

Urban vegetation and demographics in Denver: A story of equitable distribution of green space

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Background

- Rapid urbanization of US cities is leading to increasing infill development which creates more impervious surfaces leading to flooding and stress on storm water infrastructure.
- Nature, or urban-greenness based solutions can promote better hydrological processes and address issues like air quality, urban heat mitigation, and provide spaces for recreation (Keeler et. al, 2019).

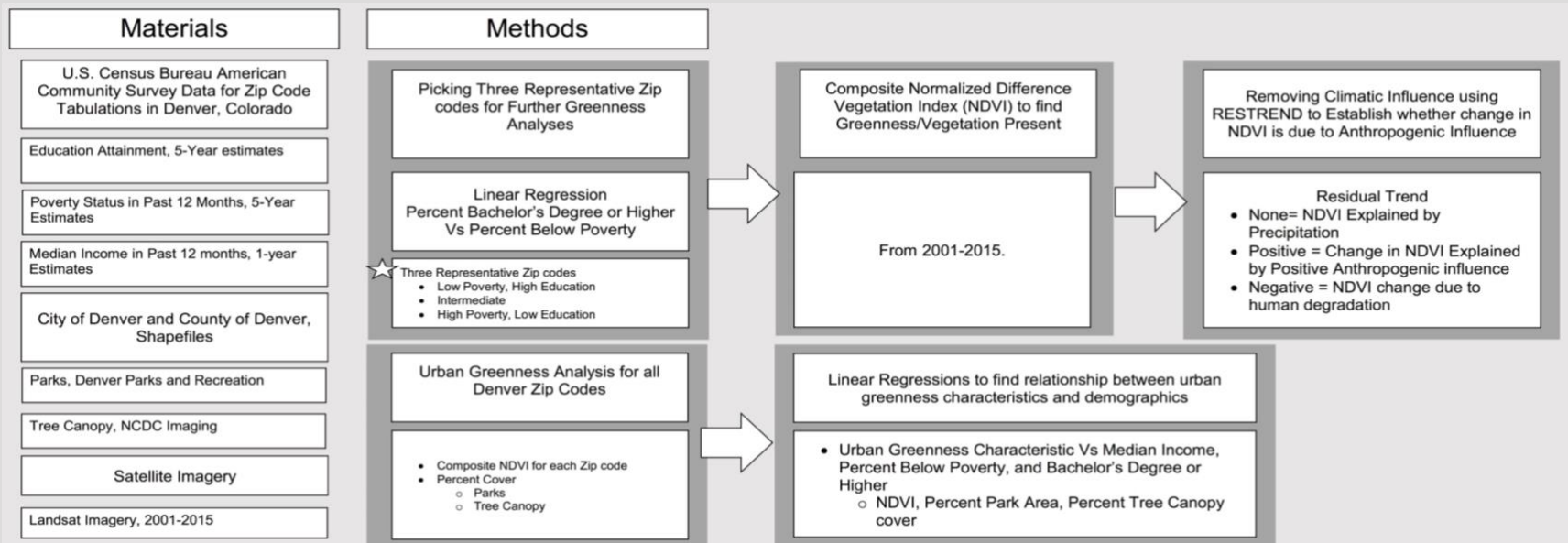


[Infill Development](#)

Scope

This study examines the relationship between urban vegetation and demographics in Denver, Colorado. Understanding this relationship may shed light on inequalities associated with distribution of green spaces in urban areas.

Materials & Methods



80231, Intermediate Zip Code

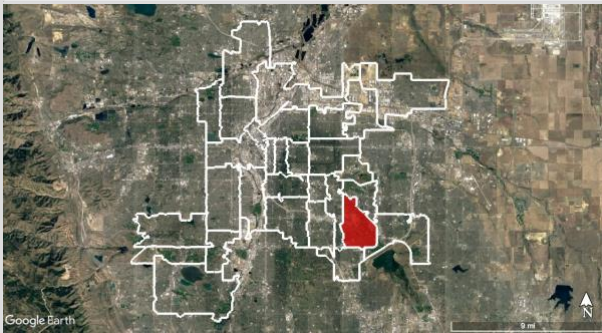
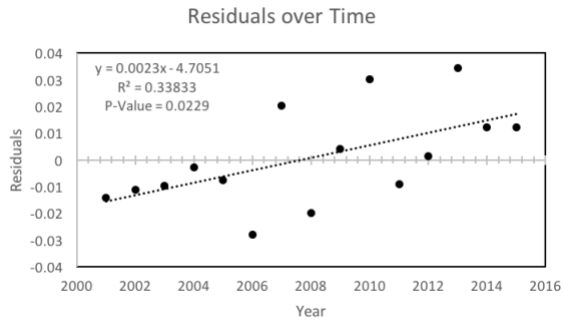


Figure 1. Residual analysis results for intermediate zip code and spatial plot showing location of zip code.

Results

- RESTREND analysis found that only the intermediate zip code had a significant trend. Its positive direction tells us that that change in NDVI is due to positive human influence (Figure 1).
- Composite NDVI and Percent Below poverty had an inverse relationship, suggesting that as poverty increased NDVI decreased (Figure 2).
- Percent Park Area and Median Income had a positive correlation, suggesting that as wealthier residents live in areas with more parks (Figure 3).

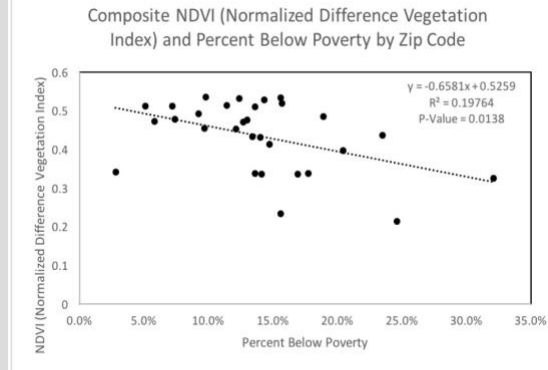


Figure 2. Composite NDVI and Percent Below Poverty by Zip Code.

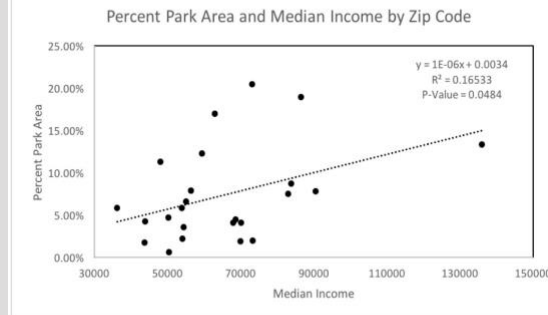


Figure 3. Percent Park Area and Median Income by Zip Code.

Conclusions

- These results suggest that distribution of green space is inequitable in Denver.
- Increased income and financial security is correlated with increased urban greenness.
- Further research could look into the factors influencing decreased greenness in low income areas

References

Keeler, Bonnie L., et al. "Social-Ecological and Technological Factors Moderate the Value of Urban Nature." *Nature Sustainability*, vol. 2, no. 1, Jan. 2019, pp. 29–38. DOI.org (Crossref), doi:10.1038/s41893-018-0202-1.

