Exploring Borrower Characteristics and Loan Performance: A Lending Club Study

Agenda

- Dataset Introduction
- Biases and Assumptions
- Analysis
- Recommendations
- Final Thoughts
- Q & A

Dataset Introduction

Our dataset provides insight into Lending Club, a groundbreaking peer-to-peer lending firm headquartered in San Francisco, California.

Spanning from 2007 to around 2016, our dataset presents a comprehensive view of loans facilitated by Lending Club.

Lending Club offers a variety of loan products tailored to assist consumers with debt consolidation, weddings, and vacations.

Objectives and Goals

Can we identify correlations between borrower credit and financial profiles to reduce the rate of charged-off loans, while also leveraging historical borrower characteristics to customize loan products and enhance customer retention?

Goal # 1

Exploring Charged off Loans

Goal # 2

Enhancing Customer Retention Rates

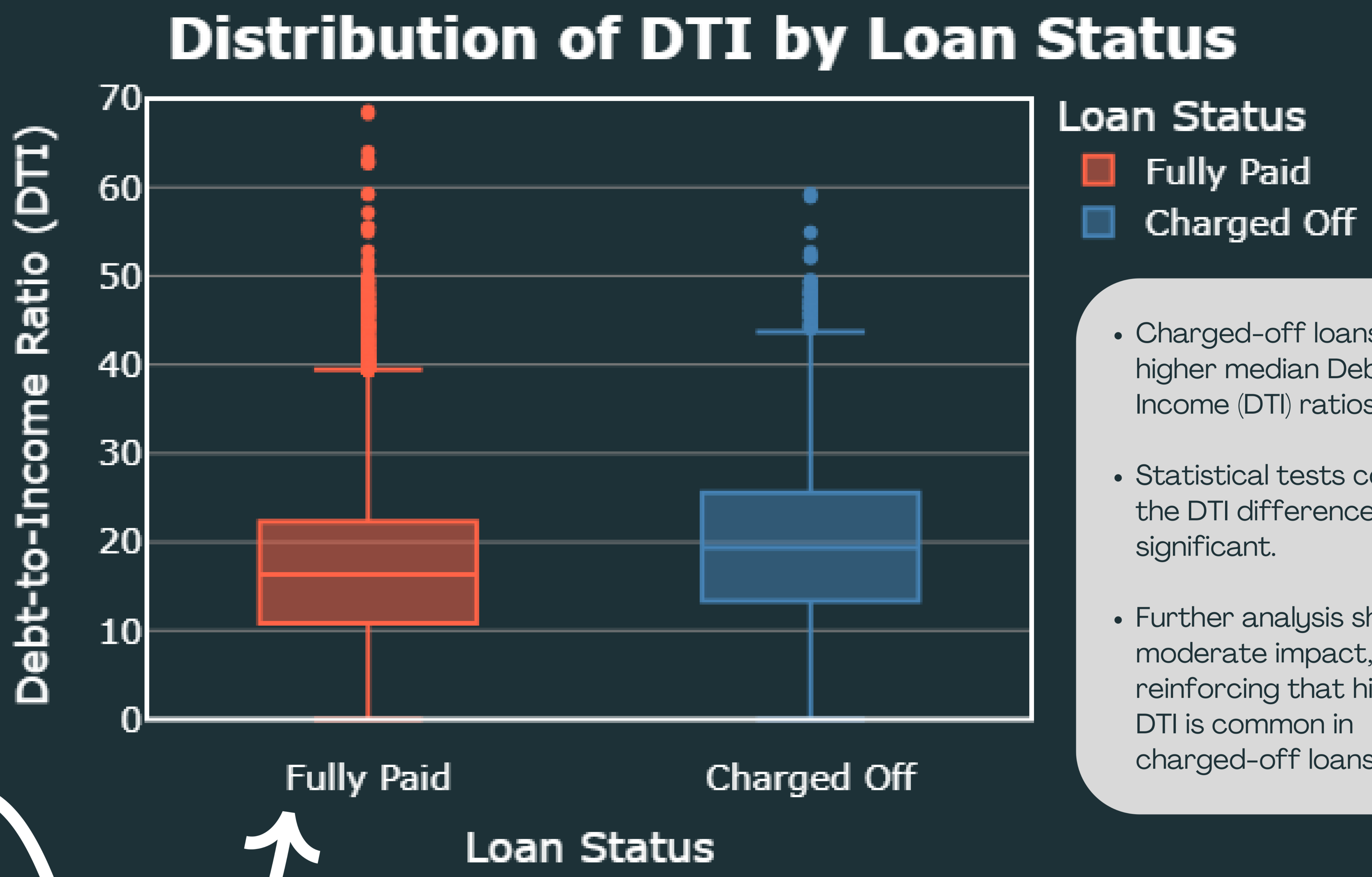
Goal # 3

Tailored Loan Products for Borrowers

Uncovering Dataset Biases and Assumptions

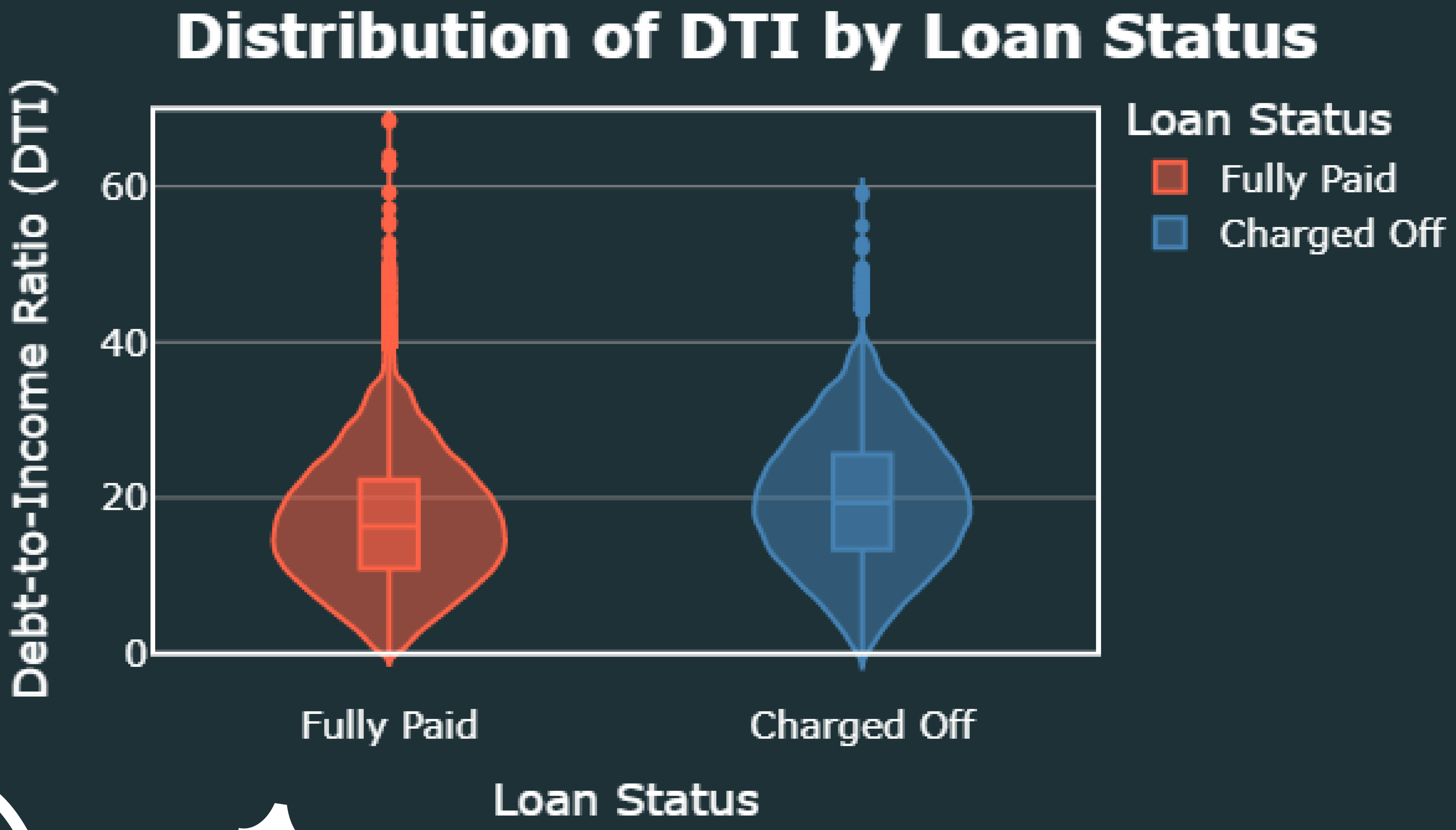
- Successful loans outnumber unsuccessful ones in the dataset.
- The dataset covers loans issued from 2007 to 2016.
- Annual income information has been grouped according to IRS 2024 income tax brackets, aiding in data retention and pinpointing areas for potential improvement
- Debt-to-Income (DTI) ratios have been limited to 70 to remove outliers that could skew statistical analysis.
- The dataset was obtained from Kaggle.

Loan Status vs Debt-to-Income Ratio (DTI)

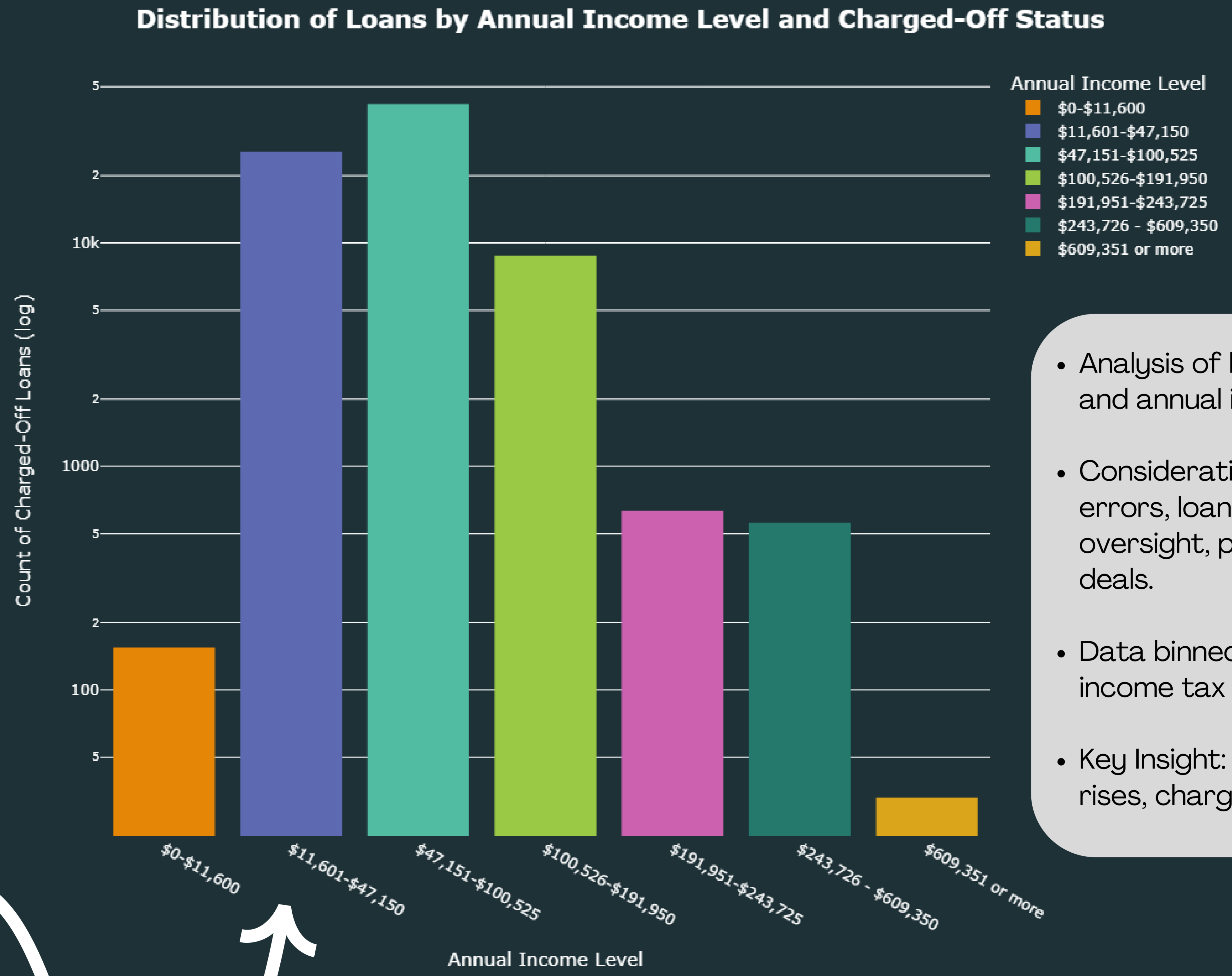


- Charged-off loans have higher median Debt-to-Income (DTI) ratios.
- Statistical tests confirm the DTI differences are significant.
- Further analysis shows a moderate impact, reinforcing that higher DTI is common in charged-off loans.

Loan Status vs Debt to income Ratio (DTI)

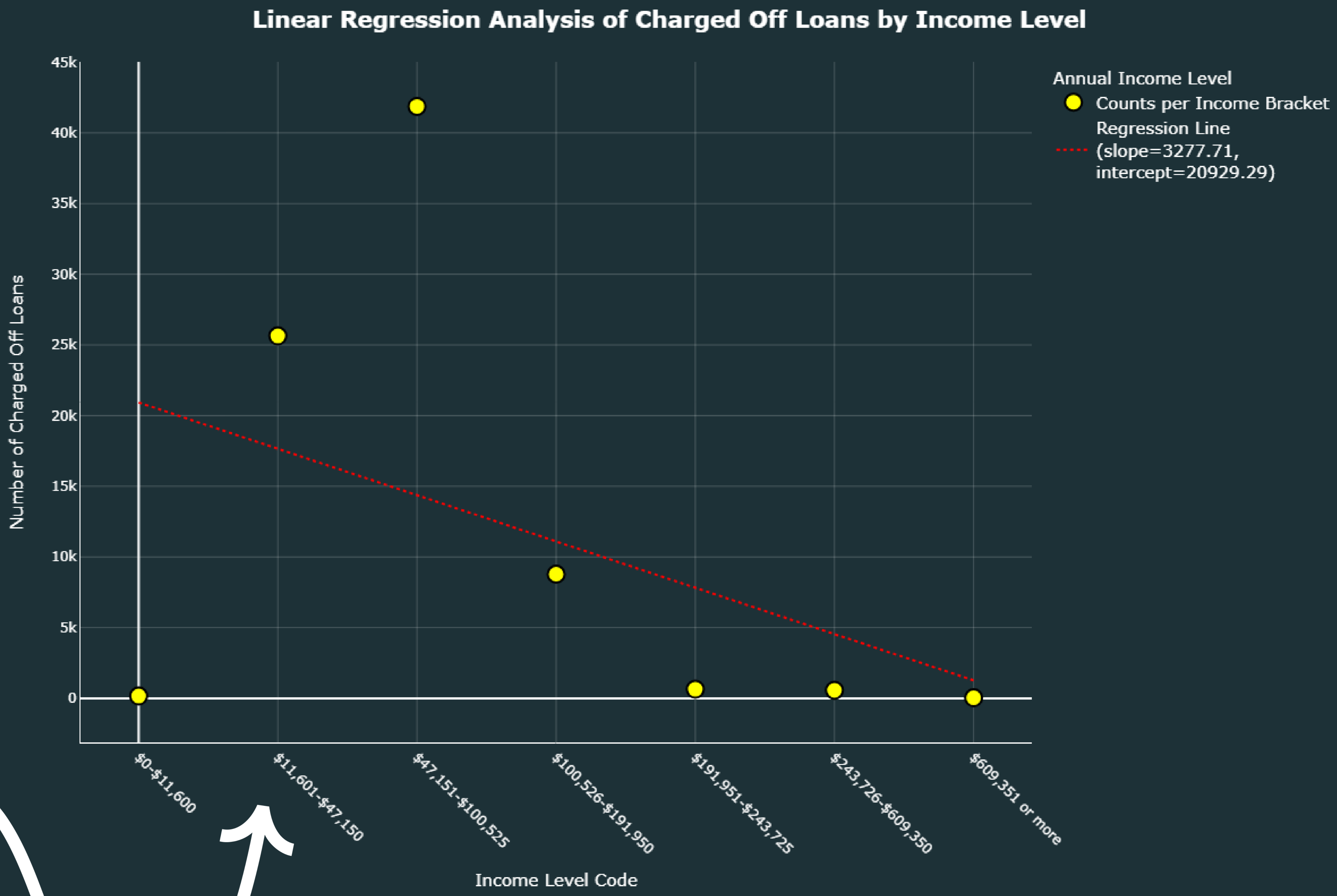


Loan Status vs Annual Income

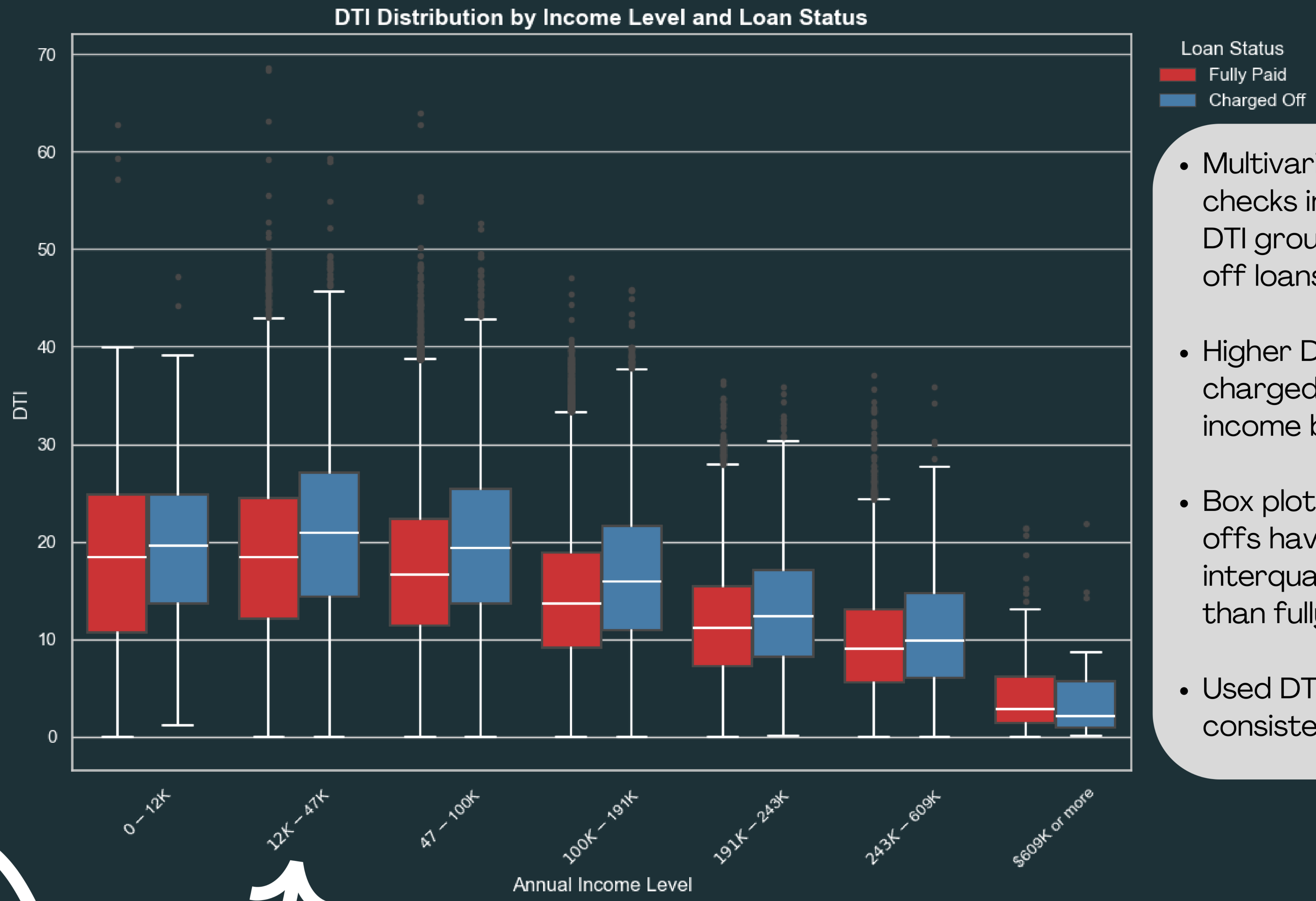


- Analysis of loan status and annual income.
- Considerations: borrower errors, loan officer oversight, potential dead deals.
- Data binned by 2024 income tax brackets.
- Key Insight: As income rises, charge-offs decline.

Loan Status vs Annual Income

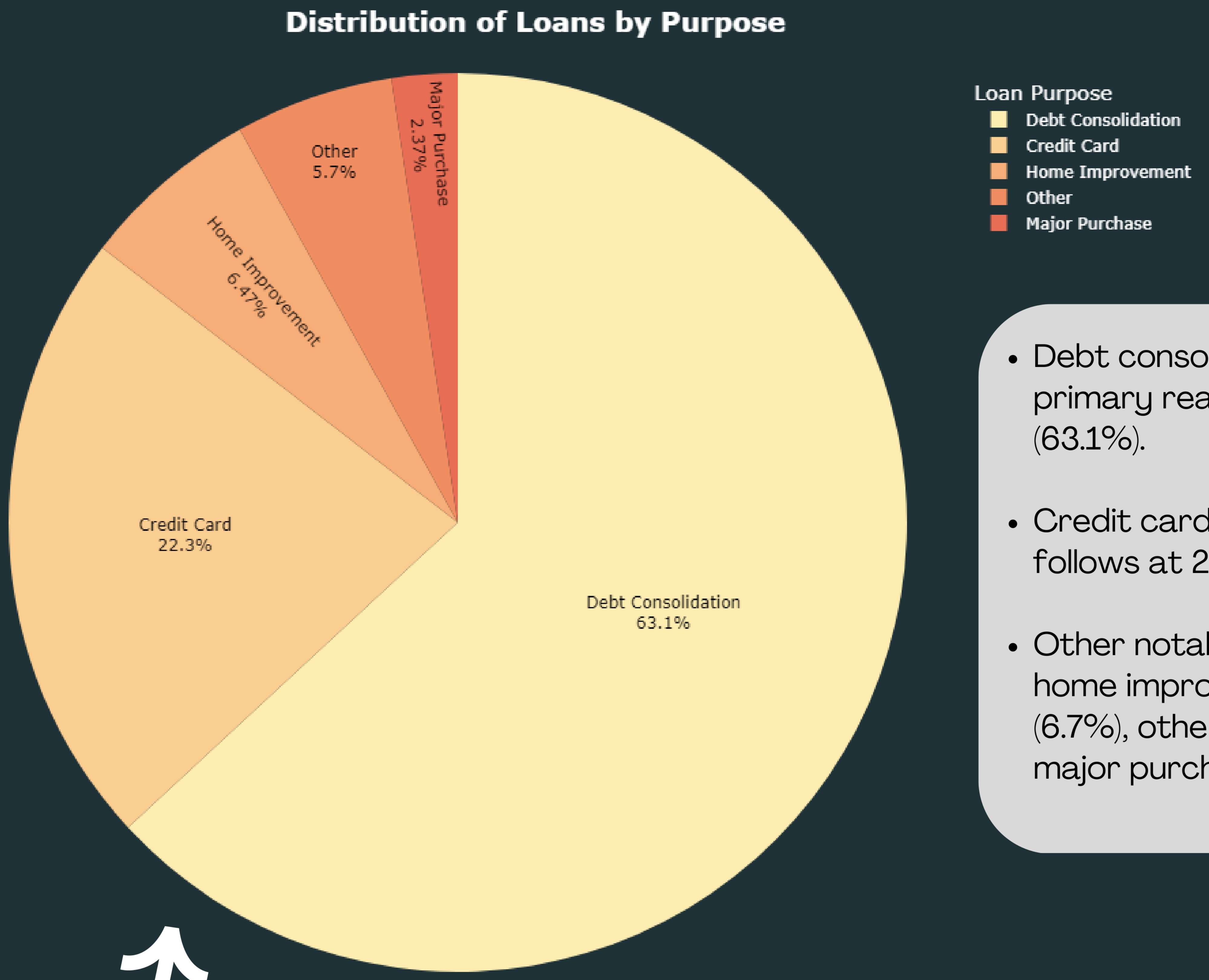


Loan Status vs DTI & Annual Income



- Multivariate analysis checks income bins with DTI grouped by charged-off loans.
- Higher DTI levels in charged-off loans across income bins.
- Box plot shows charge-offs have higher interquartile distributions than fully paid loans.
- Used DTI < 70 for consistency.

Loan Purpose Analysis



- Debt consolidation is the primary reason for loans (63.1%).
- Credit card repayment follows at 22.3%.
- Other notable purposes: home improvement (6.7%), other (5.7%), and major purchases (2.3%).

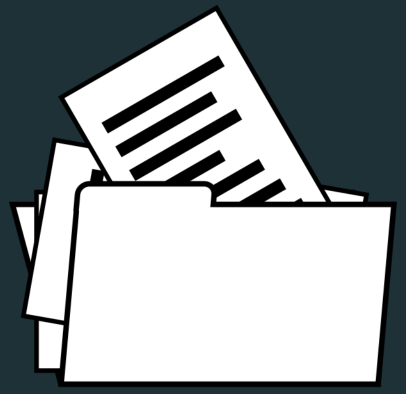
Recommendations

1

Marketing Strategy for Debt Consolidation

2

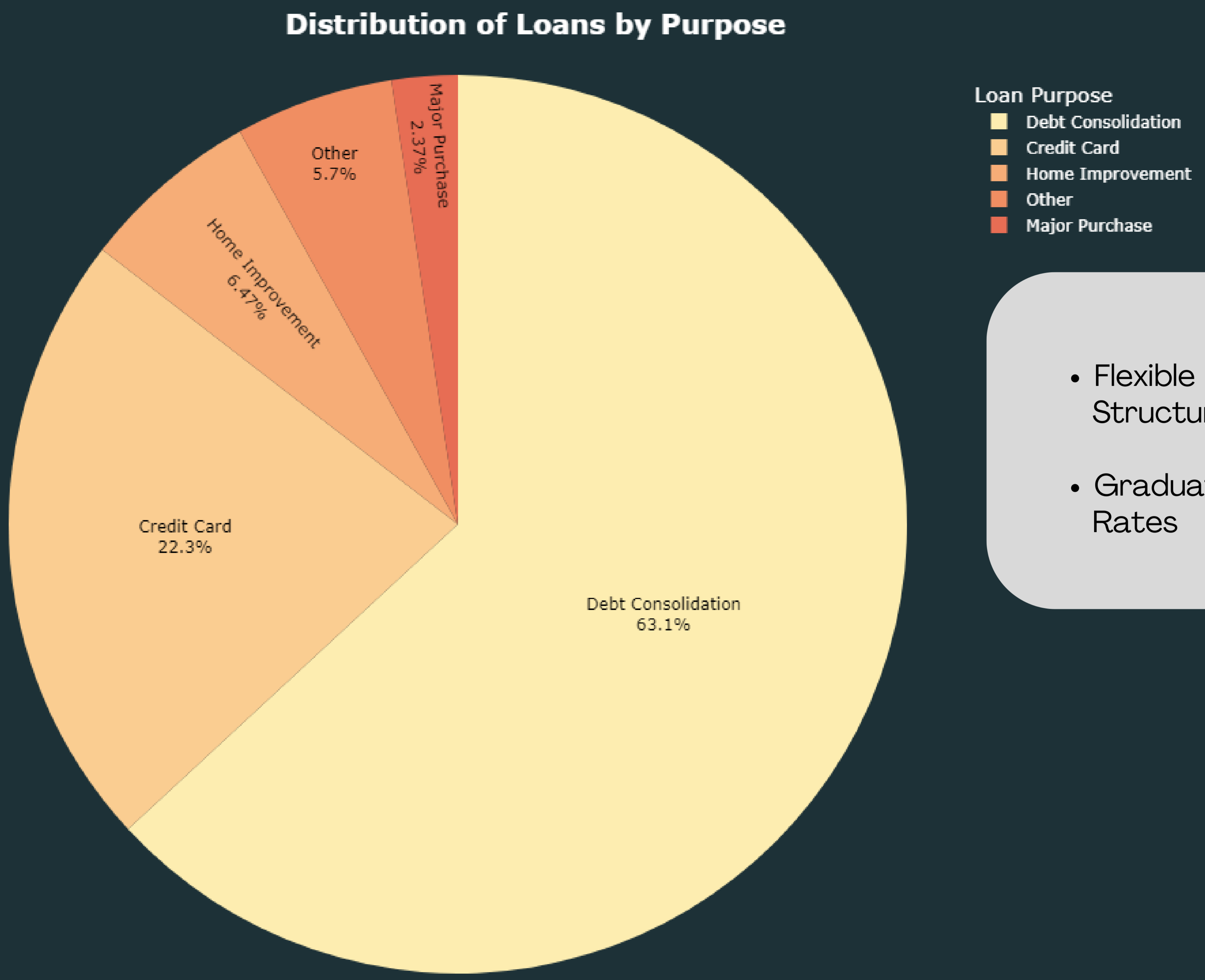
Implement Dynamic Risk Models



3

Tightening Income Verification

Marketing Strategy for Debt Consolidation



- Flexible Repayment Structures
- Graduated Interest Rates

Implement Dynamic Risk Models

Benefits

- Predict the probability of loan charge-offs
- Proactive risk management

Tightening Income Verification

Improve

- Data Integrity
- Financial Literacy Programs

Final Thoughts
& Future Directions

Q & A