Ranking all census tracts based on life expectancy uncovers an 11-year gap in life expectancy in Texas with the bottom 5% of census tracts having a life expectancy of 72.1 years or shorter and the top 5% of census tracts having a life expectancy at birth of 83.3 years or longer.^[4] When comparing the top 1% of census tracts and the bottom 1% of census tracts, the gap widens even farther to a nearly 17-year difference.^[4]

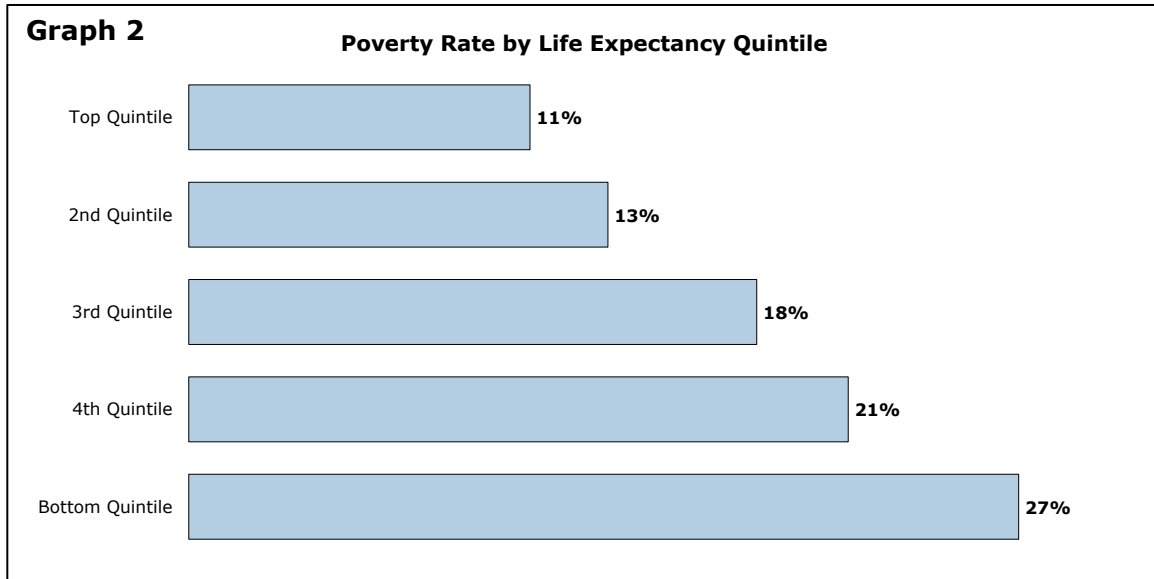
Local communities with the shortest life expectancies tend to have a higher percentage of racial and ethnic minorities. For decades, the CDC has documented substantial differences in life expectancy between racial and ethnic populations in the U.S. Analyzing census tract level data finds a significant correlation between life expectancy and race/ethnicity. For Texas census tracts that are in the top quintile of life expectancy, most residents were White (53%) while only 31% of residents being Hispanic or Latino and only 7% being Black or African American.^{[4][5]} In contrast, 62% of people living in census tracts at the bottom quintile of life expectancy are either Black or Hispanic and only 35% are White.^{[4][5]} (Graph 1)

Graph 1**Racial and Ethnic Demographics by Life Expectancy Quintile**

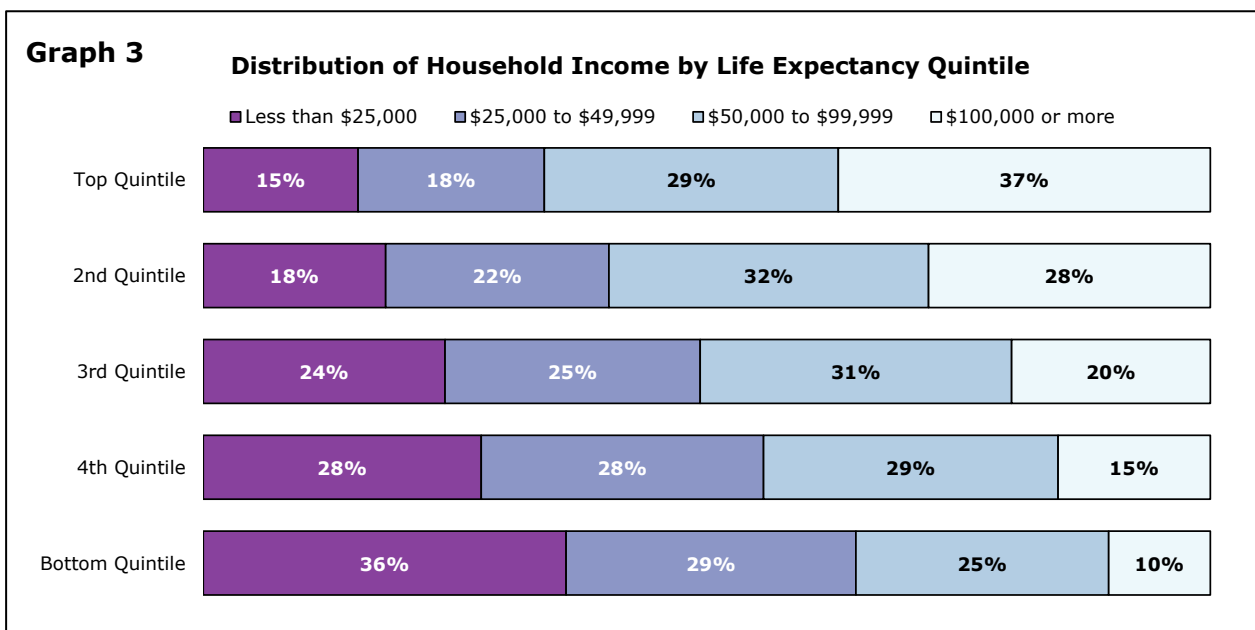
Given the racial residential segregation present across Texas, the patterns of life expectancy bear striking resemblance to the geographic distribution of racial and ethnic populations. For example, the maps of Harris County below compare life expectancy at birth by census tract with the percent of the population that is Black or African American by census tract. (Map 1) The maps reveal how the clusters of census tracts in the south-central and northeast areas of Harris County which have large percentages of Black residents and are also the areas with lowest life expectancies in the county.^{[4][5]}

Map 1**Percent Black by Census Tract in Harris County****Life Expectancy by Census Tract in Harris County**

In Texas, income and poverty were significantly associated with life expectancy. Among Texas census tracts at the bottom of the life expectancy quintile, over a quarter of the population lived below the federal poverty rate while the poverty rate of census tracts in the top quintile was only 11%.^{[4][5]} (Graph 2)



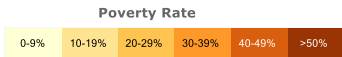
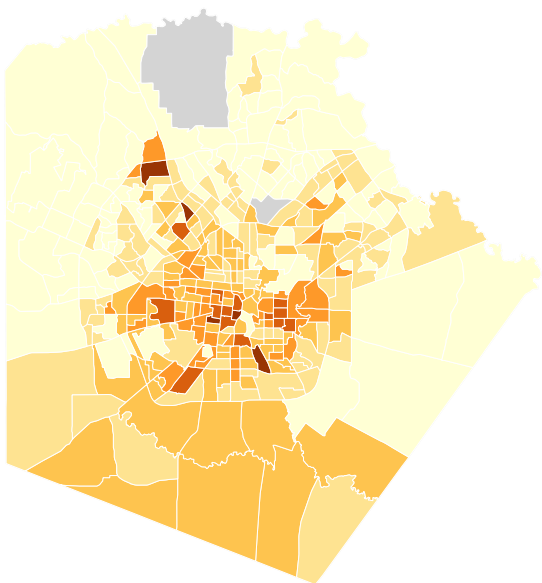
Additionally, 36% of households within census tracts in the bottom quintile had annual incomes less than \$25,000 and 65% of households had incomes below \$50,000. This is starkly different than census tracts in the top quintile where two-thirds of households had annual incomes at or above \$50,000 and 37% of households had annual incomes of \$100,000 or greater.^{[4][5]} (Graph 3)



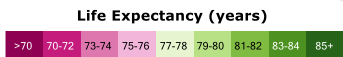
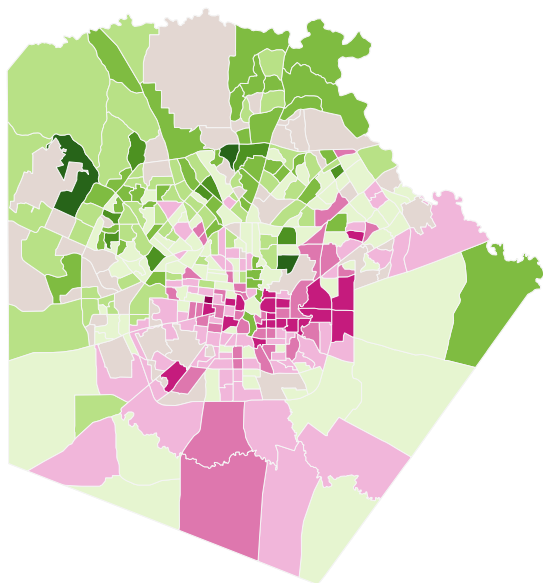
In the maps below, the relationship between poverty and life expectancy is demonstrated by the fact that census tracts in the center of Bexar County have both higher rates of poverty and lower life expectancies compared to the rest county. (Map 2)

Map 2

Poverty Rate by Census Tract in Bexar County

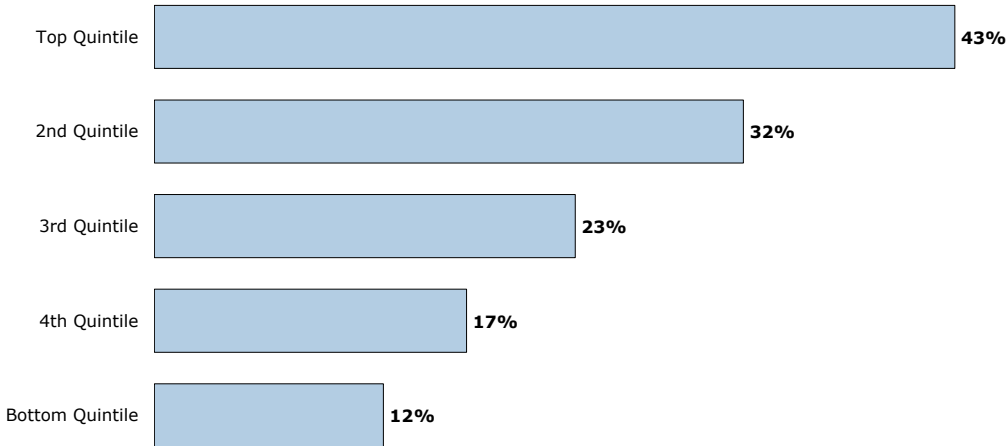


Life Expectancy by Census Tract in Bexar County



Communities with the longest life expectancy in Texas had high percentages of college graduates. In Texas, 43% of adults living in census tracts in the top quintile of life expectancy had a bachelor’s degree or higher. Meanwhile, among census tracts at the bottom quintile, only 12% of residents had a bachelor’s degree or higher.^{[4][5]} (Graph 4)

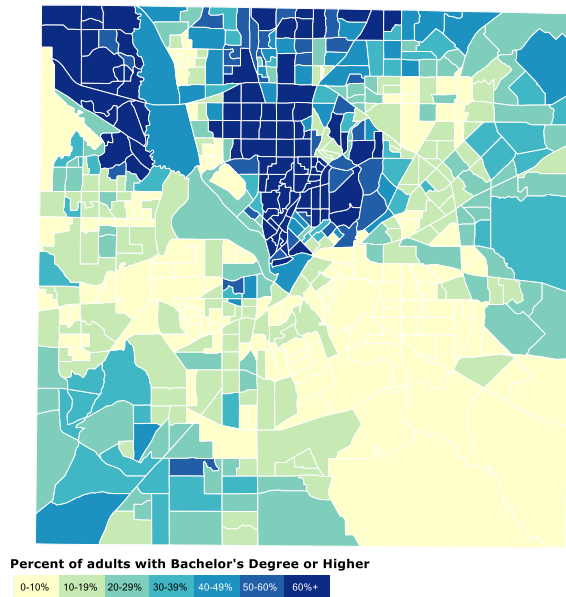
Graph 4 Percent with Bachelors Degree or Higher by Life Expectancy Quintile



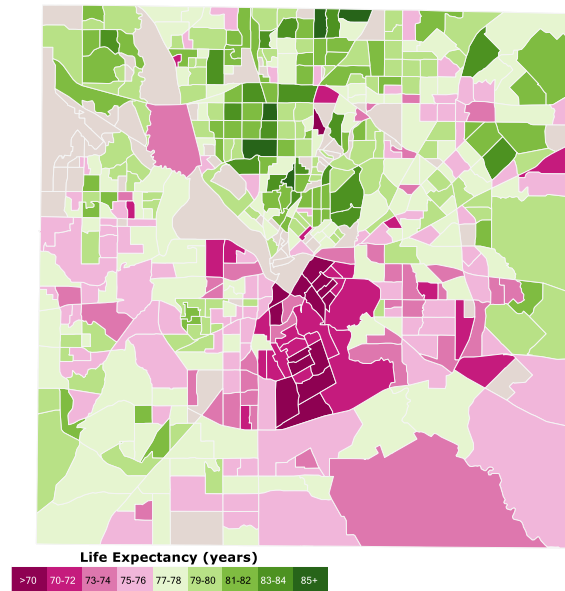
In the maps below, the pattern between educational attainment and life expectancy is evident. The census tracts local in the northern part of the county have significantly higher percentages of their population with a bachelor's degree or higher as well as longer life expectancies than the rest of the county. (Map 3)

Map 3

Educational Attainment by Census Tract in Dallas County



Life Expectancy by Census Tract in Dallas County



CONCLUSION

The findings of this analysis revealed wide inequalities in Texas concerning who has the potential to live a long life. Low-income communities with high rates of poverty, low educational attainment, and large racial and ethnic minority population (particularly Black populations) experience significantly shorter lifespans when compared to communities with high incomes, high educational attainment, low poverty rates, and large White populations.

REFERENCES

1. Murphy SL, Xu JQ, Kochanek KD, Arias E. Mortality in the United States, 2017. NCHS Data Brief, no 328. Hyattsville, MD: National Center for Health Statistics. 2018.
2. Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., Bergeron, A. and Cutler, D., 2016. The association between income and life expectancy in the United States, 2001-2014. *JAMA*, 315(16), pp.1750-1766.
3. Arias E, Escobedo LA, Kennedy J, Fu C, Cisewski J. U.S. small-area life expectancy estimates project: Methodology and results summary. National Center for Health Statistics. *Vital Health Stat* 2(181). 2018.

4. National Center for Health Statistics. U.S. Small-Area Life Expectancy Estimates Project (USALEEP): Life Expectancy Estimates File for Texas, 2010-2015. National Center for Health Statistics. 2018. Available from: <https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html>.
5. U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates