Executive Summary

This project aims to provide different perspectives to the results obtained in [Tennessee Housing Development Agency Issue Brief: Racial and Ethnic Disparities in Home Mortgage Originations in Tennessee](#) and [What Different Denial Rates Can Tell Us About Racial Disparities in the Mortgage Market](#). The key findings from the brief include the following:

1. *Race is a stronger predictor of loan denial than income and associated indicators of creditworthiness*
2. *Loan applications from Black Tennesseans are almost twice as likely to be denied as applications from their White counterparts.*
3. *The Black-White racial disparity in denial rates is greater among higher income borrowers. High-income Black loan applicants are twice as likely to be denied as their White peers.*

Using data from The Home Mortgage Disclosure Act (HMDA), variables such as income, debt to income ratio, applicant credit score, co-applicant credit score, loan amount, loan type, property value, denial reason and loan purpose will be explored to uncover potential correlations with mortgage loan denial rate among all races over time in Tennessee.

Motivation

Both articles mentioned above emphasize race disparity in mortgage loan denial rates in Tennessee throughout the analyses without taking into account of other critical factors such as applicant's credit history that may affect the denial rates. My main objective is to uncover other underlying truths both analyses failed to report.

Data Question

Present your question. Feel free to include any research/articles that are relevant or show where others have attempted to answer this question.

1. *Is race a stronger predictor of mortgage loan denial than income and associated indicators of creditworthiness such as applicant's credit history, debt to income ratio, employment history, collateral, insufficient cash, incomplete application, and unverifiable information in Tennessee?*

2. *What are the proportions of various denial reasons among different races for mortgage loan in Tennessee?*

Minimum Viable Product (MVP)

The final product will include a dashboard showing interactive plots of each indicator variable across races over time. The dashboard aims to inform researchers, lenders, and borrowers if disparity exists in mortgage loan denial in Tennessee.

Schedule (through 1/21/2023)

1. Get the Data (**10/15/22**)
2. Clean & Explore the Data (**10/18/22**)
3. Create Presentation and Shiny App (**finish date**)
4. Internal Demos (1/17/2023)
5. Midcourse Project Presentations (1/23/2023)

Data Sources

HMDA Dataset

Known Issues and Challenges

Challenge: Unable to obtain applicant's historical delinquency event from HMDA

Resolution Plan: May be able to use LEI (legal entity identifier) number to merge other datasets that contain delinquency event or similar