

GRAMENER CASE STUDY

SUBMISSION

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Background

- This company is the lending company connecting Borrowers with Lenders.
- Borrowers can apply for loan through an online interface.

Objective

- The company wants to understand the **driving factors (or driver variables)** behind loan default.
- Use this insight to approve/reject loan applications

Strategy

- Identify the variables as
 - Customer Demographic, Loan related information, Customer behavior (when loan is granted)
- Perform Univariate/Bivariate analysis
- Identify the driving factors for different types of loans

Customer Demographic
Employment Length
Emp Title
Annual income
Zip Code
Addr state
Description
URL

Loan information
Loan Amount
Funded Amount
Funded Amount Investment
Interest rate
Loan status
Loan Grade and Subgrade
Revolving Utilization
Loan Term
Loan Issue Date
Debt to income ratio
Installment

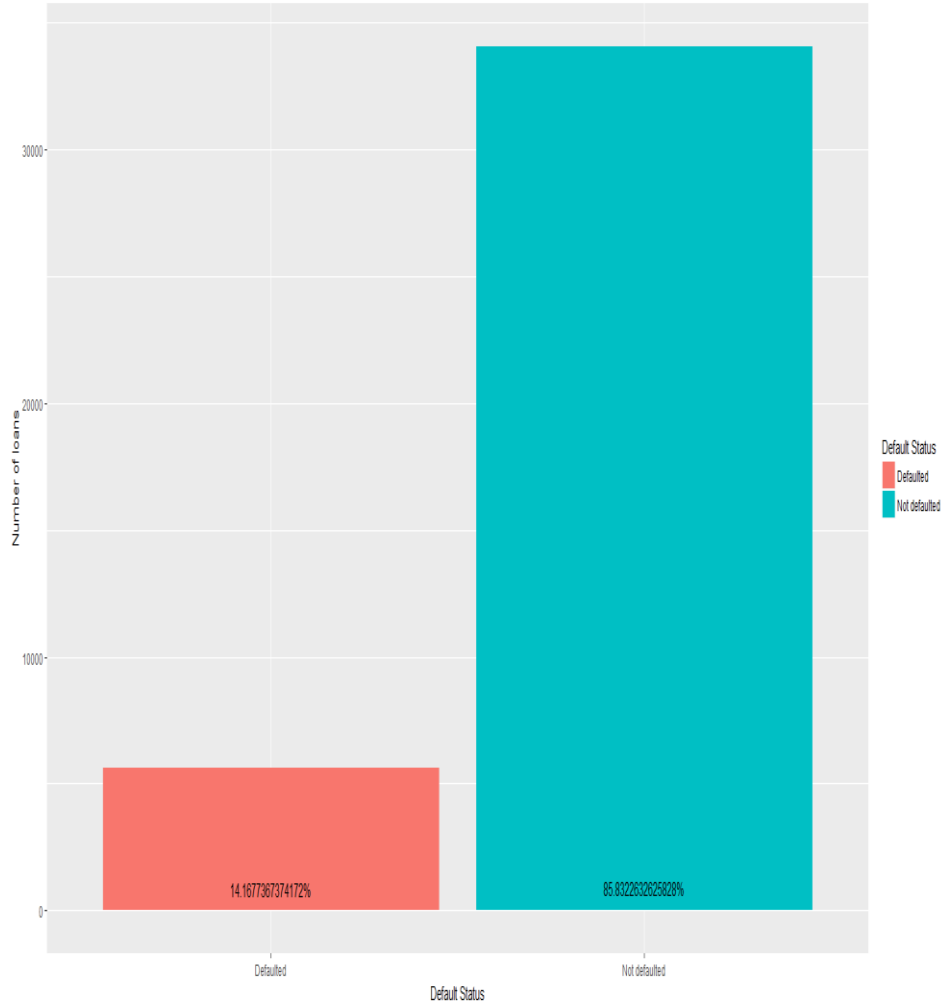
Customer Behaviour
Delinquency 2 years
Earliest Credit line
Application Type
Open acc
Revolving Balance
Recoveries
Loan purpose

Loan Amount and Funded Amount have a correlation of 98%

Loan Amount and Funded Amount Investment have a correlation of 94%

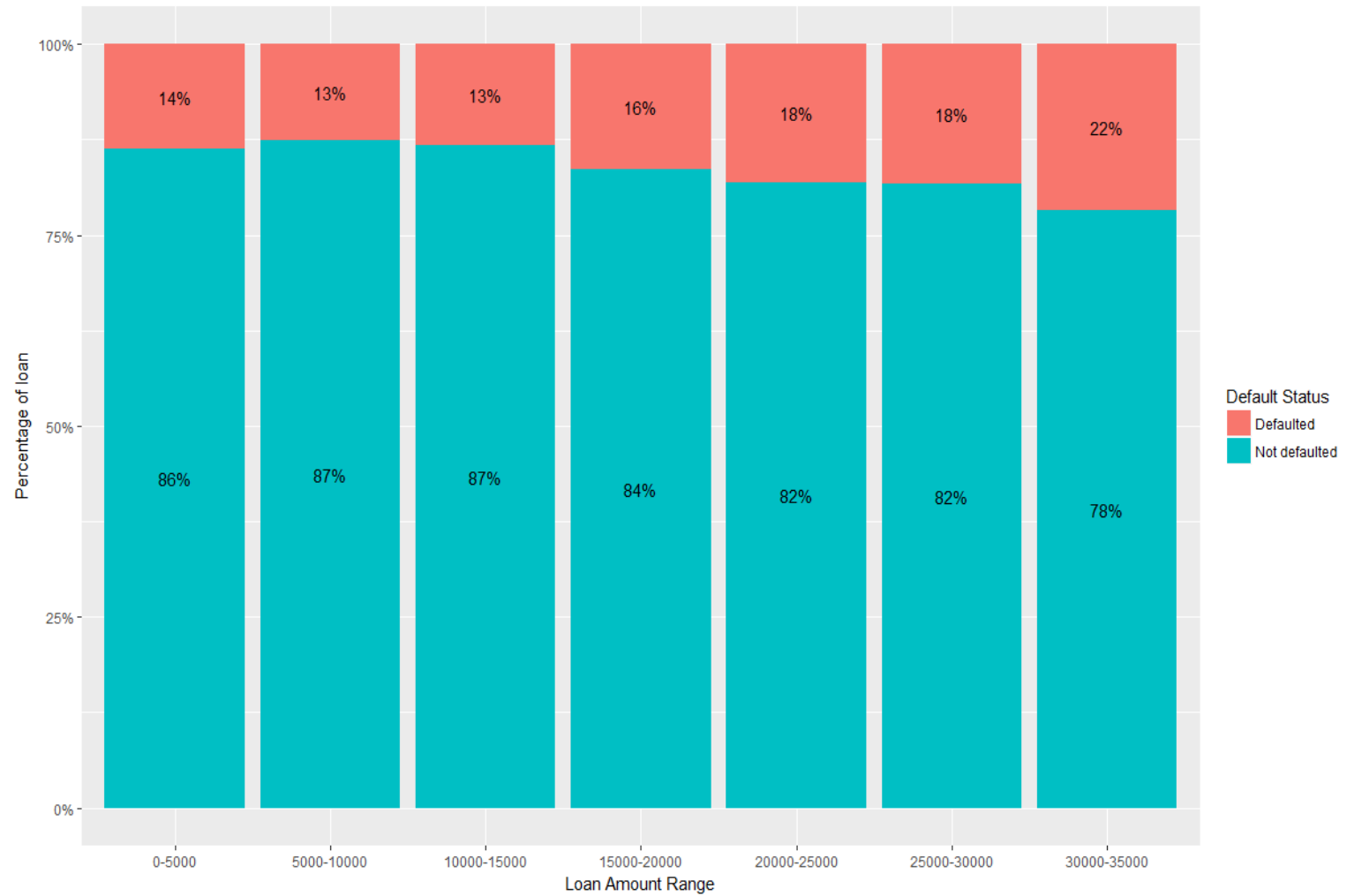
This indicates it is sufficient to do analysis with loan amount and default status

Number of loans v/s Default status



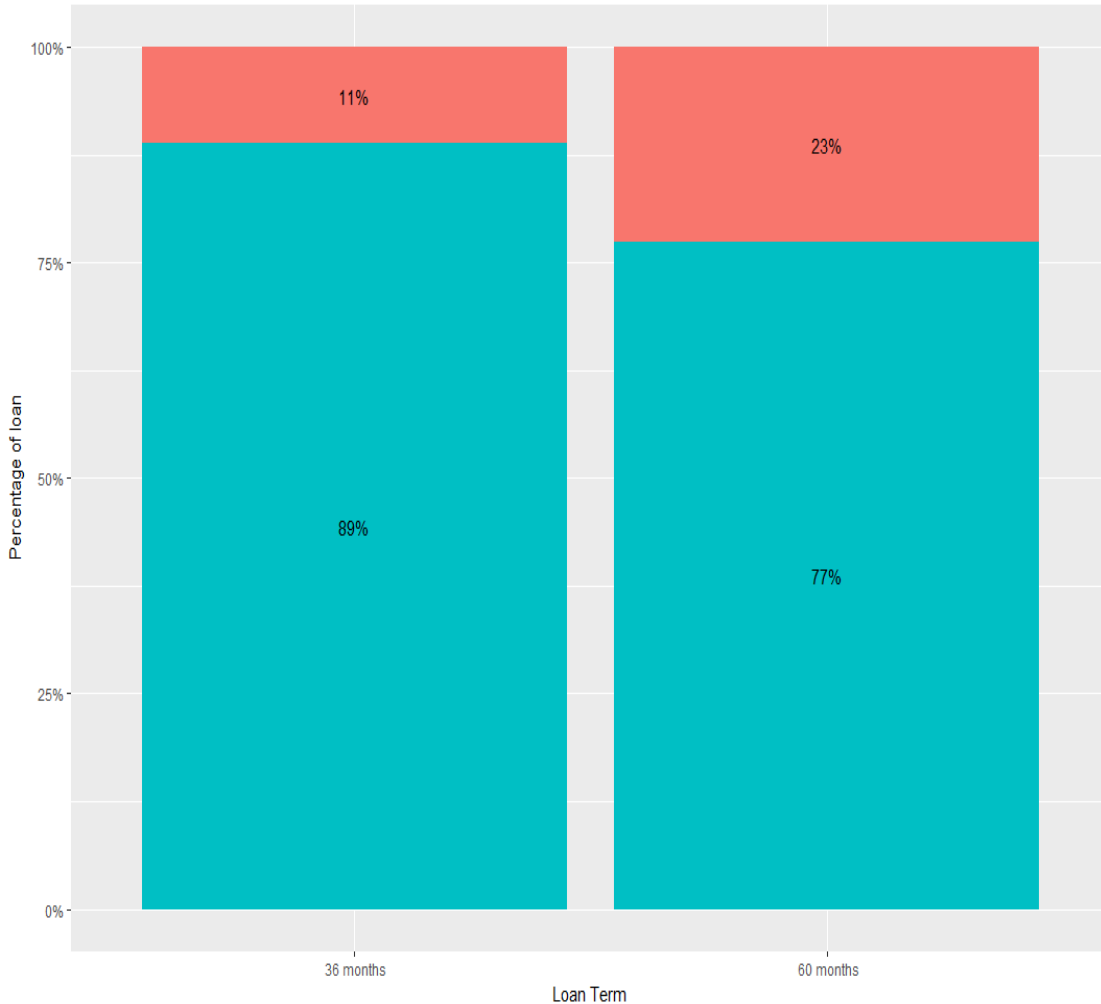
Overall Default Rate – 14%

Percentage of Loan vs Loan amount range



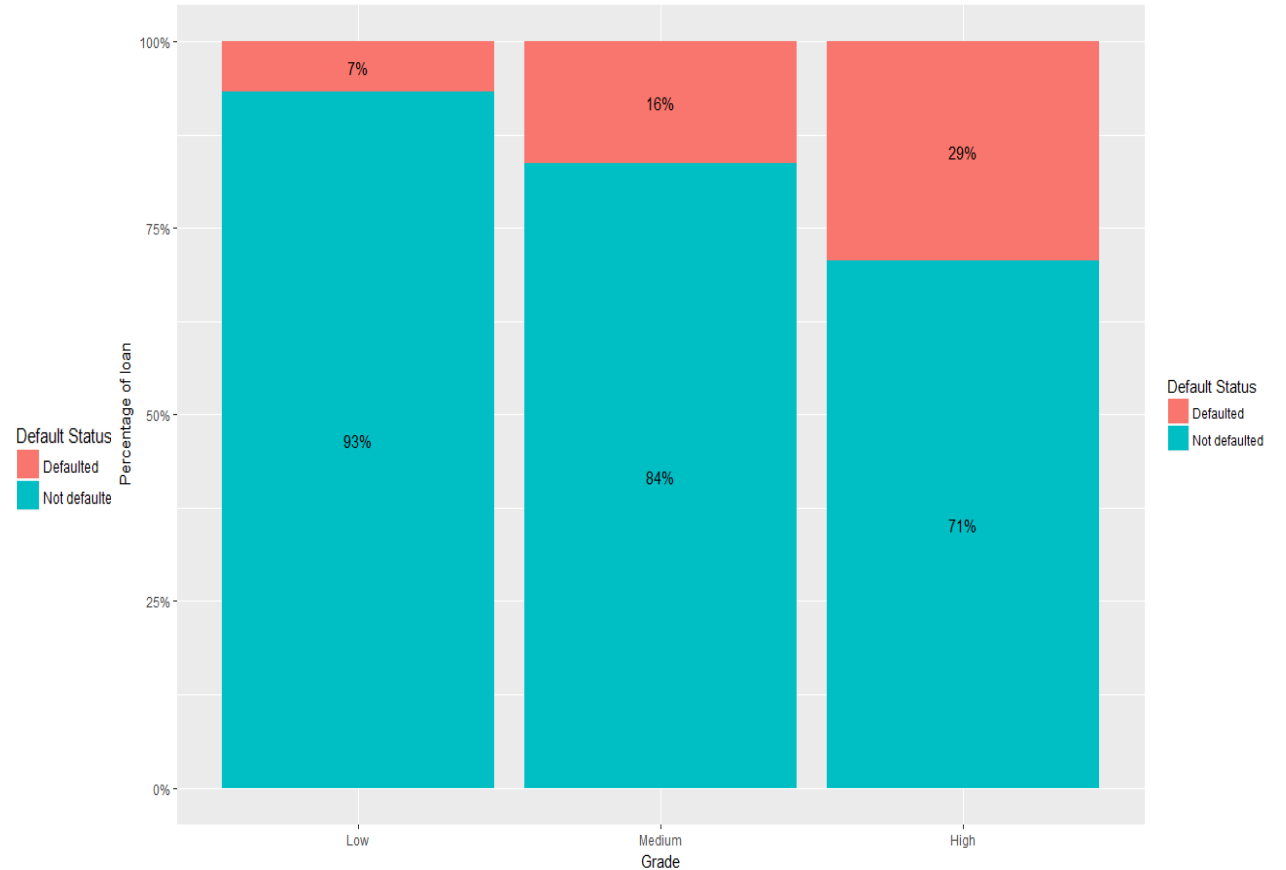
Loan amount - 30K to 35K has the most default rate

Percentage of loan vs Loan term



For loan term 60 months, default rate is higher(23%)

Percentage of loan amount vs Interest Rate

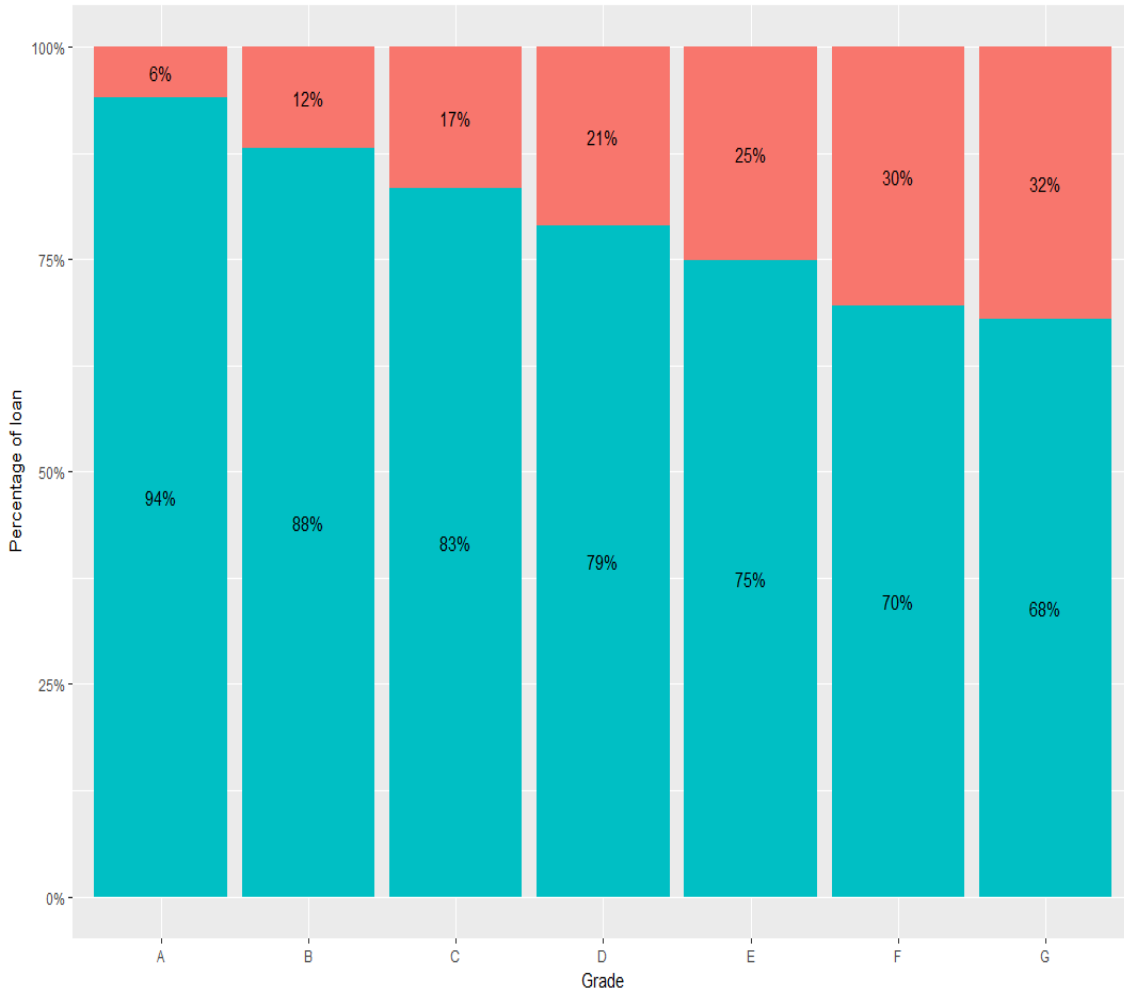


Categorized Interest rate as

Low(0 – 10), Medium(10-18) and High(>18 %)

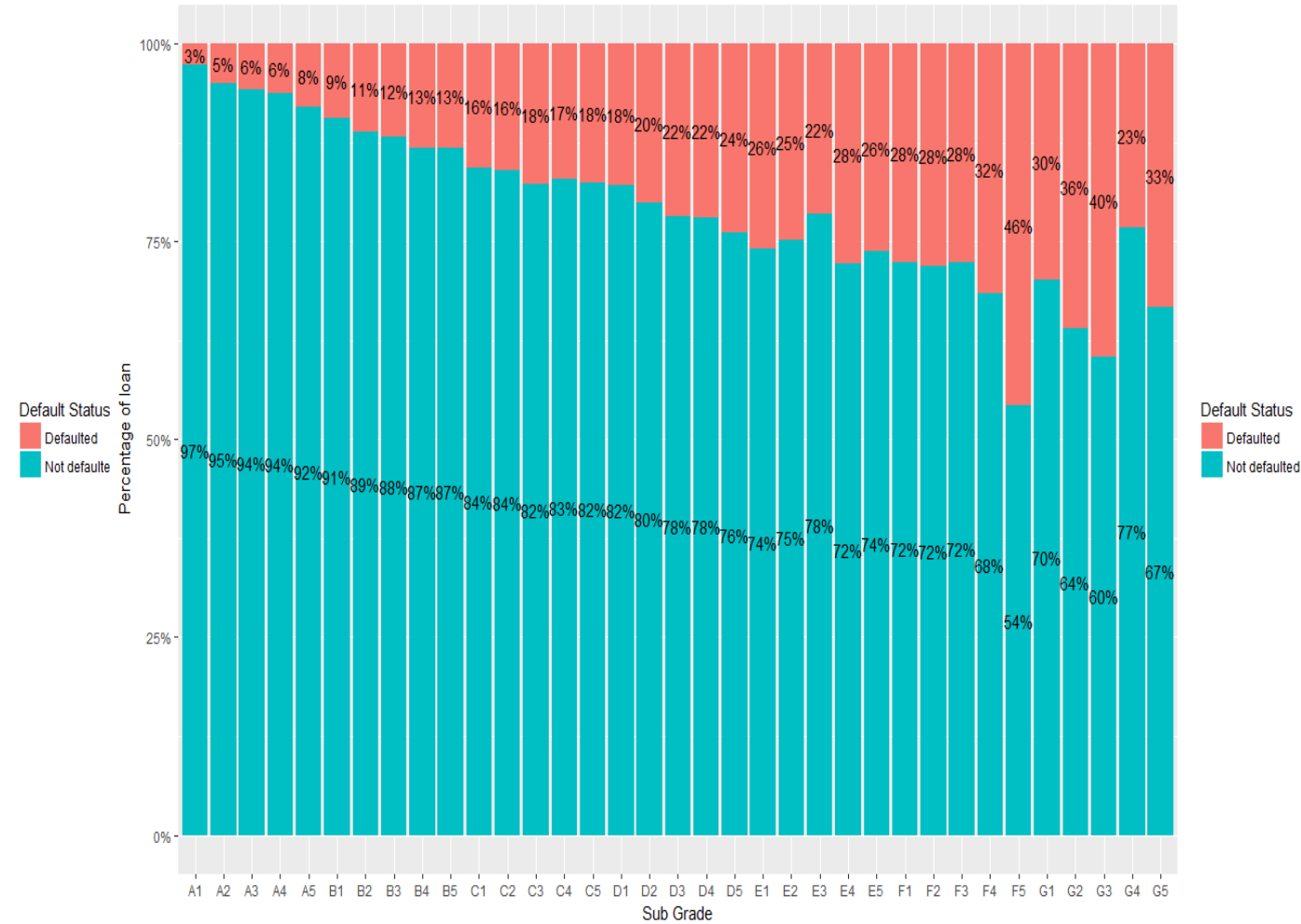
With the increase in interest rate, default rate is substantially increasing

Percentage of loan amount vs Grade



With the increase (i.e from A to G) in Grade, default rate is increasing.

Percentage of loan amount vs Sub Grade

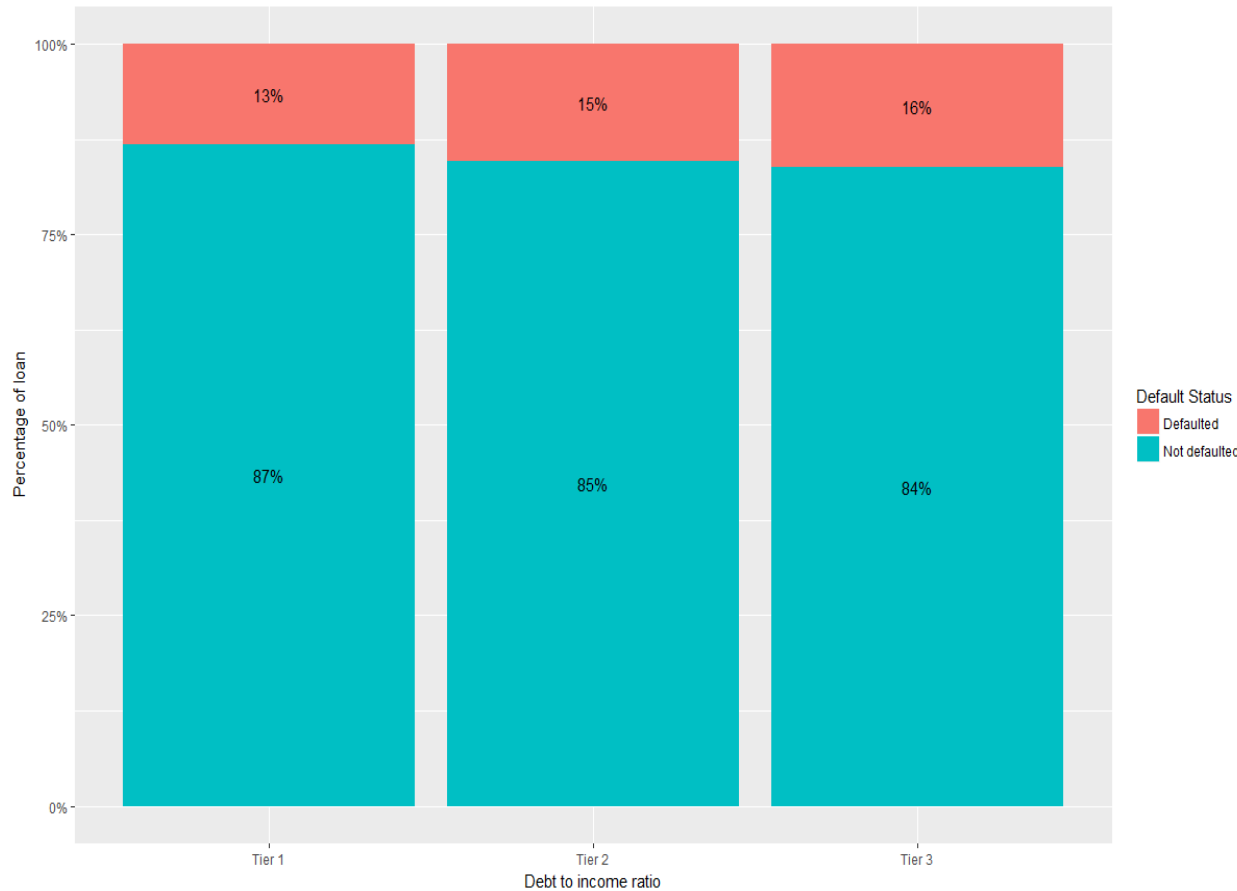


Default rate is increasing with the increase in grade from A1 to G5.

Debt to Income Ratio & Revolving Utilization

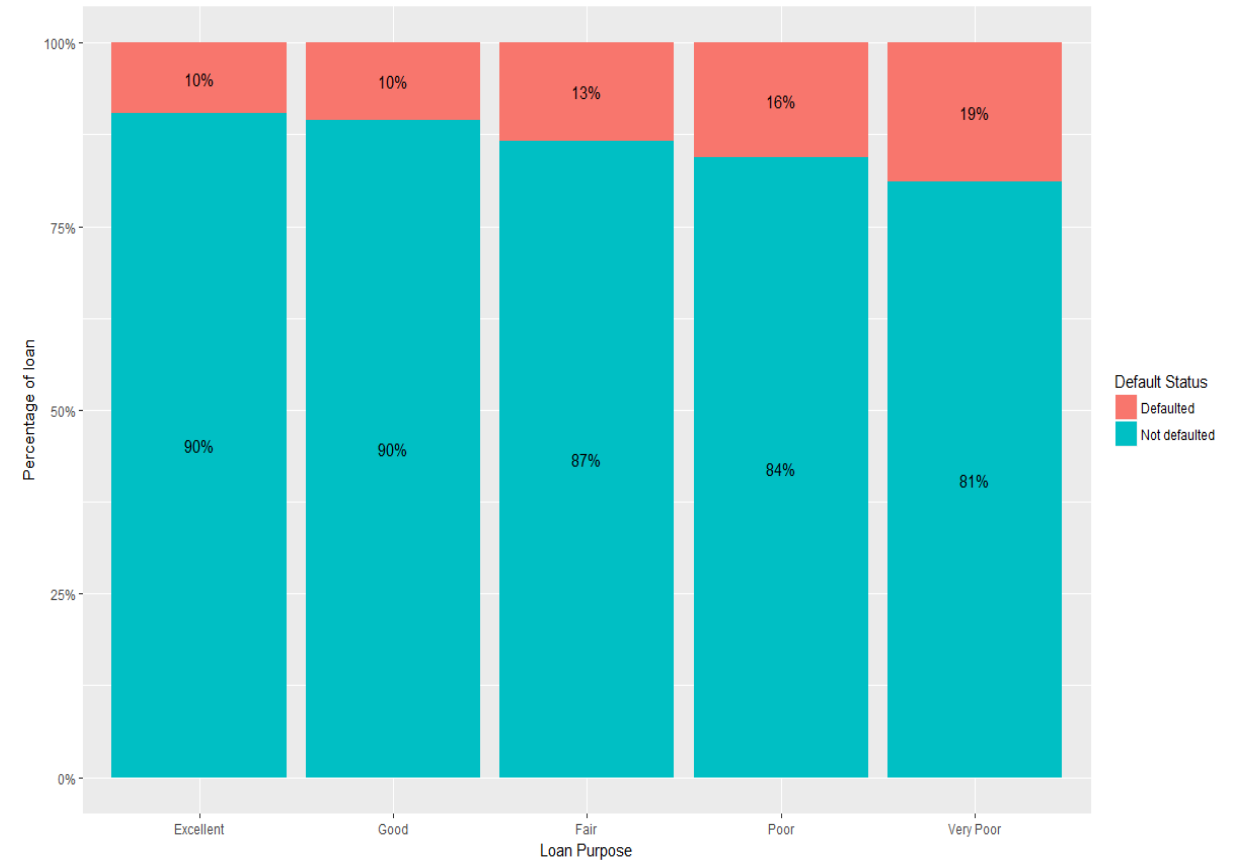
Analysis for Defaults

Percentage of loan amount vs Debt to income ratio



Categorizing Debt to Income Ratio as
(0 to 15 - Tier 1), (15 to 20 - Tier 2), (>20 - Tier 3)
With the increase in Debt to income ratio person is more likely to default.

Percentage of loan amount vs Revolving utilization category



Categorizing Revolving Utilization as
(Excellent - 0 to 10), (Good - 10 to 30), (Fair - 30 to 50)
(Poor - 50 to 75), (Very poor - Greater than 75)
Fair, Poor and Very Poor revolving utilization has higher default rate.

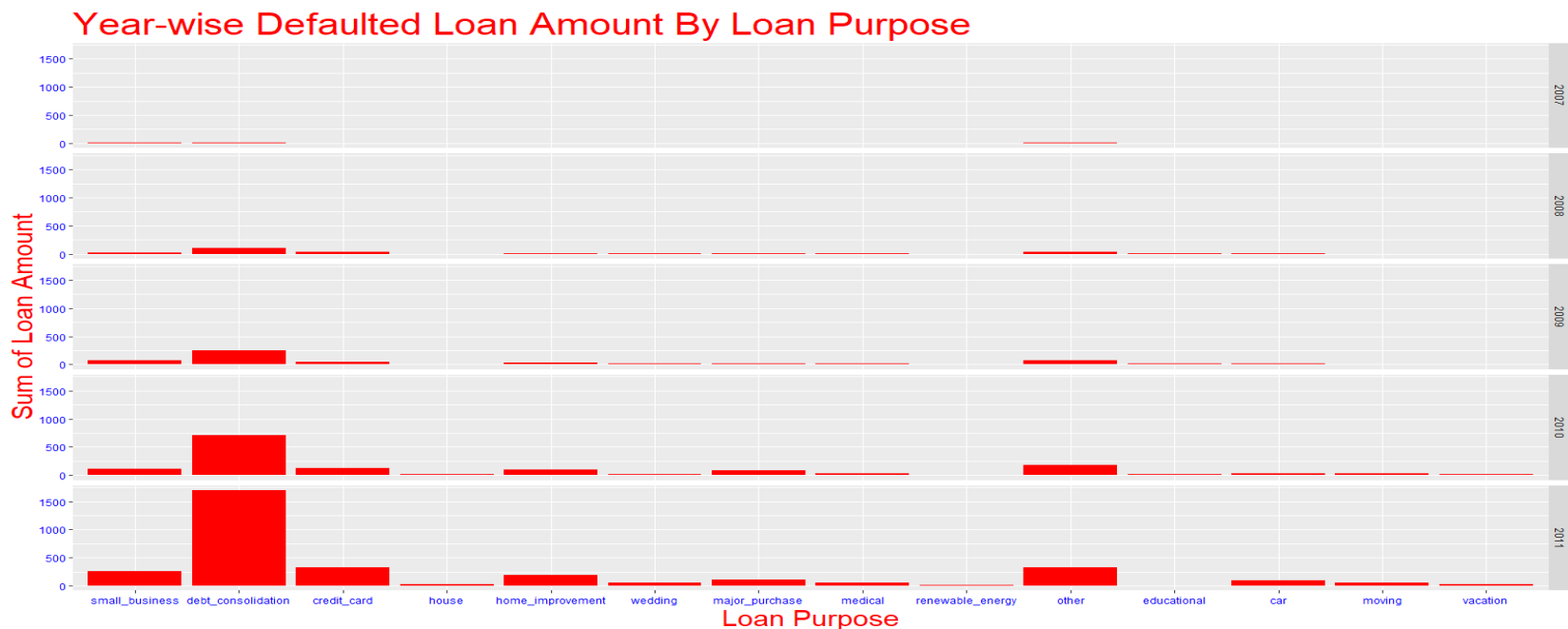


2008-2011 – Many other loan products were introduced, with major focus on **Credit Card, Debt Consolidation, House improvement and Others**

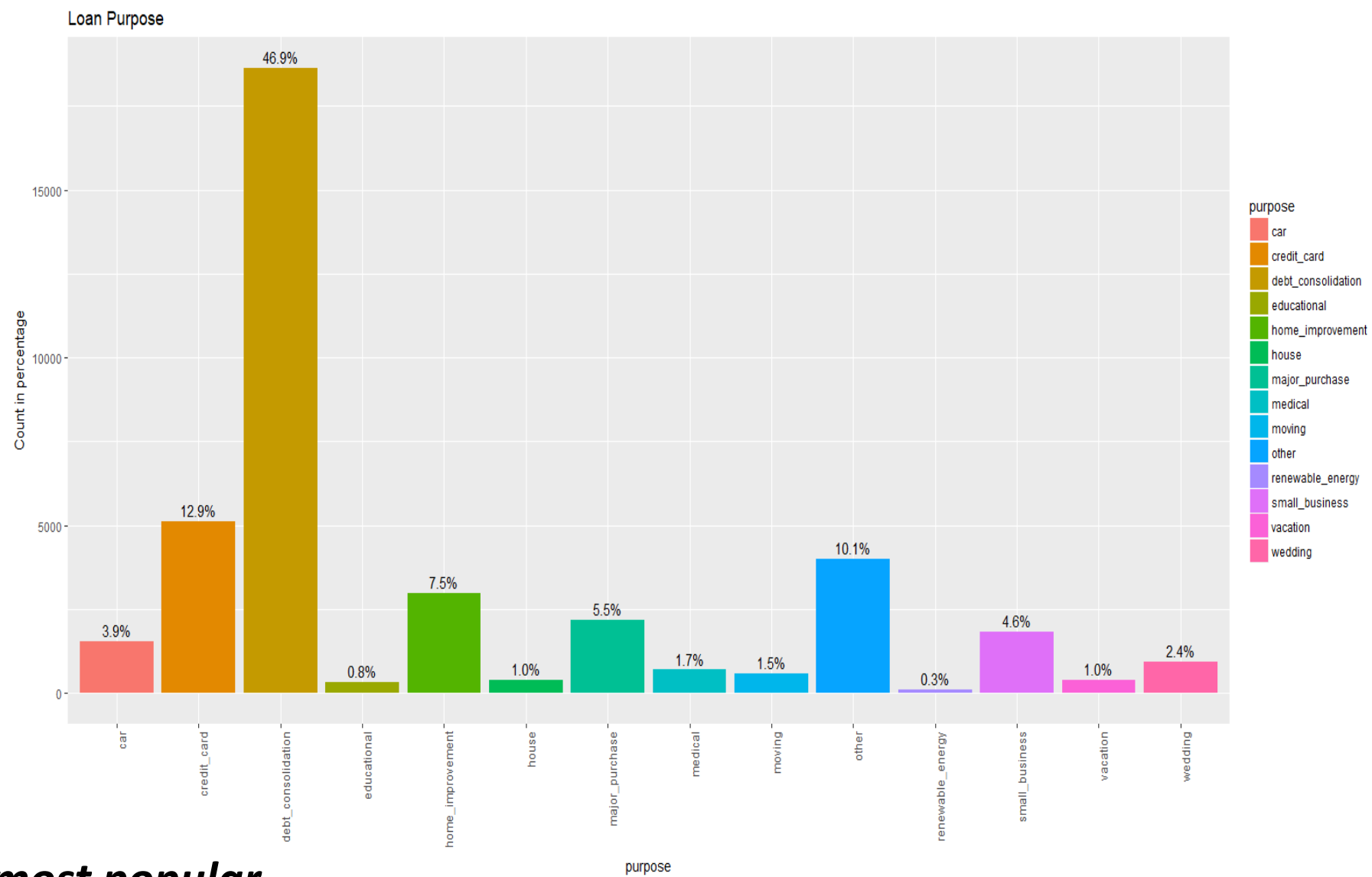
2007- 2011

Across the years, loan defaults are increasing for the below loan types

Credit Card, Small business, Home improvement, Others, Major purchase, Car



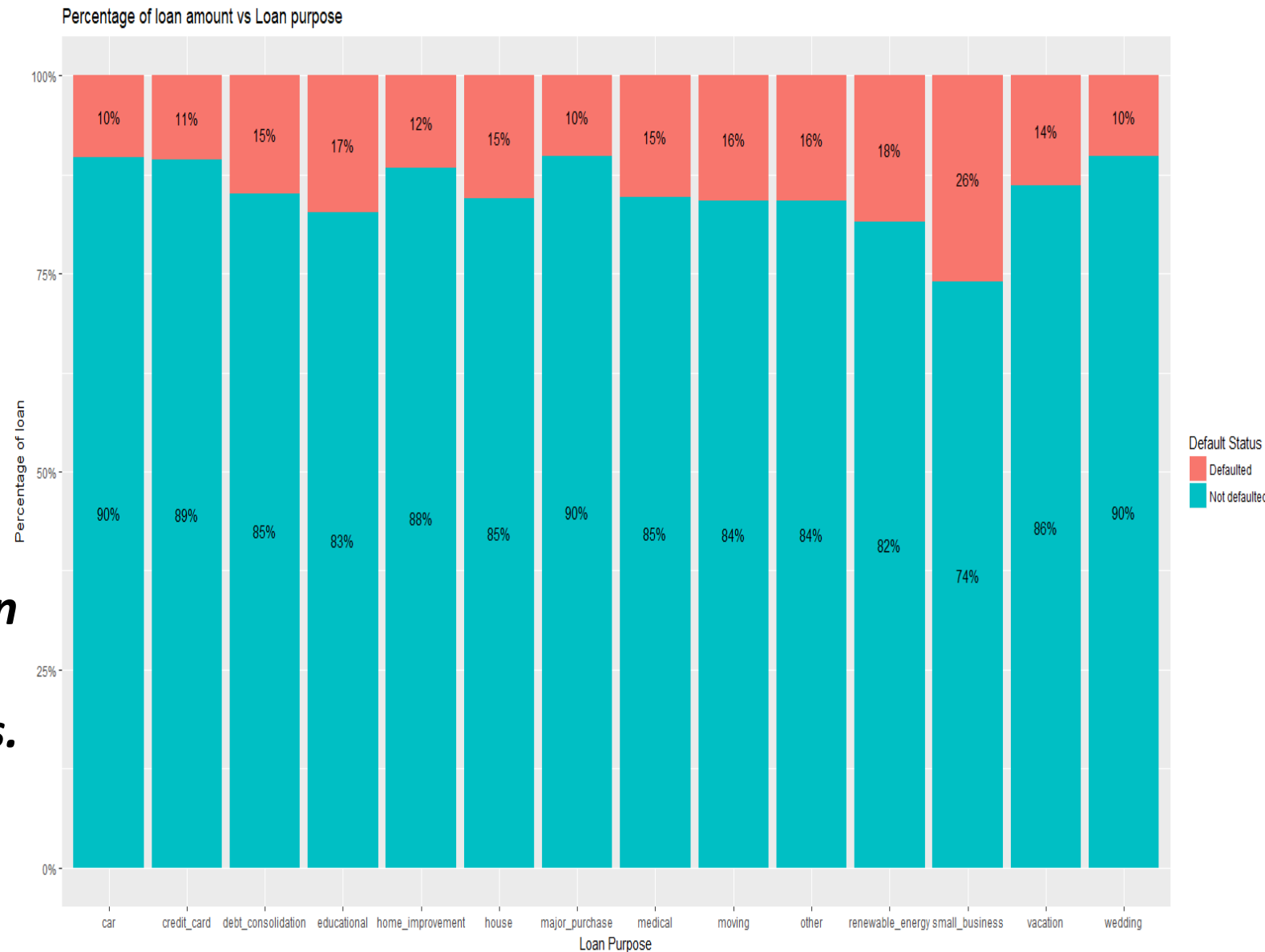
46.9% - Debt Consolidation
 12.9% - Credit Card loans
 10.1% - Other loans
 7.5% - Home improvement
 5.5% - Major Purchase



Debt consolidation is the most popular

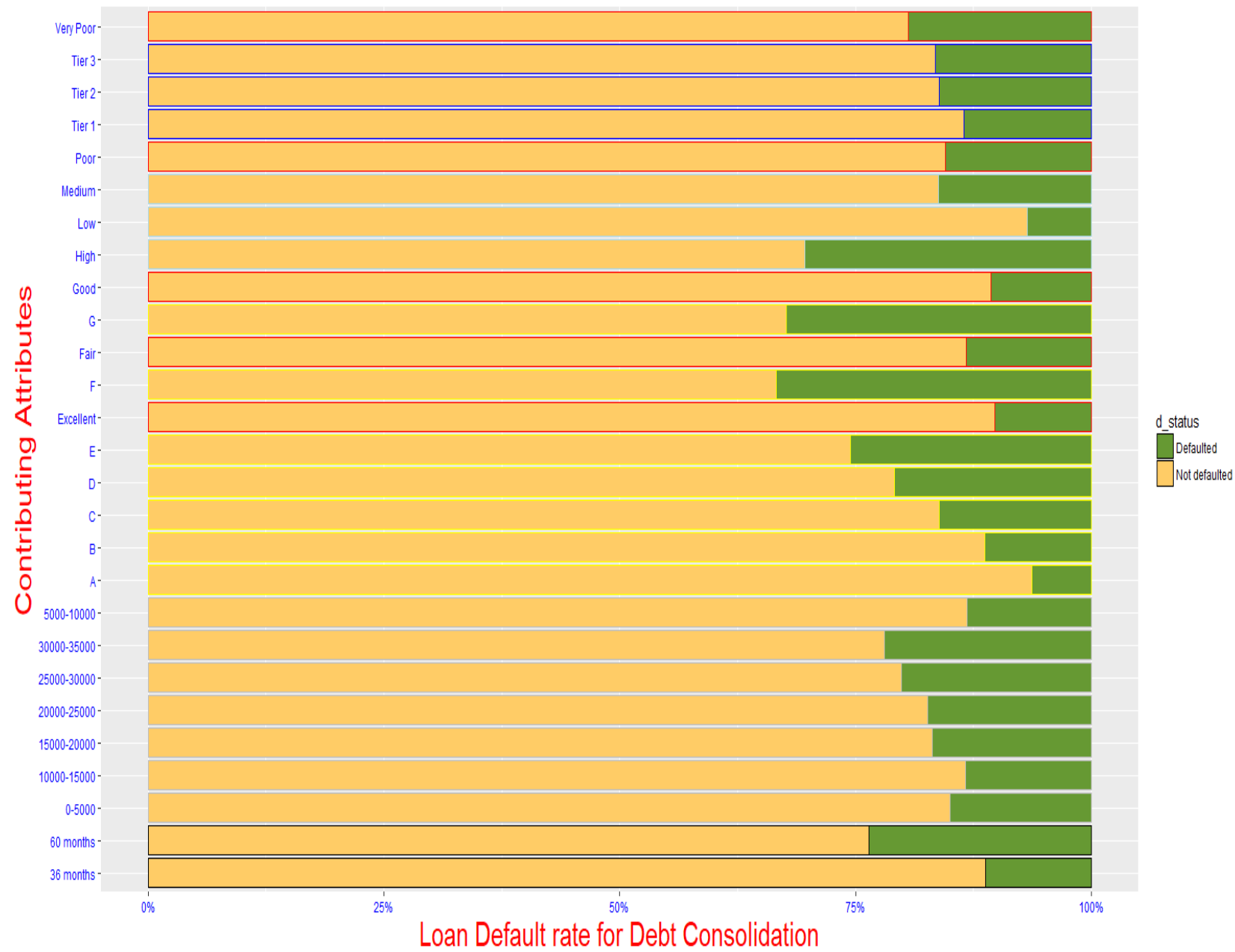
Small Business – 26%
 Renewable energy – 18%
 Educational – 17%
Other – 16%
Debt consolidation – 15%
 House – 15%
Home improvement – 12%
Credit Card – 11%

Considering Top 4 Loan products on the basis of Loan purpose distribution and most default rates.



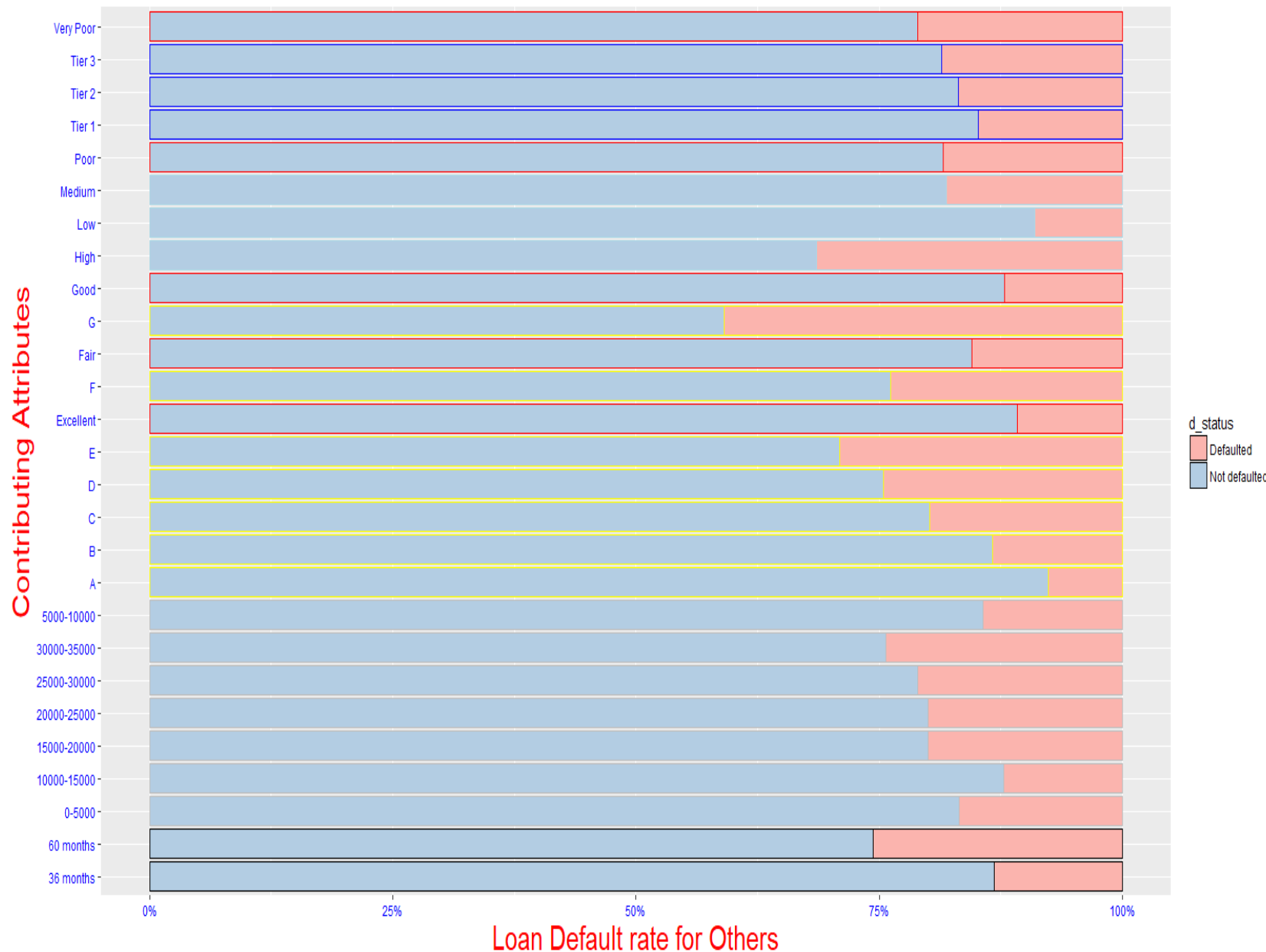
Key Driving Factors for Loan Default
in descending order

- 1) Grade – F & G
- 2) Interest rate - High(> 18%)
- 3) Loan Term - 60 Months
- 4) Loan Amount – 30K to 35K
- 5) Revolving Utilization – Very poor



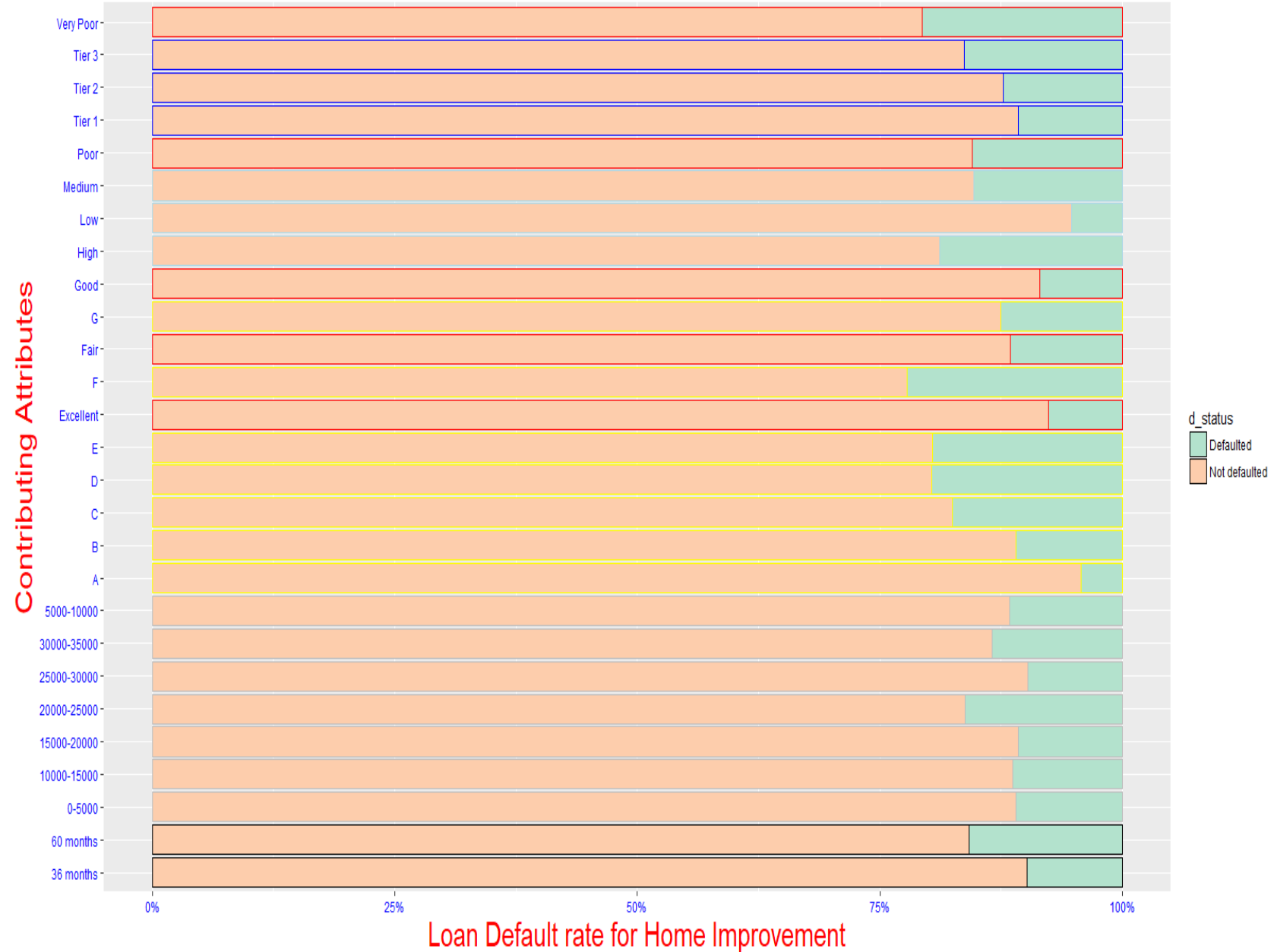
Key Driving Factors for Loan Default in descending order

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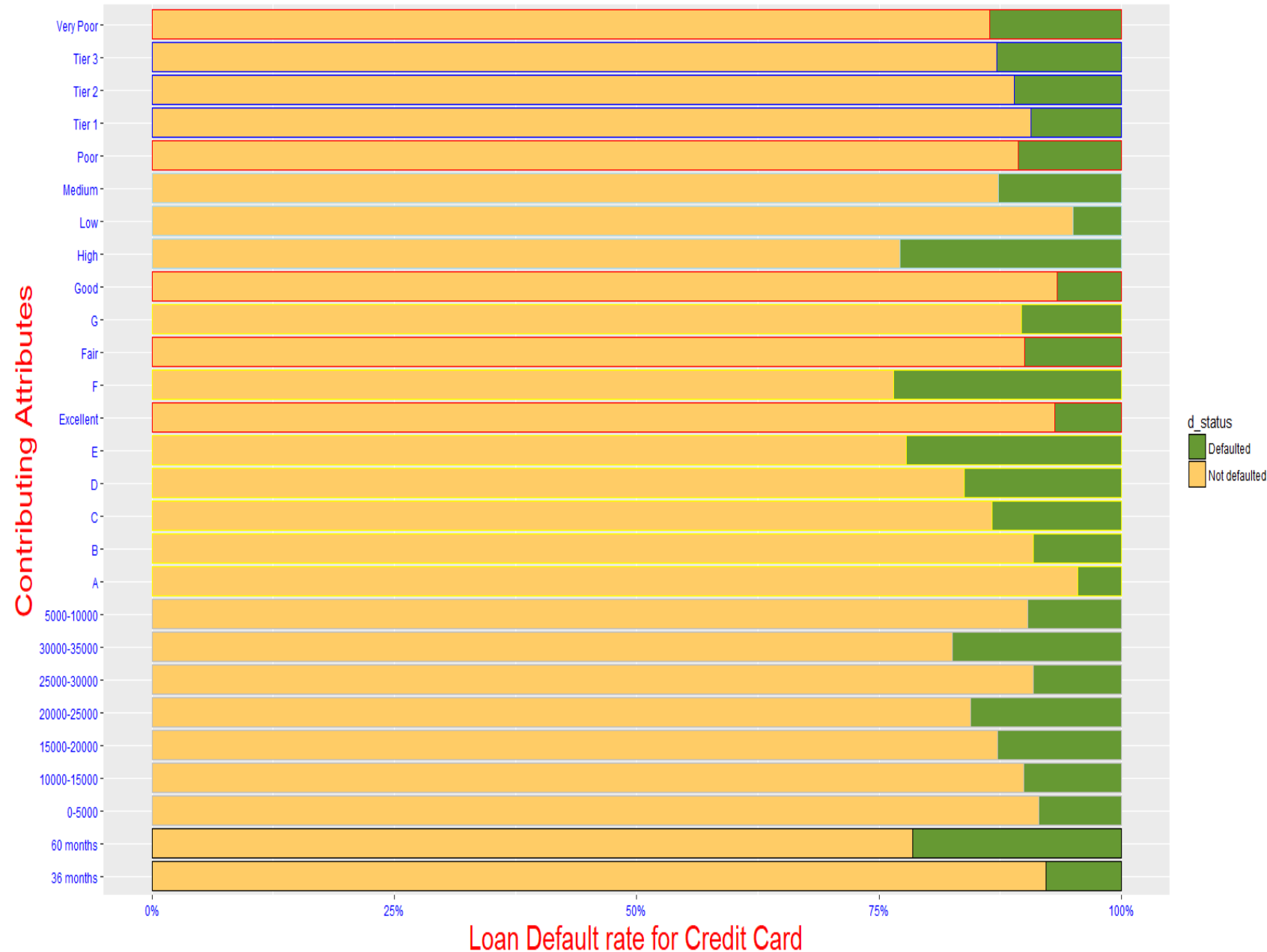
Key Driving Factors for Loan Default
in descending order

- 1) Grade – F & E
- 2) Loan Term - 60 Months
- 3) Loan Amount – 20K to 25K
- 4) Revolving Utilization – Very poor
- 5) Interest rate - High(> 18%)



Key Driving Factors for Loan Default in descending order

- 1) **Loan Term** - 60 Months
- 2) **Grade** – F & E
- 3) **Loan Amount** – 30K to 35K
- 4) **Interest rate** - High(> 18%)
- 5) **Revolving Utilization** – Very poor



Driving factors for loan defaults

As per the analysis, Driving Factors/Attributes for the loan defaults are :

- **Higher Grade and Subgrade**
- **Longer Loan Term**
- **Huge Loan Amount**
- **Poor Revolving Utilization**
- **High Interest rate**