

# LENDING CLUB CASE STUDY

- GROUP MEMBERS:-

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# BACKGROUND – LENDING CLUB CASE STUDY

## Background

Lending club is the largest peer-to-peer marketplace connecting borrowers with lenders. Borrowers apply through an online platform where they are assigned an internal score. Lenders decide 1) whether to lend and 2) the terms of loan such as interest rate, monthly instalment, tenure etc.

Some popular products are credit card loans, debt consolidation loans, house loans, car loans etc.

## Business Objective

To identify variables which are strong indicators of default and potentially use the insights in approval/rejection decision making.

# THE PROBLEM

## Company

Lending Club is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures.

Borrowers can easily access lower interest rate loans through a fast online interface.

## Context

Lending Club wants to understand the driving factors behind loan default, i.e. the driver variables which are strong indicators of default.

The company can utilise this knowledge for its portfolio and risk assessment.

## Problem statement

As a data scientist working for Lending Club analyze the dataset containing information about past loan applicants using EDA to understand how consumer attributes and loan attributes influence the tendency of default

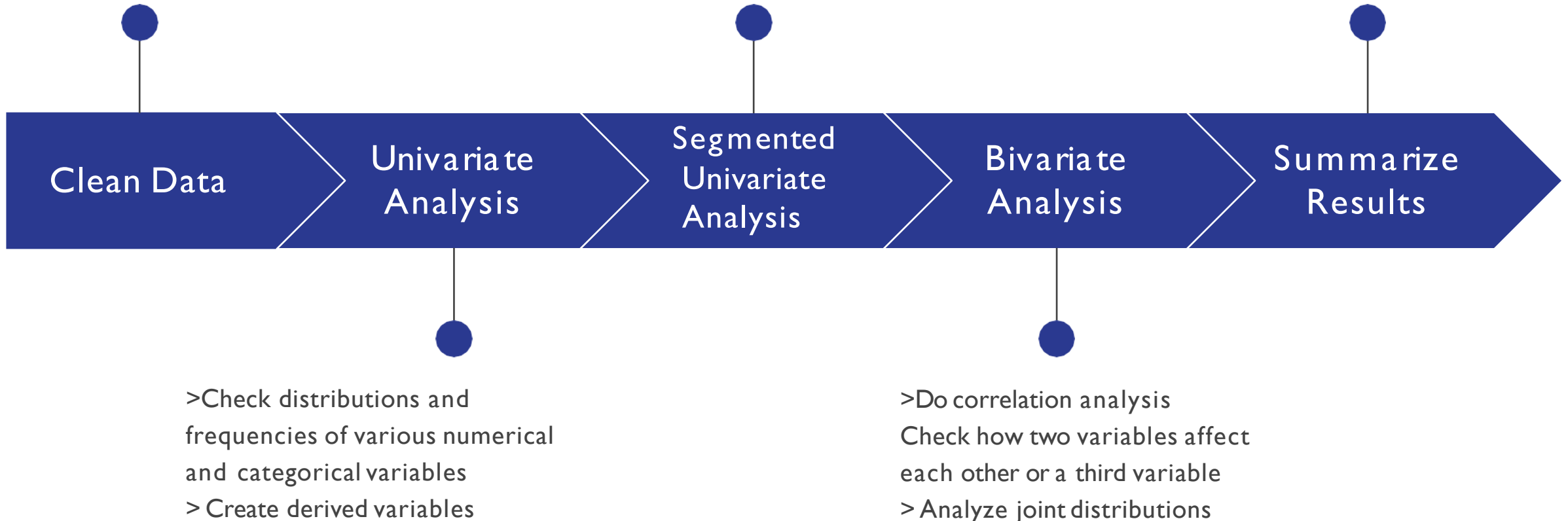


# ANALYSIS APPROACH

- > Drop columns with null values, all random values or single category value
- > Convert values to proper int, float, date representations

- > Analyze variables against segments of other variables
- > Create derived variables

Publish insights and observations



# DATA

## UNDERSTANDING

### Types of variables

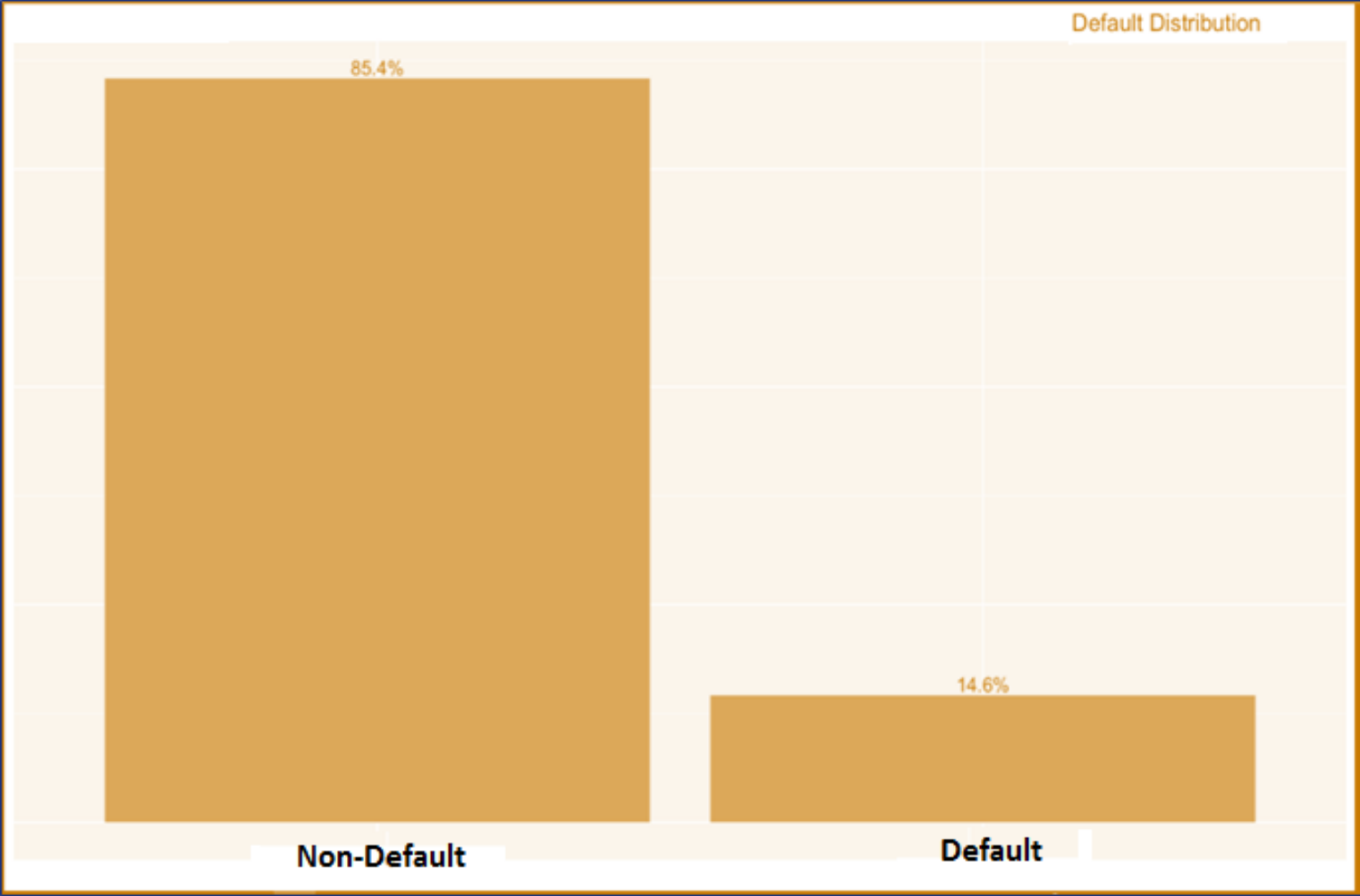
- Customer (applicant) demographic
- Loan related information & characteristics
- Customer behaviour (if the loan is granted)

Customer's Demographics
Employement Length
Employement title
Annual Income
Zip Code
Description

Loan Information & Characteristics
Loan Amount
Funded Amount
Funded Amount Investment
Interest Rate
Loan Status
Laon Grade

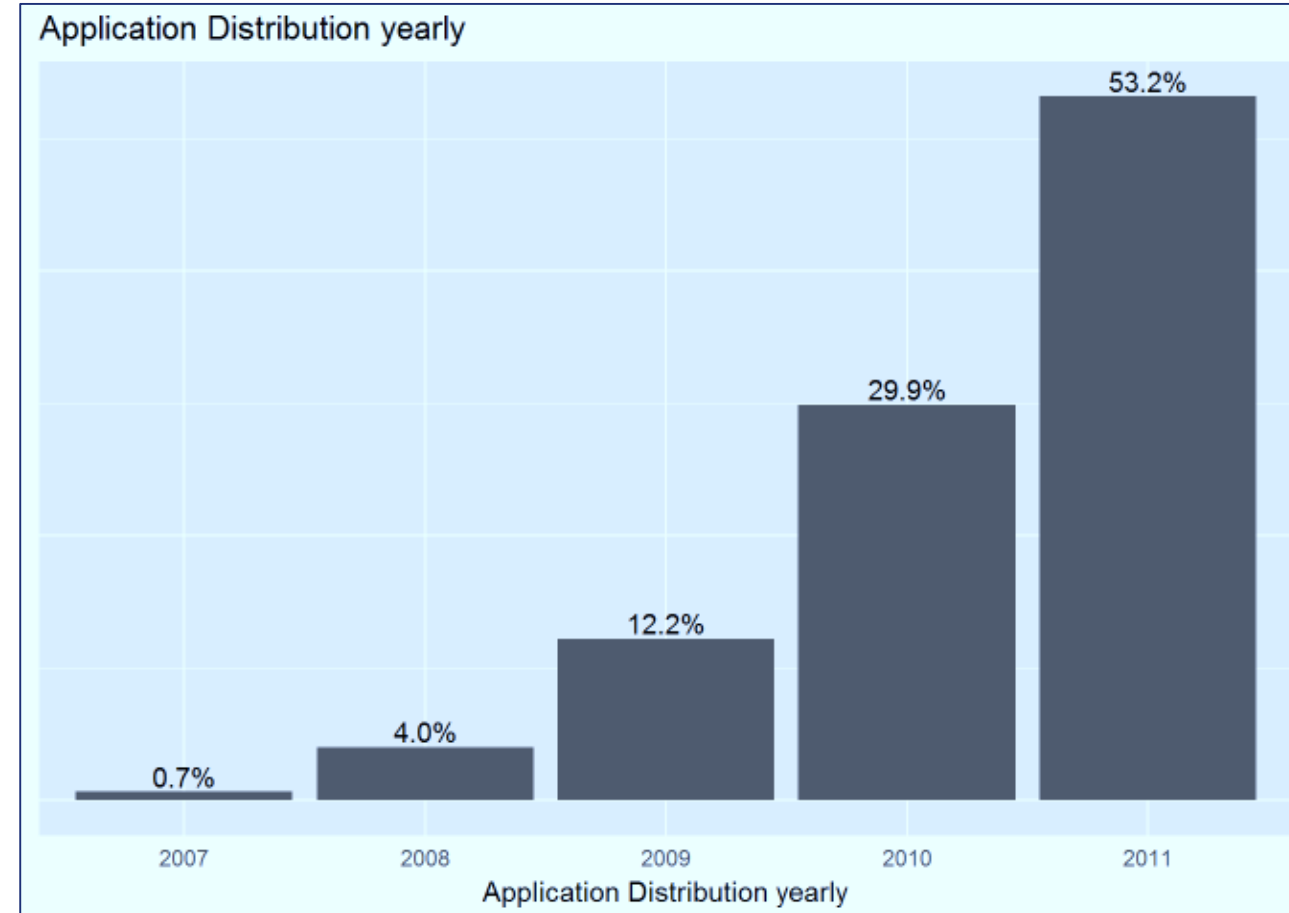
Customer Behaviour variables
Delinquency year -2
earliest credit line
Revolving balance
Recoveries
Application type
Loan purpose

DATA UNDERSTANDING - OVERALL DEFAULT RATE  
IS 14%



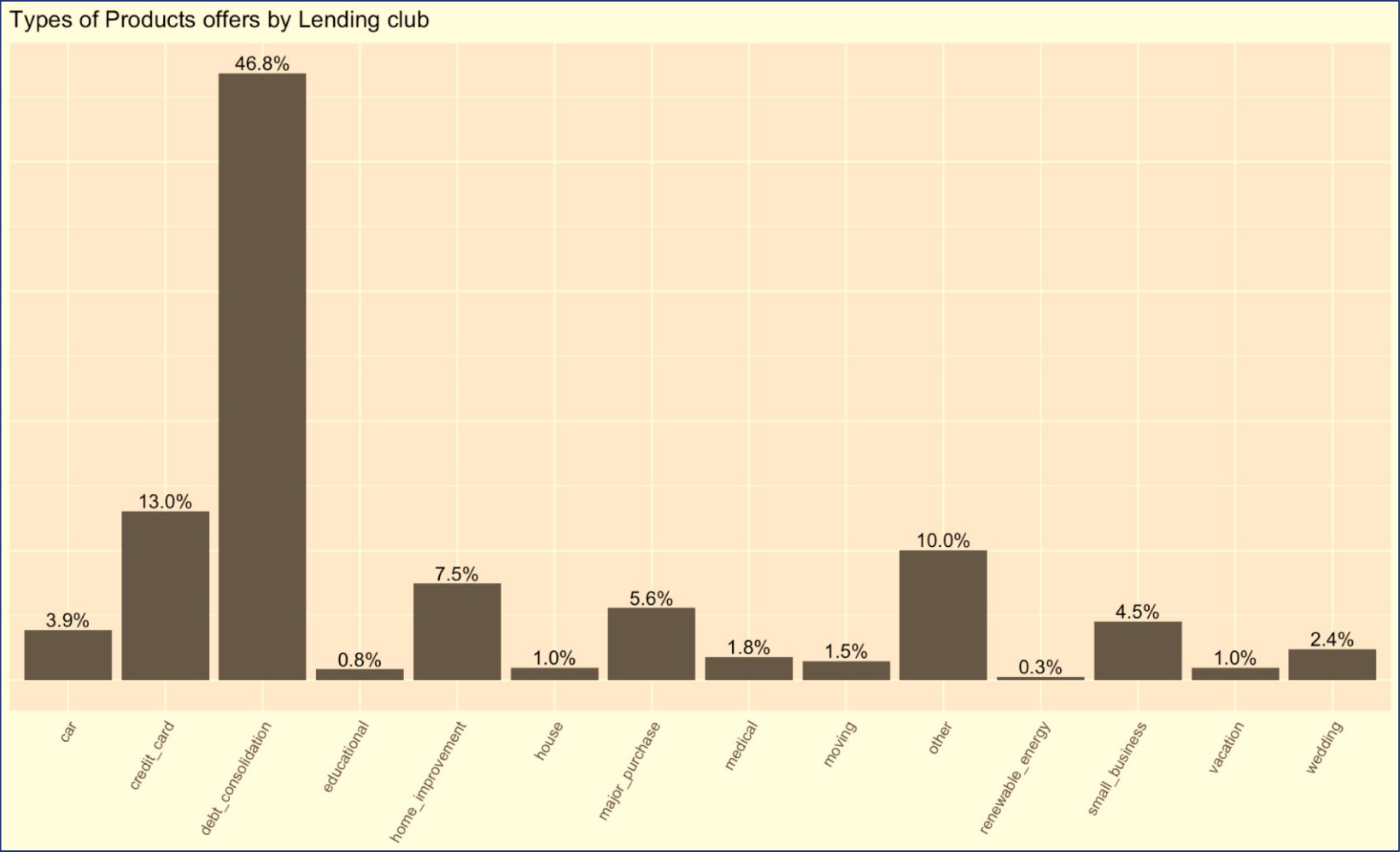
## TIME FRAME OF THE DATA – 2007-2011

- 78% increment in applicants in 2011 compared to 2010
- 145% increment in applicants in 2010 compared to 2009



# LOAN PURPOSE DISTRIBUTION : DEBT CONSOLIDATION LOAN IS THE MOST POPULAR

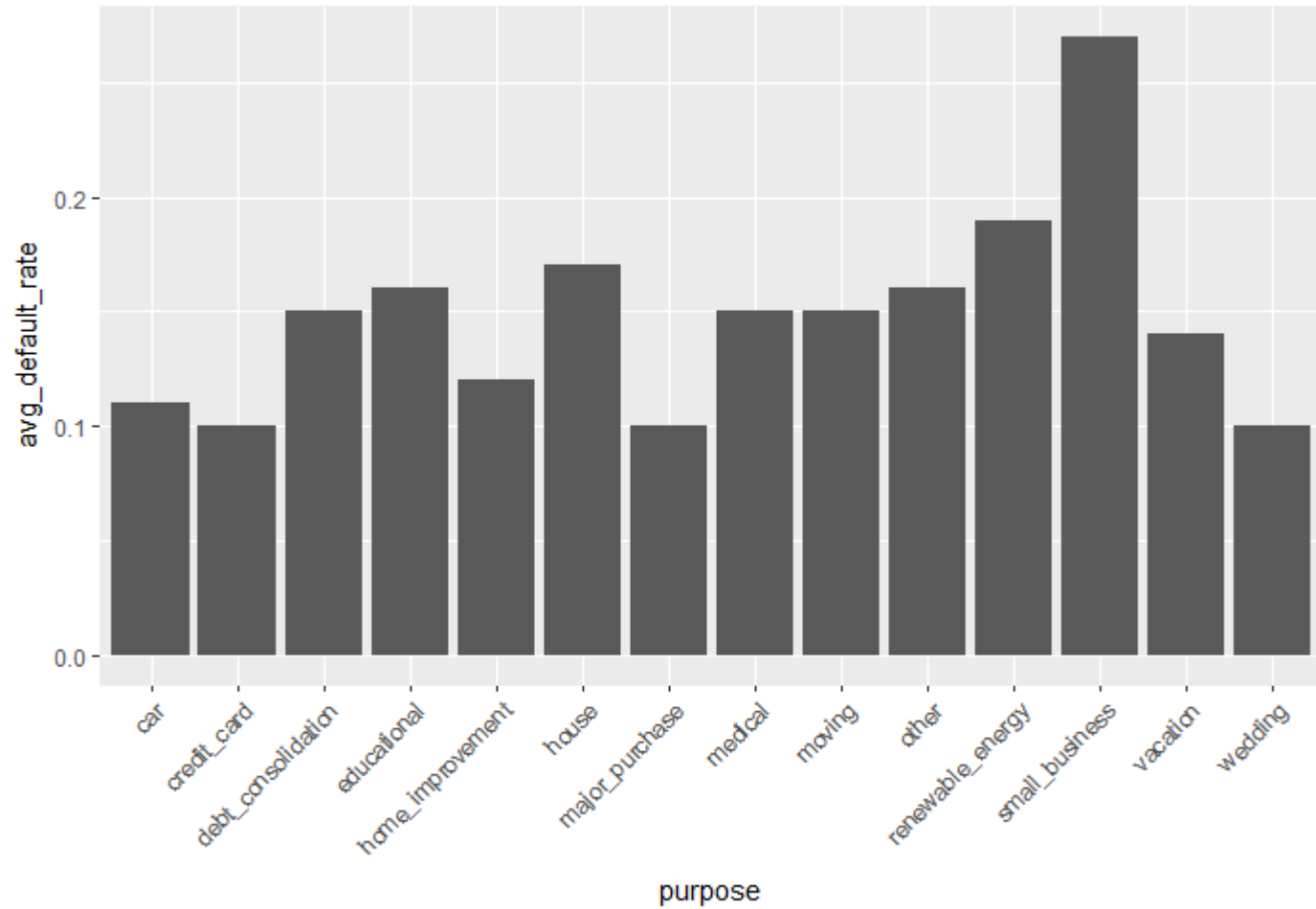
- 46.8% debt consolidation loans
- 13% credit card loans
- 7.5% home improvement loans
- 5.6% major purchase loans





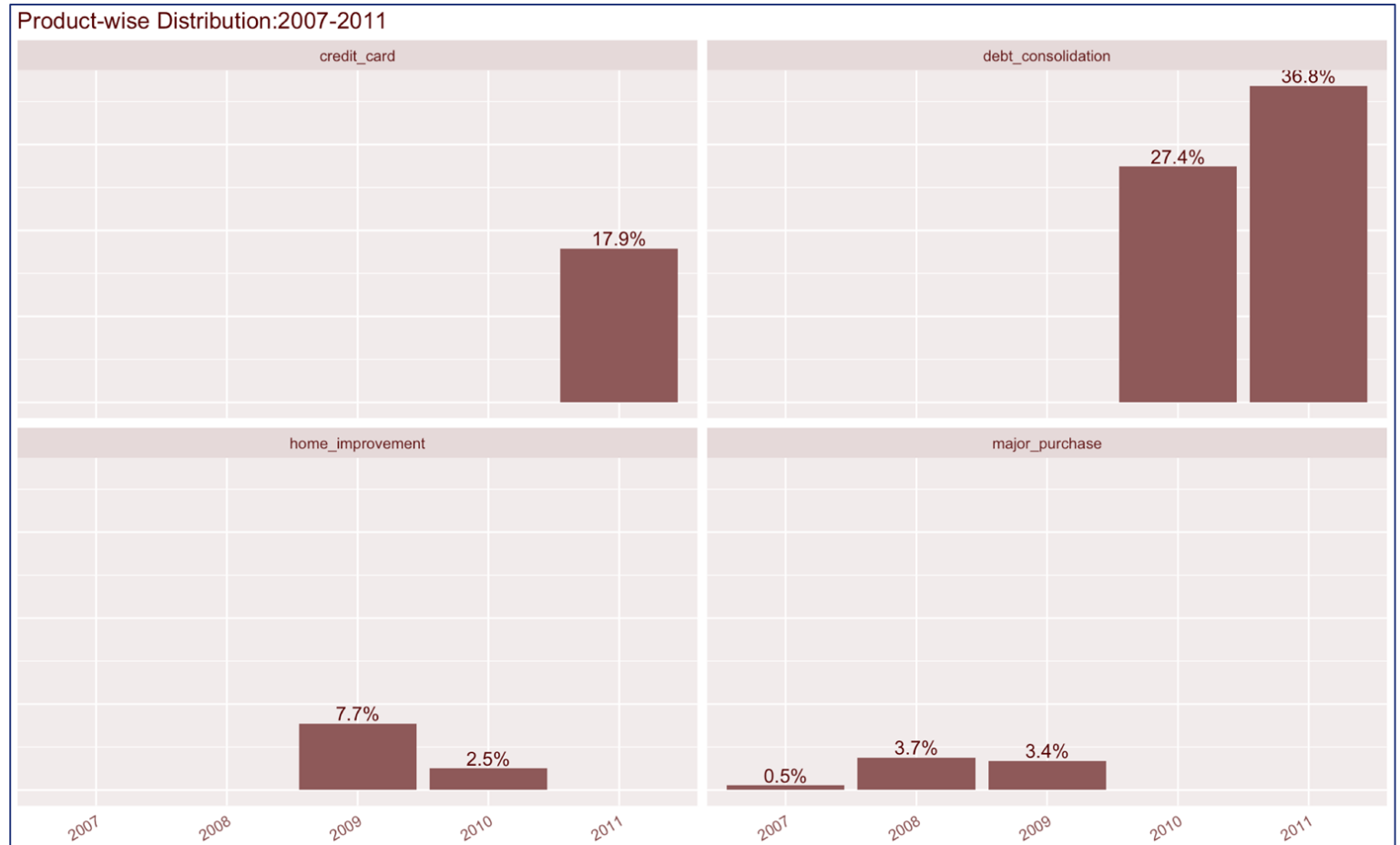
## DEFAULT RATES BY LOAN PURPOSE

- Small business: 27%
- House: 17%
- Educational: 16%
- Debt consolidation: 15%
- Credit card: 10%
- Major purchase: 10%



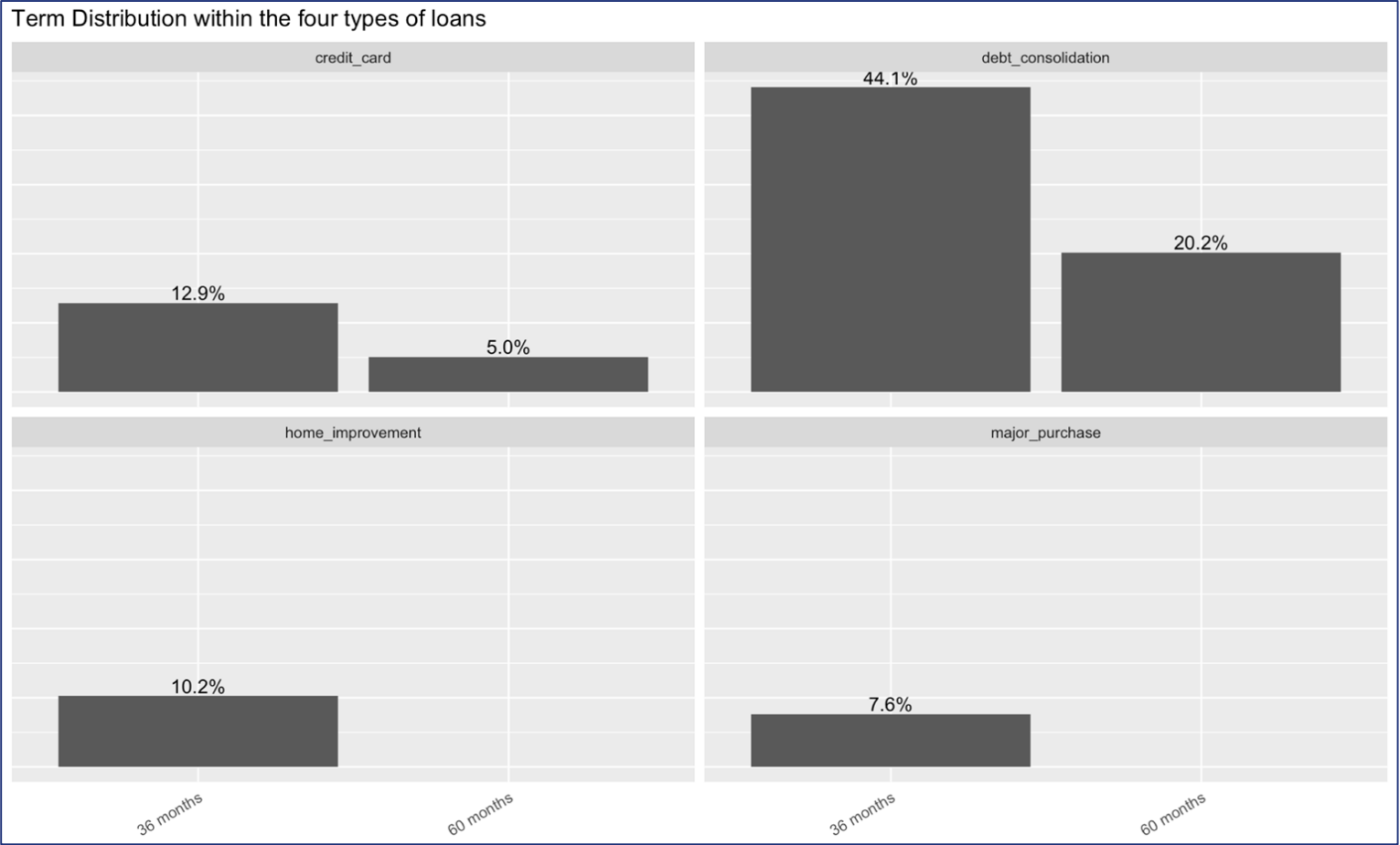
## TOP-4 PRODUCTS OVER TIME: CREDIT CARD, DEBT CONSOLIDATION, HOME IMPROVEMENT & MAJOR PURCHASE

- In 2007 & 2008, Lending Club focused on major purchase loans
- In 2009, they started lending money for home improvement purpose also
- In 2010, they started lending loan for debt consolidation
- In 2011, credit card loans were introduced

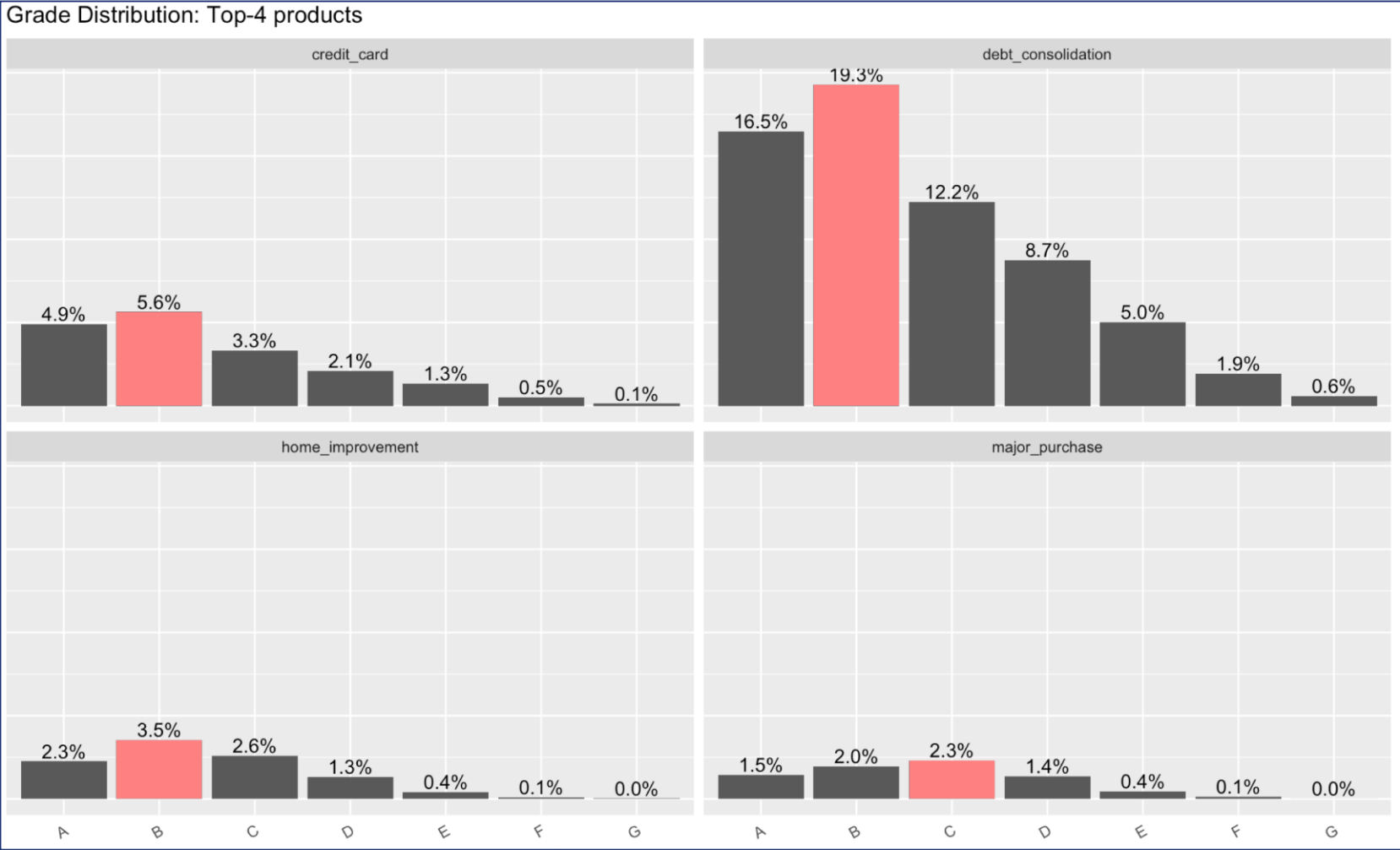


# TERM DISTRIBUTION IN TOP-4 PRODUCTS

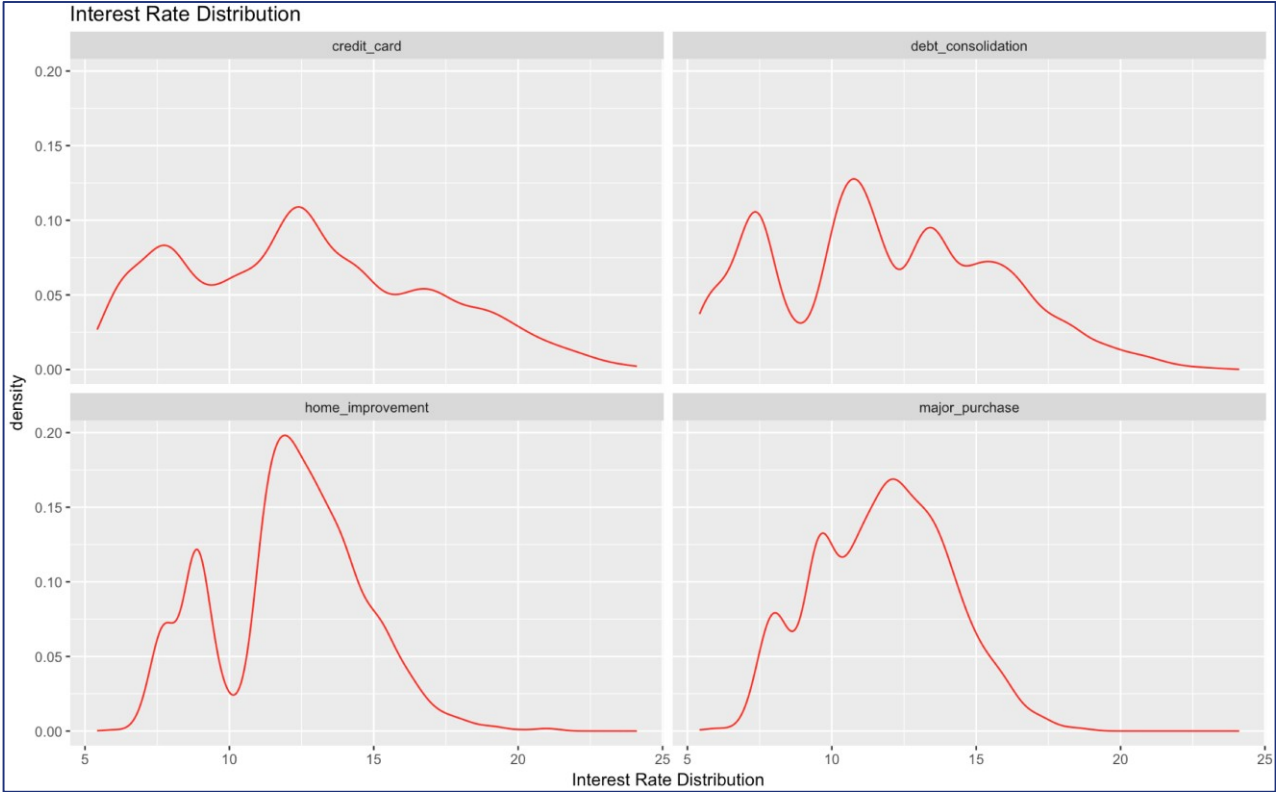
- Lending club has given out 36 month term period loan for major purpose and home improvement.



# GRADE DISTRIBUTION IN TOP-4 PRODUCTS



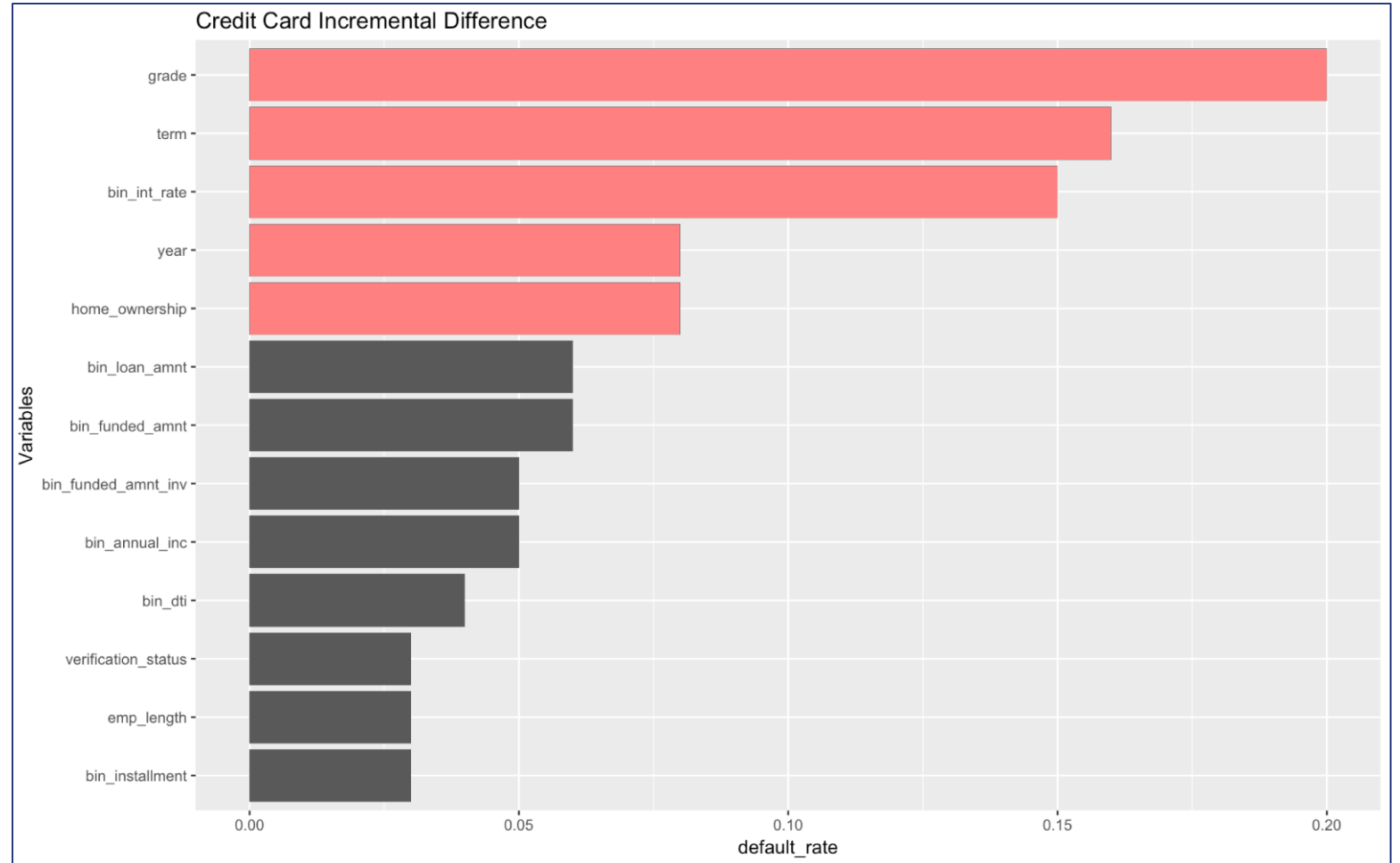
# AVERAGE INTEREST RATE IN TOP-4 PRODUCTS



Credit Card	Debt Consolidation	Home improvement	Major purchase
11.62%	12.40%	11.29%	10.80%

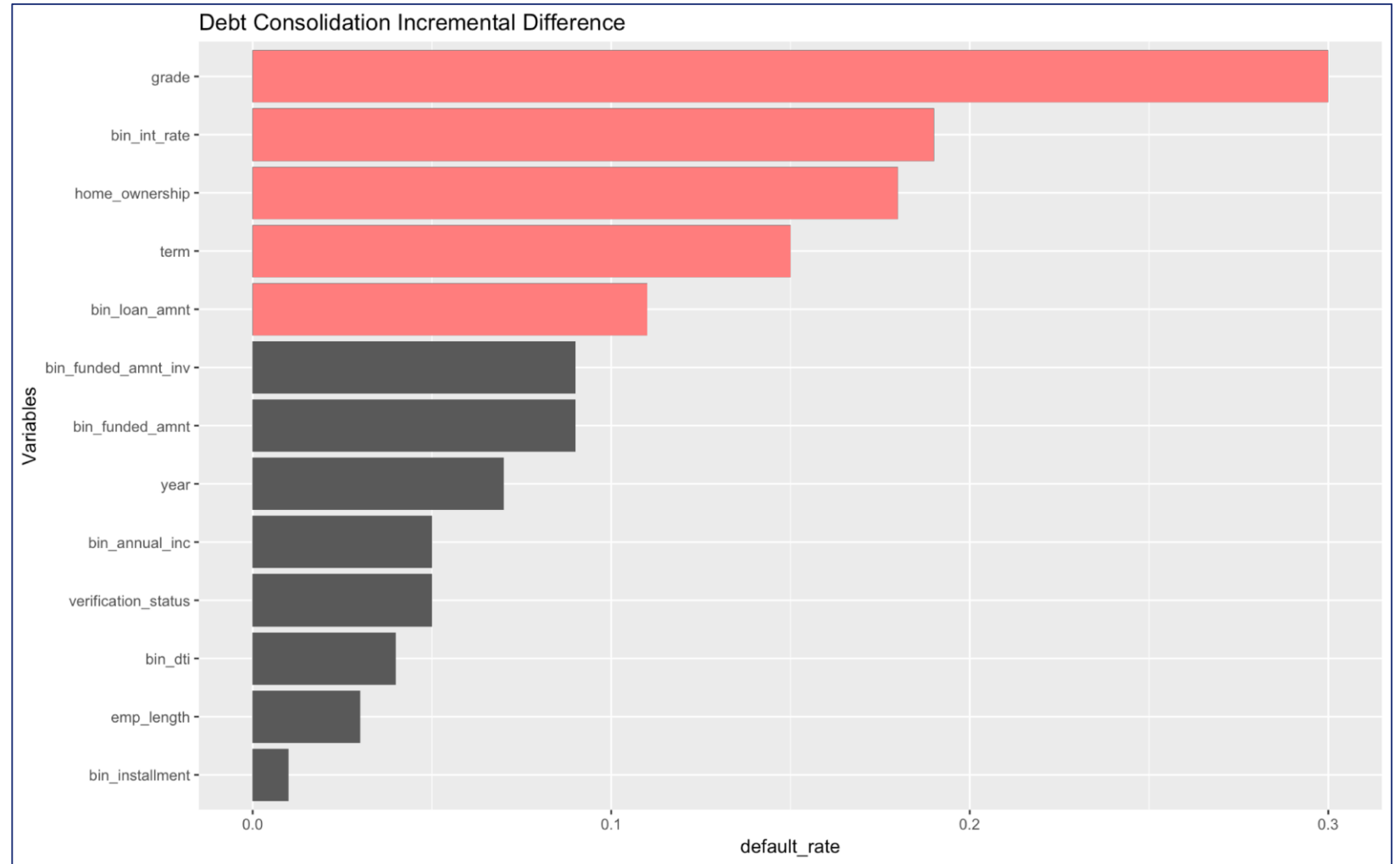
## IMPORTANT VARIABLES: CREDIT CARD

- Grade
- Term
- Bin interest rate
- Year
- Home Ownership



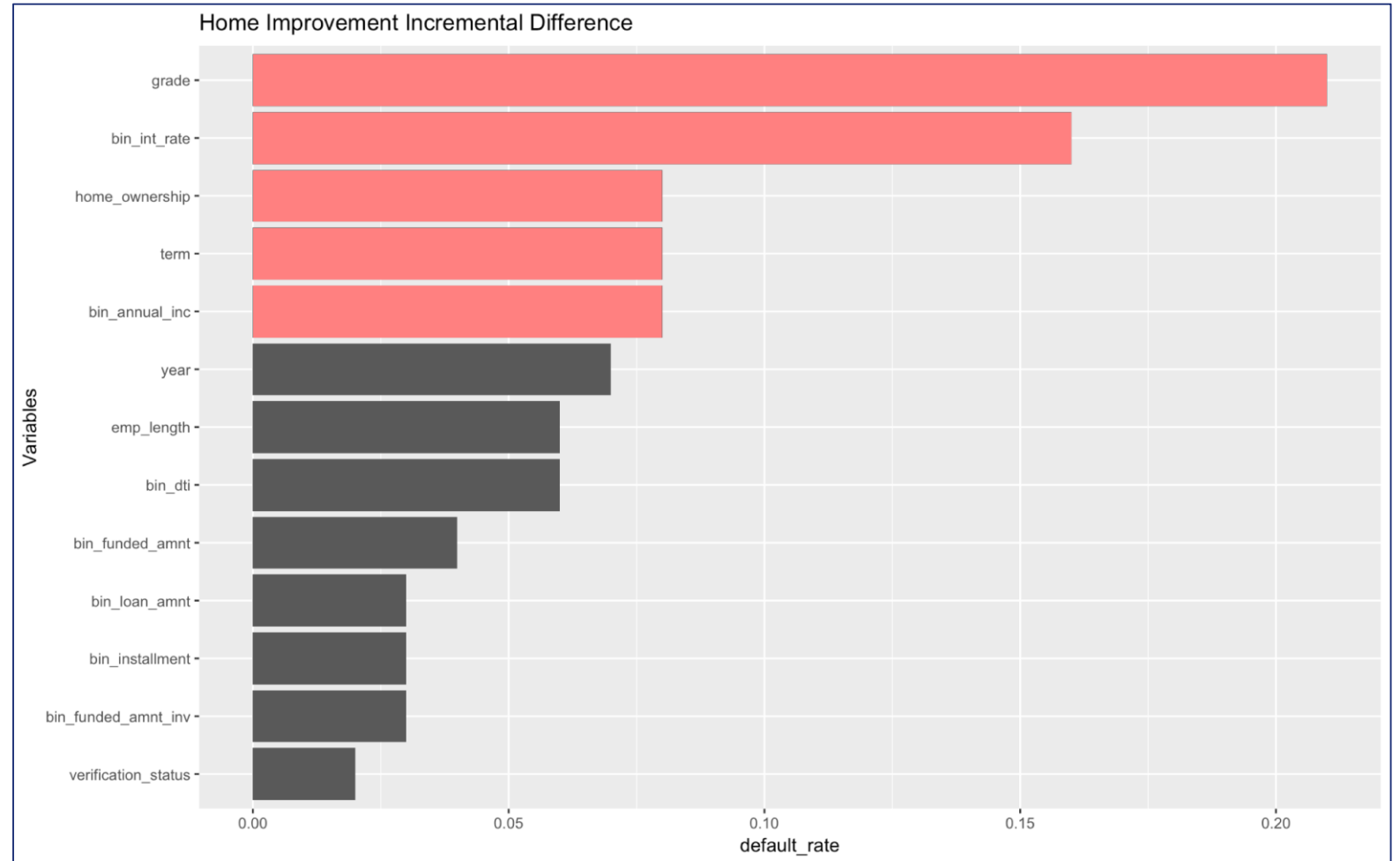
## IMPORTANT VARIABLES– DEBT CONSOLIDATION

- Grade
- Bin interest rate
- Home Ownership
- Term
- Bin loan amount



## IMPORTANT VARIABLES - HOME IMPROVEMENT

- Grade
- Bin interest rate
- Home Ownership
- Term
- Bin Annual Income





## IMPORTANT VARIABLES– MAJOR PURCHASE

- Grade
- Bin interest rate
- Term
- Home Ownership
- Year

