# Abstract

This project explores the various characteristics of households enrolled in the affordable housing programs run by the US Department of Housing and Urban Development. The three programs are: public housing, housing choice voucher, and multi-family housing. The purpose of the project is to highlight how these households have changed over the last decade, to better understand and anticipate their needs, and to improve the affordable housing programs for the future, while incorporating the pillars of sustainability. In this project, we started with an exploratory analysis that highlights key characteristics of households enrolled in the affordable housing programs. We included breakdowns of the dataset by program type and by race, and found that certain characteristics have changed more significantly than others from 2009 to 2018. Then, we fitted logistic regression models and classification trees to the dataset to discover the most important characteristics and use those to predict program type. According to both methods, variables related to financials were, not surprisingly, the most significant in predicting program type. When fitting the models with these features removed (i.e. using only demographic variables), accuracy fell to around 57%. This may indicate that demographics are not reliable indicators and this problem requires other methods of predicting program type. Being able to anticipate program needs will help the Department of Housing and Urban Development better cater to the specific needs of individual low-income families. Potential sustainable solutions may include improving the quality of public housing, placing housing in locations with more opportunities for education and jobs, and using housing as a way to build community among groups these groups.