

Gramener Case Study

Business Objective

- Understanding the "driving factors" behind the loan default
- If one is able to identify these risky loan applicants, then such loans can be reduced thereby cutting down the overall amount of credit loss
- Identification of such applicants using EDA is the aim of this case study

Understanding the loan data

META DATA

Based on the given data, we can categorise the variables under 3 groups:

- Variables related to customer's demographic - About the Customer
 - Variables related to the loan related information
 - Variables related to the customer's credit information
-

Customer Information

emp_title	The job title supplied by the Borrower when applying for the loan.*
emp_length	Employment length in years. Possible values are between 0 and 10 where 0 means less than one year and 10 means ten or more years.
home_ownership	The home ownership status provided by the borrower during registration. Our values are: RENT, OWN, MORTGAGE, OTHER.
annual_inc	The self-reported annual income provided by the borrower during registration.
verification_status	Indicates if income was verified by LC, not verified, or if the income source was verified
addr_state	The state provided by the borrower in the loan application
zip_code	The first 3 numbers of the zip code provided by the borrower in the loan application.
title	The loan title provided by the borrower
purpose	A category provided by the borrower for the loan request.
desc	Loan description provided by the borrower
url	URL for the LC page with listing data.

Loan related Information

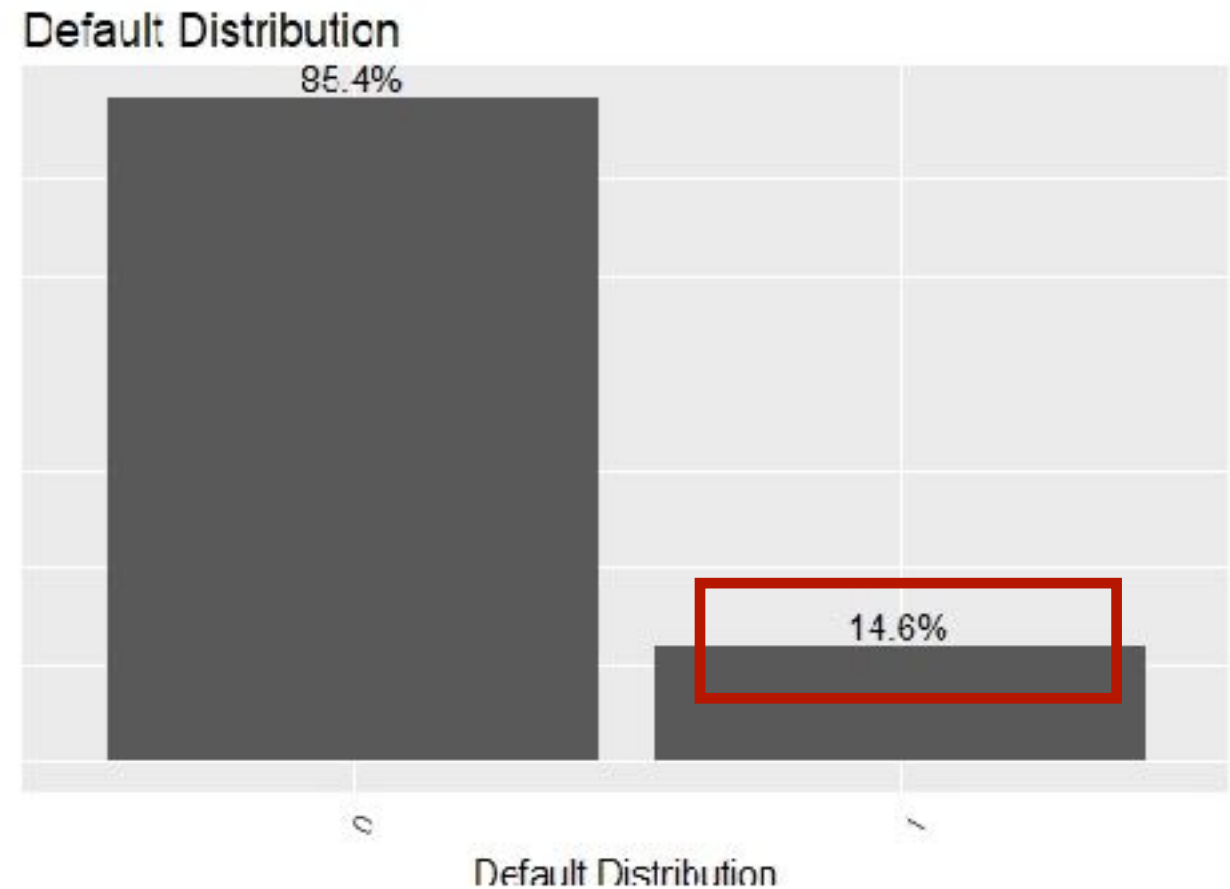
loan_amnt	The listed amount of the loan applied for by the borrower. If at some point in time, the credit department reduces the loan amount, then it will be reflected in this value.
funded_amnt	The total amount committed to that loan at that point in time.
funded_amnt_inv	The total amount committed by investors for that loan at that point in time.
int_rate	Interest Rate on the loan
loan_status	Current status of the loan
grade	LC assigned loan grade
sub_grade	LC assigned loan subgrade
dti	A ratio calculated using the borrower's total monthly debt payments on the total debt obligations, excluding mortgage and the requested LC loan, divided by the borrower's self-reported monthly income.
issue_d	The month which the loan was funded
term	The number of payments on the loan. Values are in months and can be either 36 or 60.
installment	The monthly payment owed by the borrower if the loan originates.

Customer's Credit Related Information

delinq_2yrs	The number of 30+ days past-due incidences of delinquency in the borrower's credit file for the past 2 years
earliest_cr_line	The month the borrower's earliest reported credit line was opened
inq_last_6mths	The number of inquiries in past 6 months (excluding auto and mortgage inquiries)
open_acc	The number of open credit lines in the borrower's credit file.
pub_rec	Number of derogatory public records
revol_bal	Total credit revolving balance
revol_util	Revolving line utilization rate, or the amount of credit the borrower is using relative to all available revolving credit.
total_acc	The total number of credit lines currently in the borrower's credit file
out_prncp	Remaining outstanding principal for total amount funded
out_prncp_inv	Remaining outstanding principal for portion of total amount funded by investors
total_pymnt	Payments received to date for total amount funded
total_pymnt_inv	Payments received to date for portion of total amount funded by investors
total_rec_int	Interest received to date
total_rec_late_fee	Late fees received to date
recoveries	post charge off gross recovery
collection_recovery_fee	post charge off collection fee
last_pymnt_d	Last month payment was received
loan_amnt	The listed amount of the loan applied for by the borrower. If at some point in time, the credit department reduces the loan amount, then it will be reflected in this value.
next_pymnt_d	Next scheduled payment date
last_credit_pull_d	The most recent month LC pulled credit for this loan
application_type	Indicates whether the loan is an individual application or a joint application with two co-borrowers

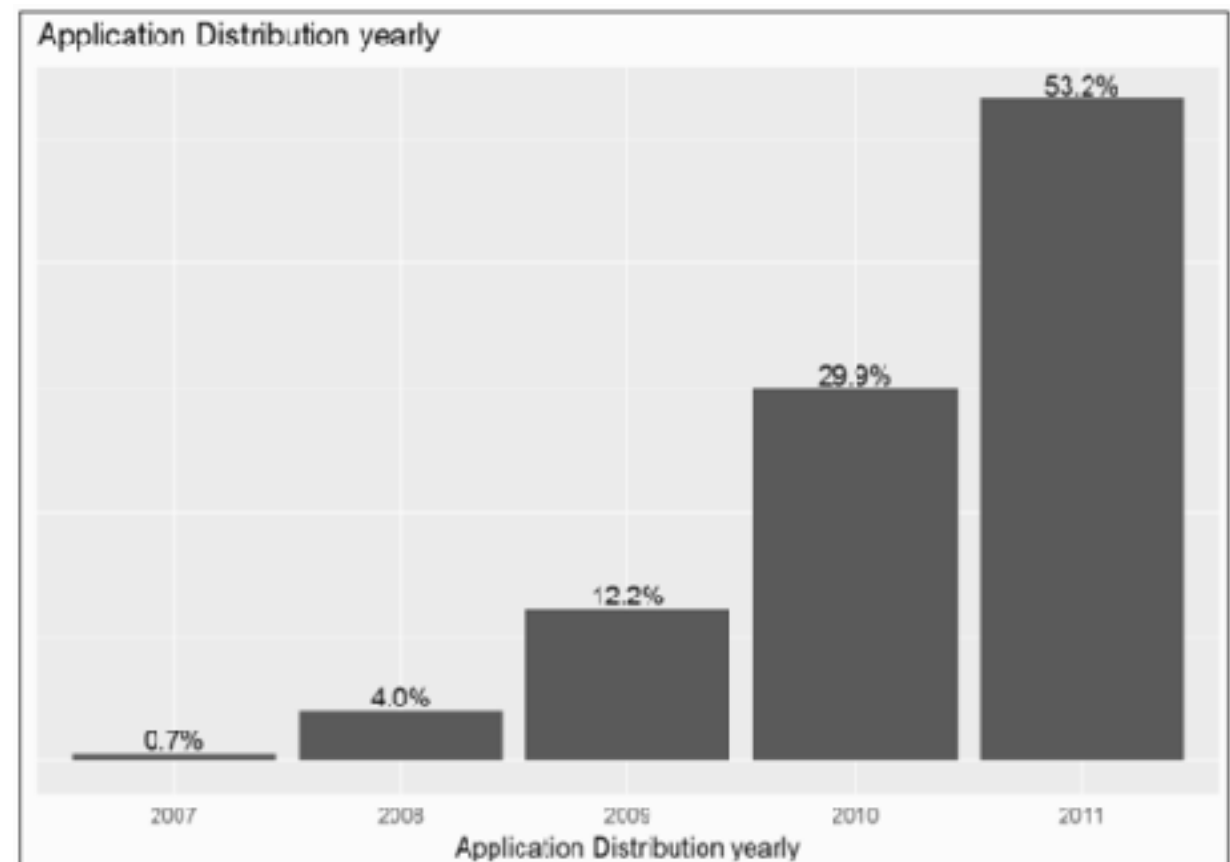
Analysis

The overall default rate **is 14.6 %**

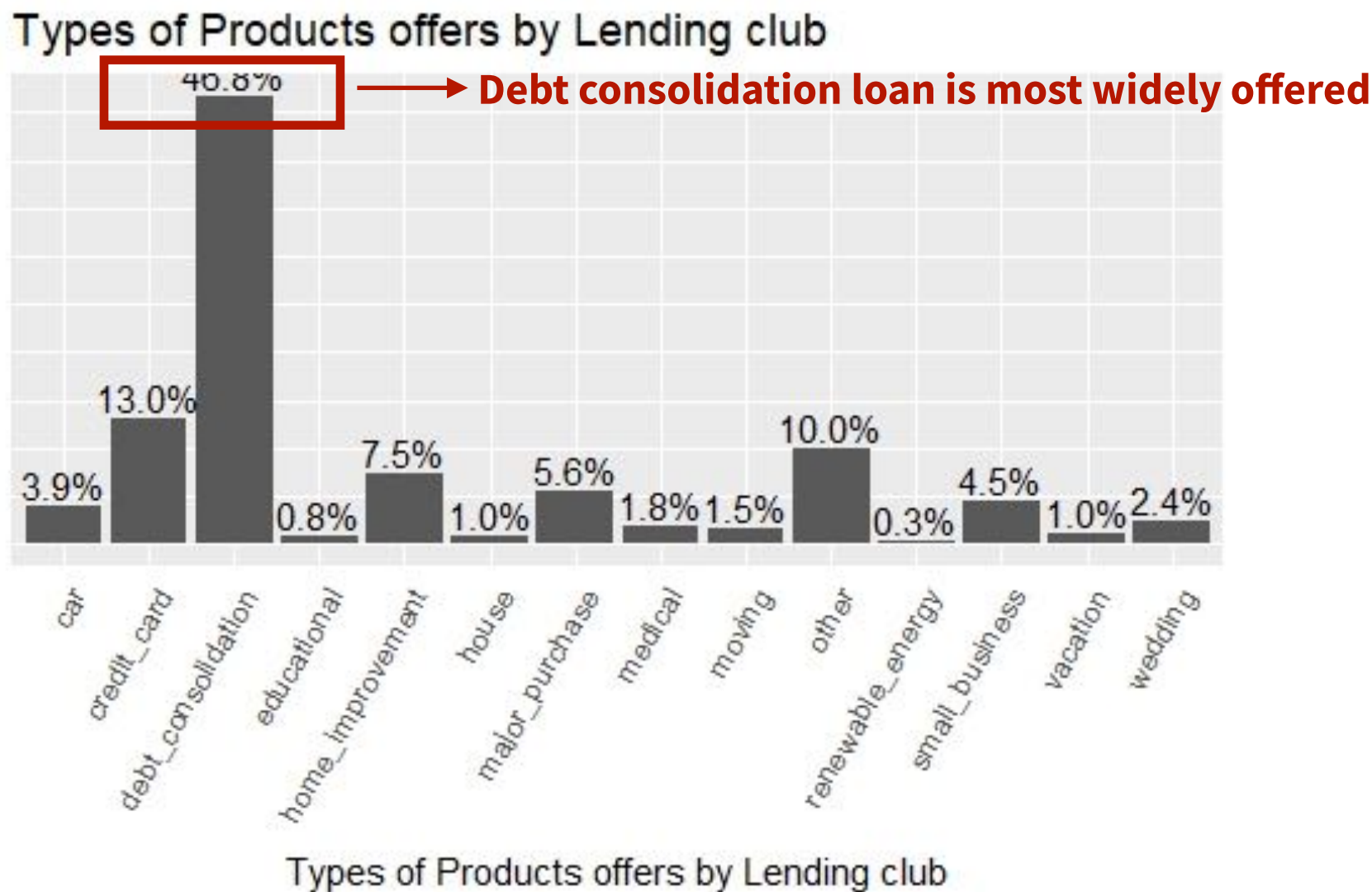


Loan data timeframe: 2007 to 2011:

- Increment in applicants from 2011 compared to 2010: **78%**
- Increment in applicants from 2010 compared to 2009: **145%**

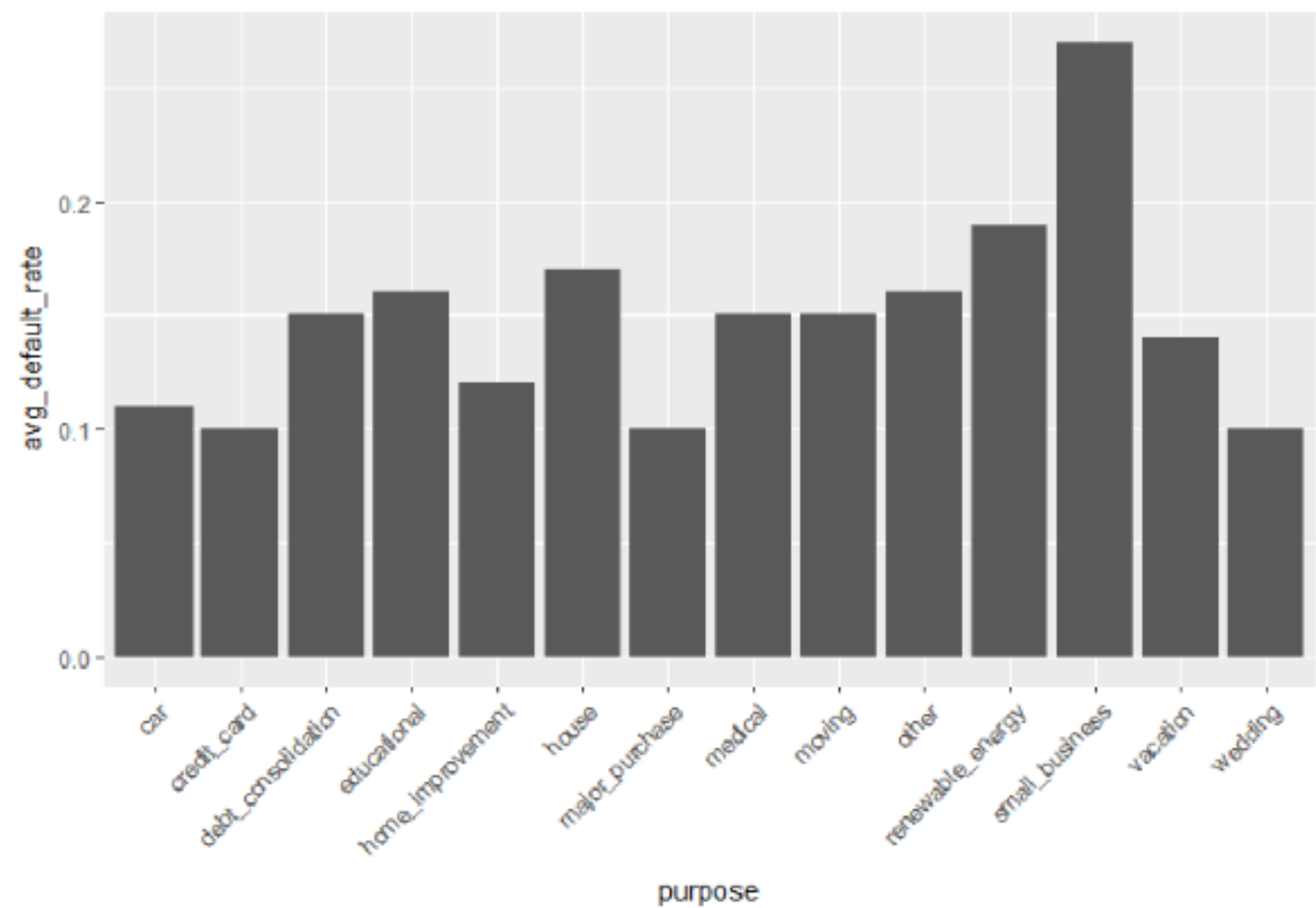


Statistics on loan distribution



Breakdown of major loan products	Percentage offered
Debt consolidation	46.8%
Credit Card	13%
Home improvement	7.5%
Major Purchase loans	5.6%

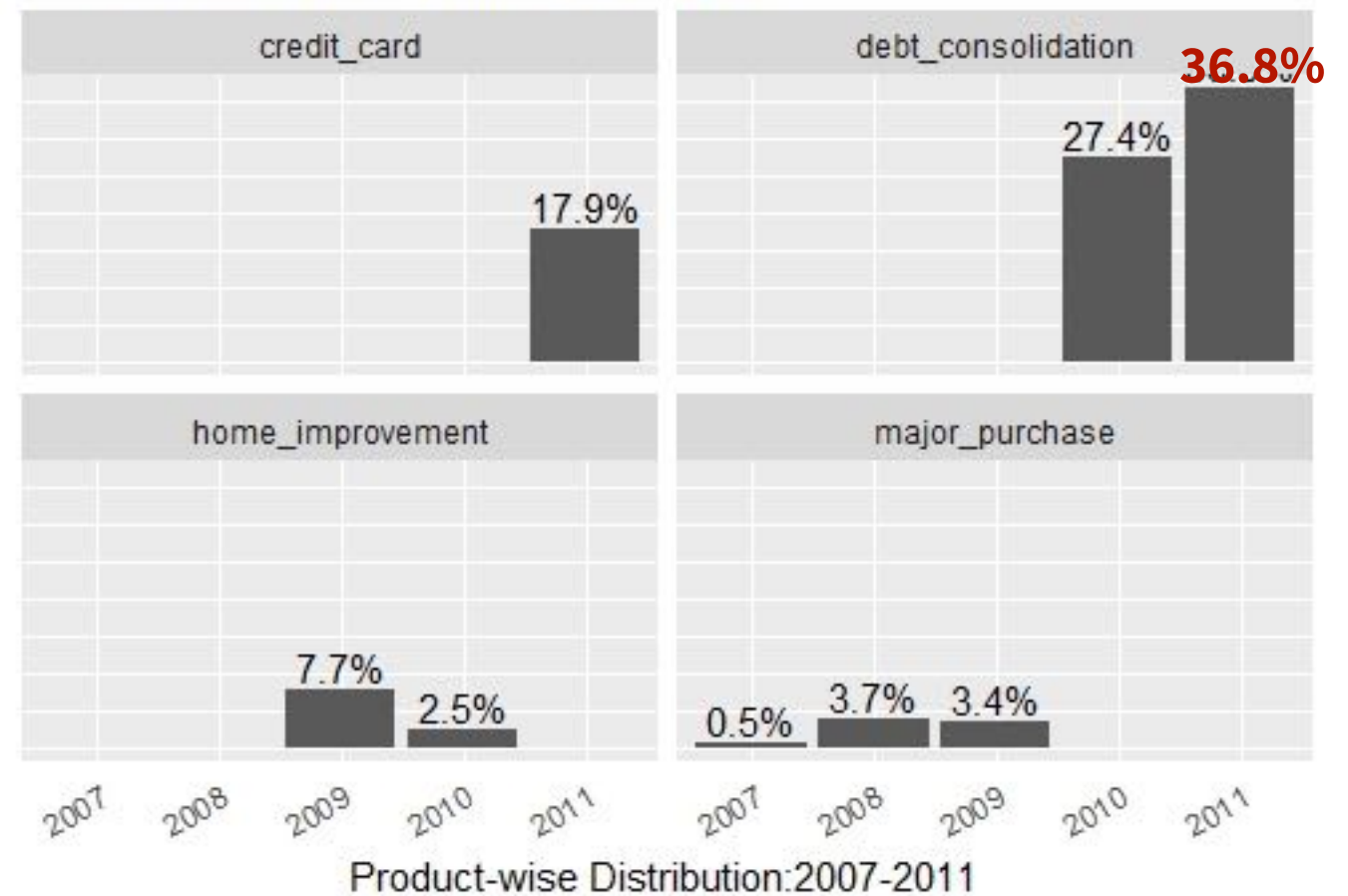
Rate of default based on the purpose of loan



Default rates by loan purpose	Percentage
Small Business	27%
House	17%
Educational	16%
Debt Consolidation	15%
Credit Card	10%
Major Purchase	10%

Top 4 loan products
Credit Card
Debt Consolidation
Home improvement
Major Purchase

Product-wise Distribution:2007-2011



- In 2007 & 08, lending club focused on major purchase loans
- In 2009, they also started lending money for home improvement
- In 2010, they started lending money for deb consolidation
- In 2011, credit card loans were introduced

Term distribution for top 4 loans products

- Loan period for major purchase loans - 36 months

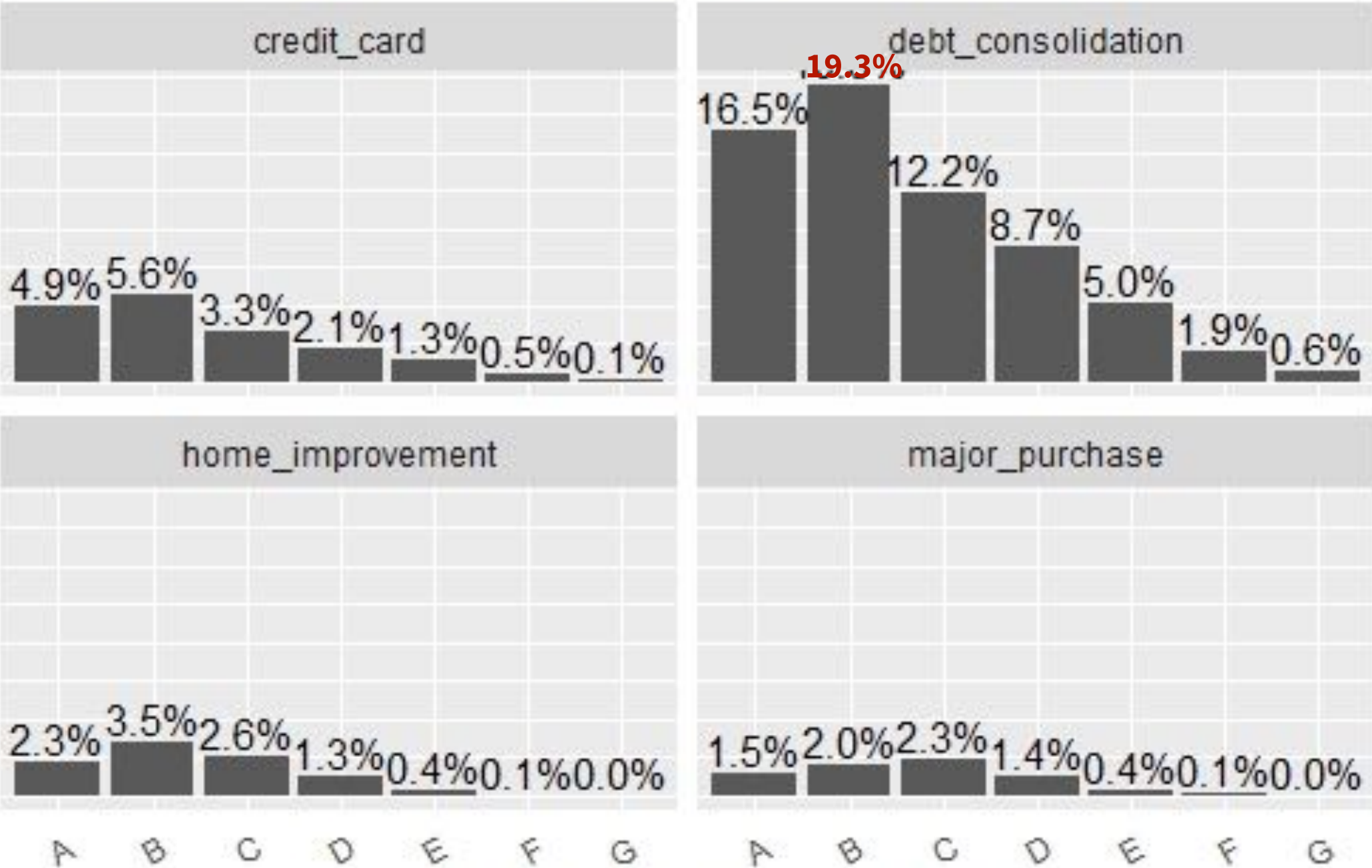
Term Distribution within the four types of loans



Term Distribution within the four types of loans

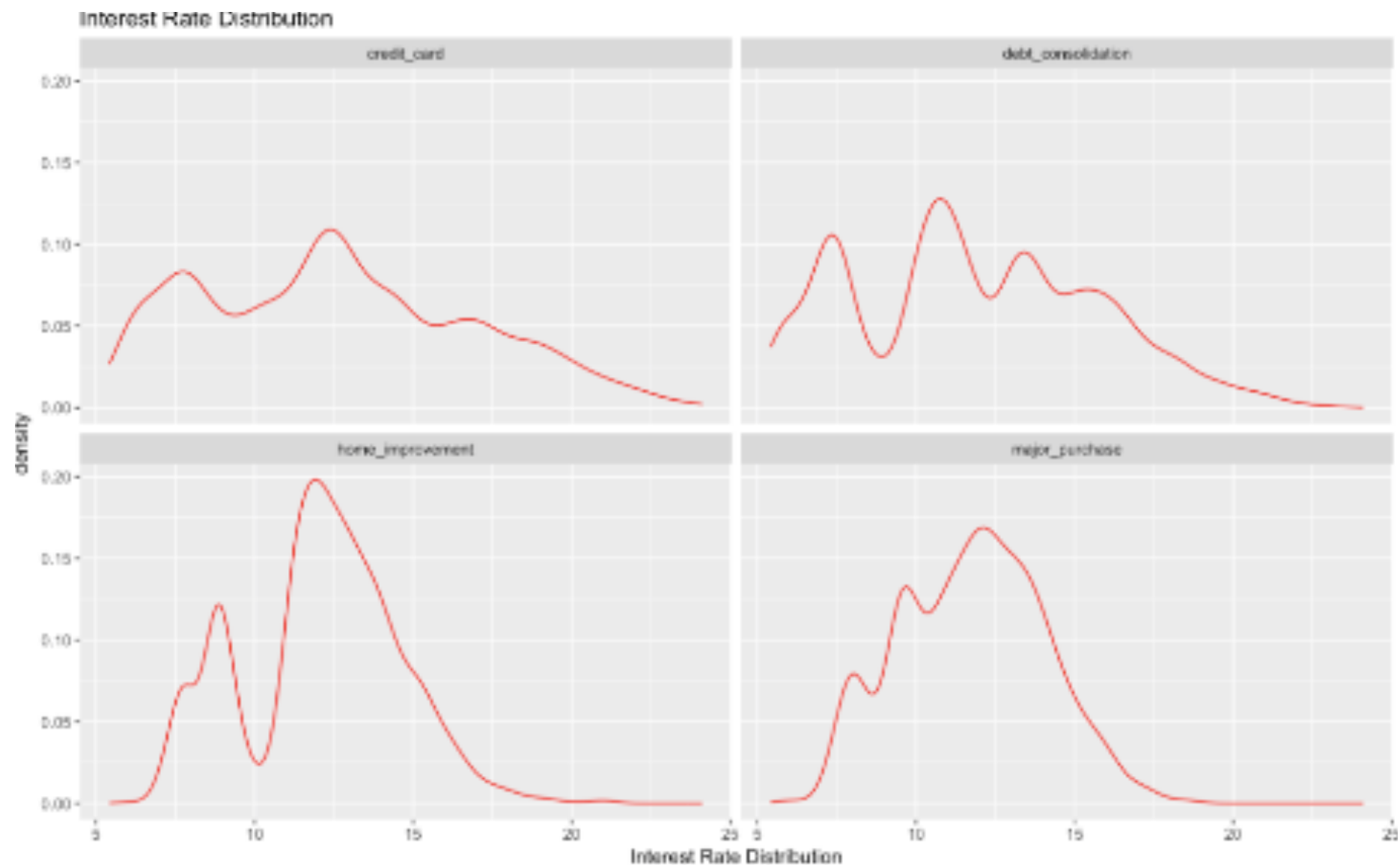
Graph distribution for top - 4 loan products

Grade Distribution: Top-4 products



Grade Distribution: Top-4 products

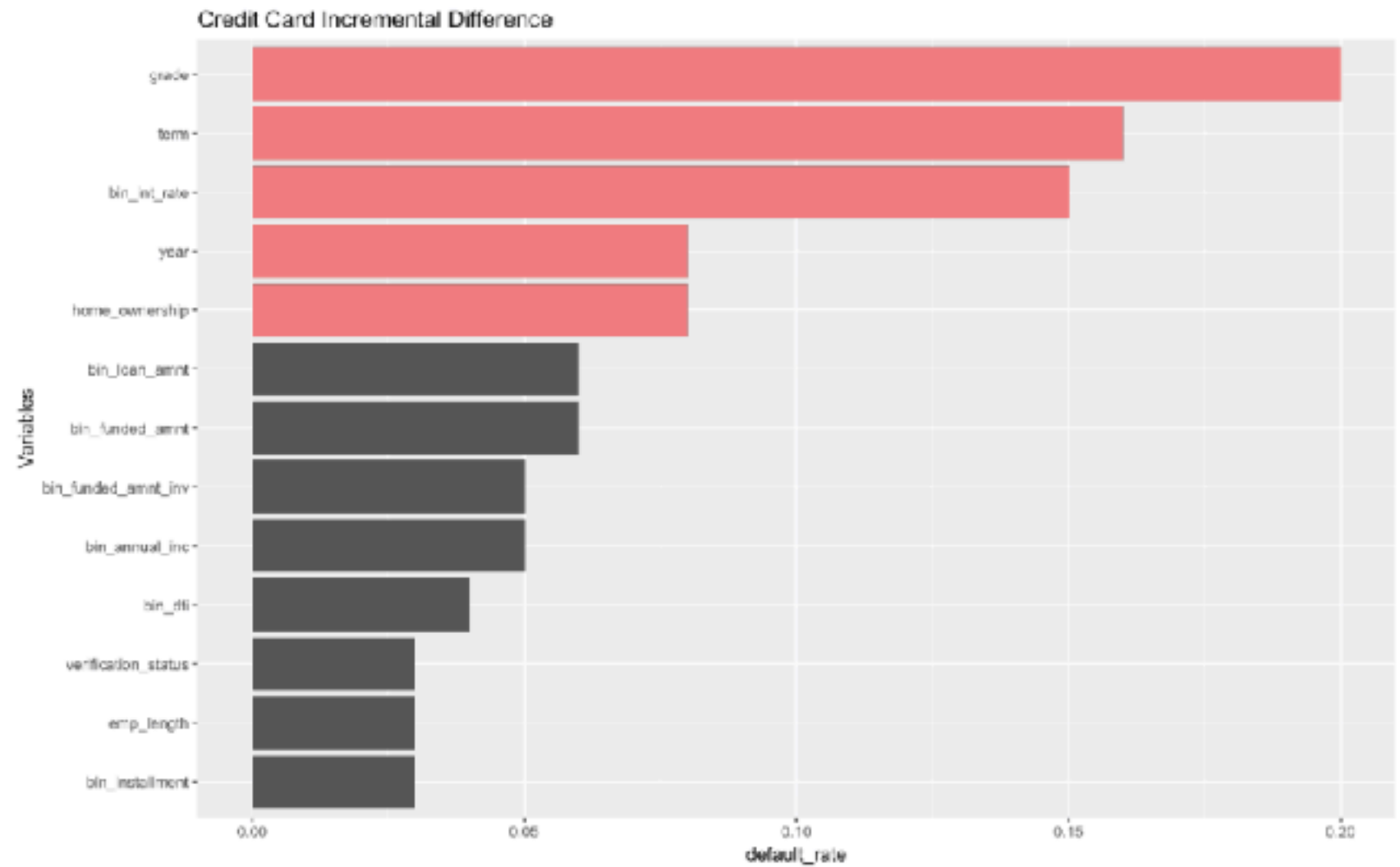
Average interest rate in top 4 loan products



Top 4 loan products	Percentage
Credit Card	11.62%
Debt Consolidation	12.40%
Home improvement	11.29%
Major Purchase	10.80%

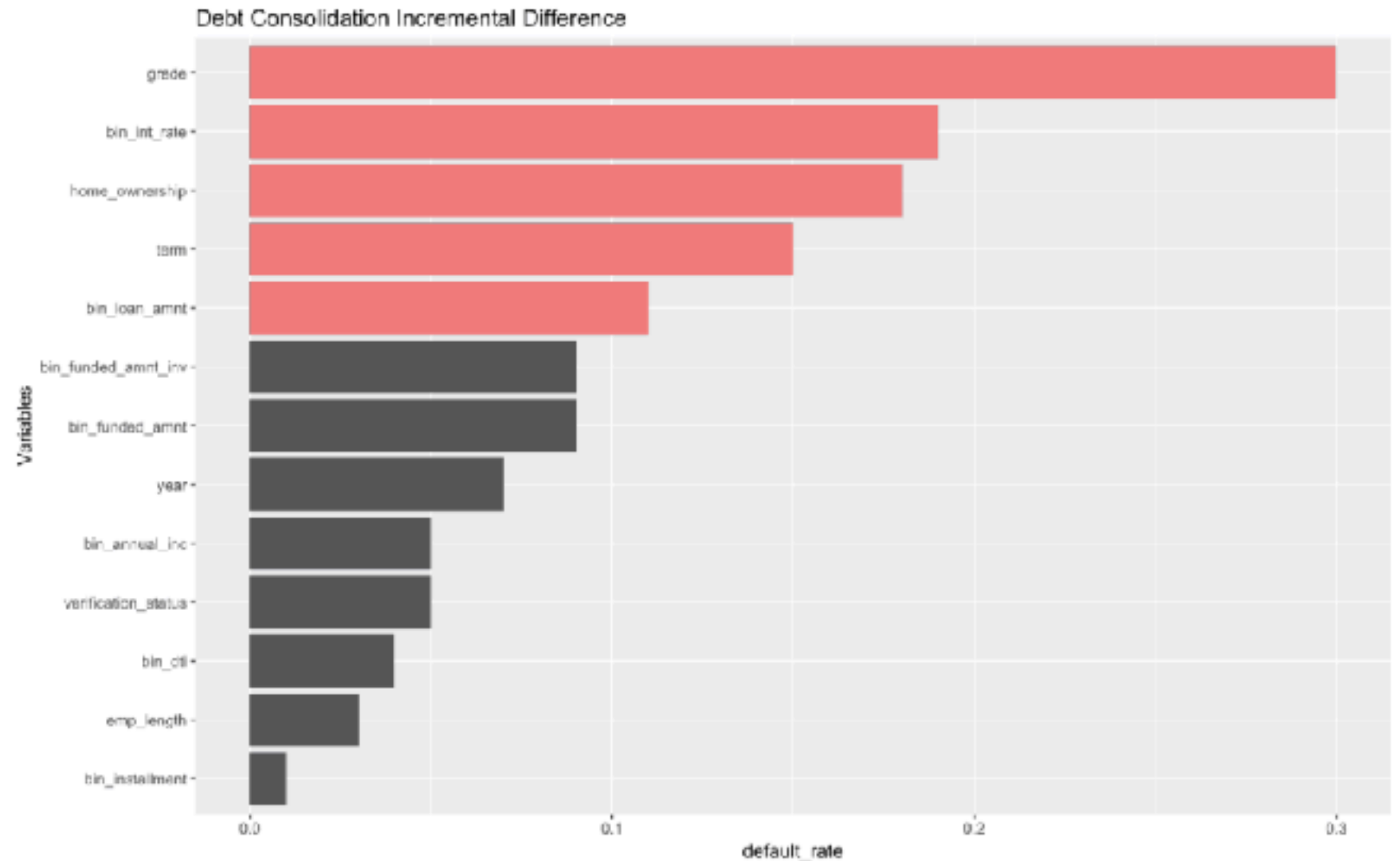
Important Variables: Credit Card

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



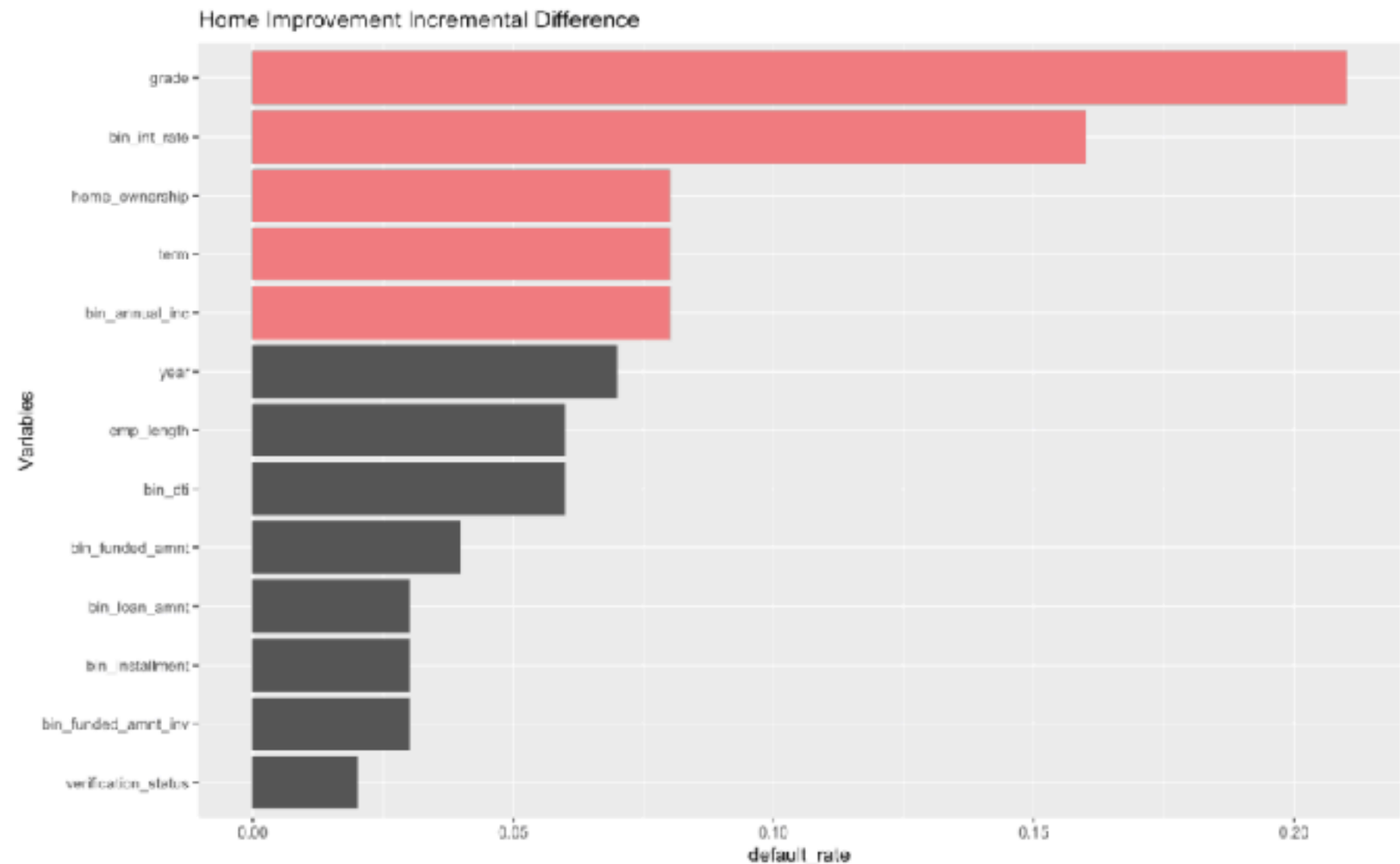
Important Variables: Debt Consolidation

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



Important Variables: Home Improvement

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



Important Variables: Major Purchase

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

