

# Lending Club Case Study

## SUBMISSION

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# Lending Club: Business Objectives

## 1. Reduction in the amount of Credit Loss

- Identify Risky Loan Applicants by identifying the strong indicators of Loan default

# Solution Approach:

1. Identify Applicant attributes
2. Identify Loan attributes
3. Find co-relation between loan status and above identified attributes

# Analysis: A High level Overview

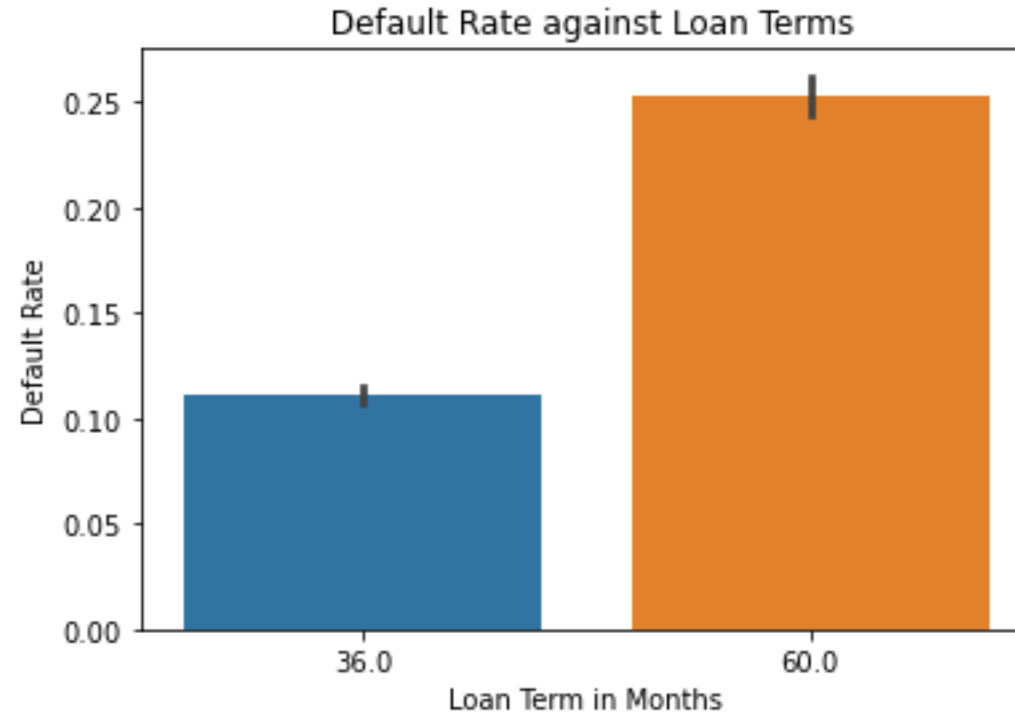


# Let's Look at Driving Factors for Loan Default

## Univariate Analysis

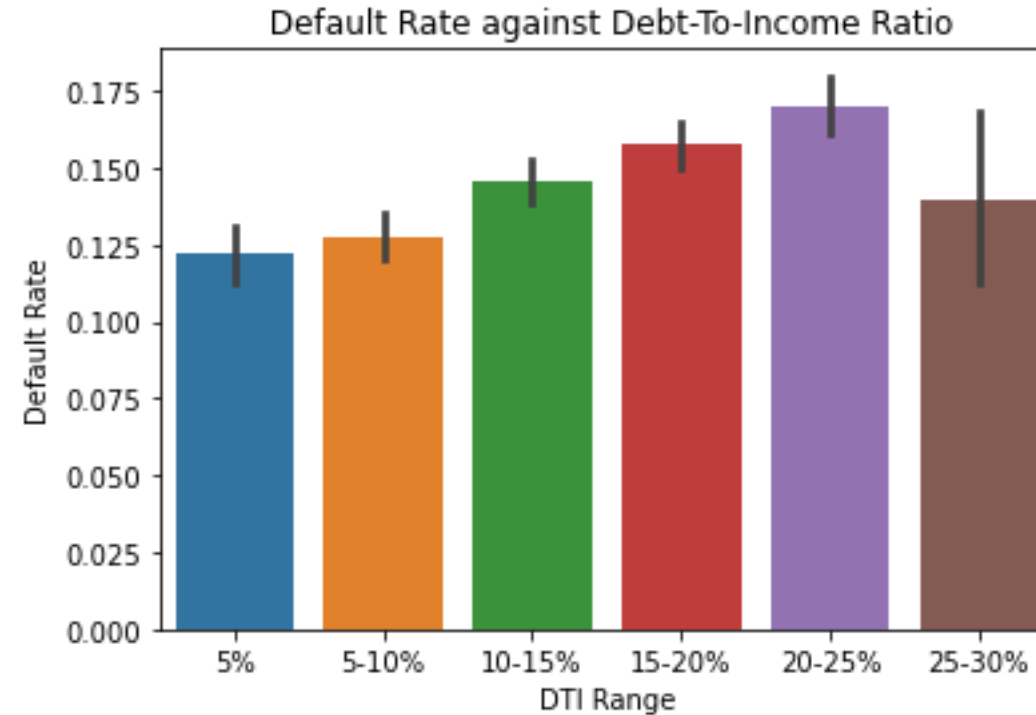
- Let's look at loan / customer attributes individually against the Loan Default Rate

## Observations and Actions



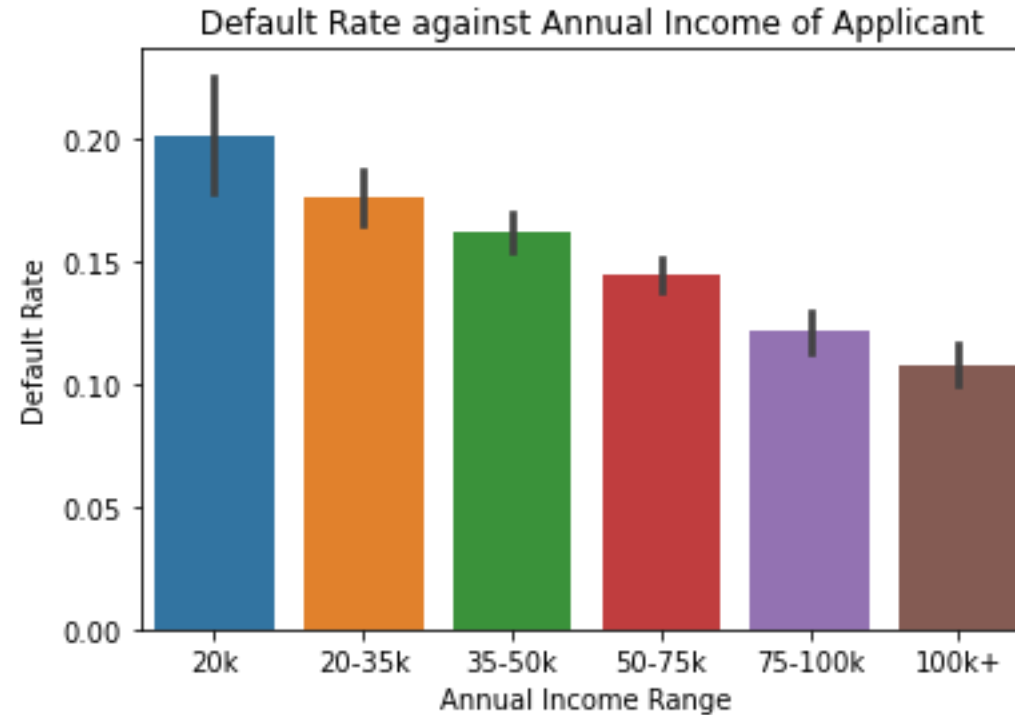
- More defaulting happens in the 60 month term even though it is only for 25% of the loans

## Observations and Actions



- The variation in default rate is from 12.5% to 16%. Not much of a trend.

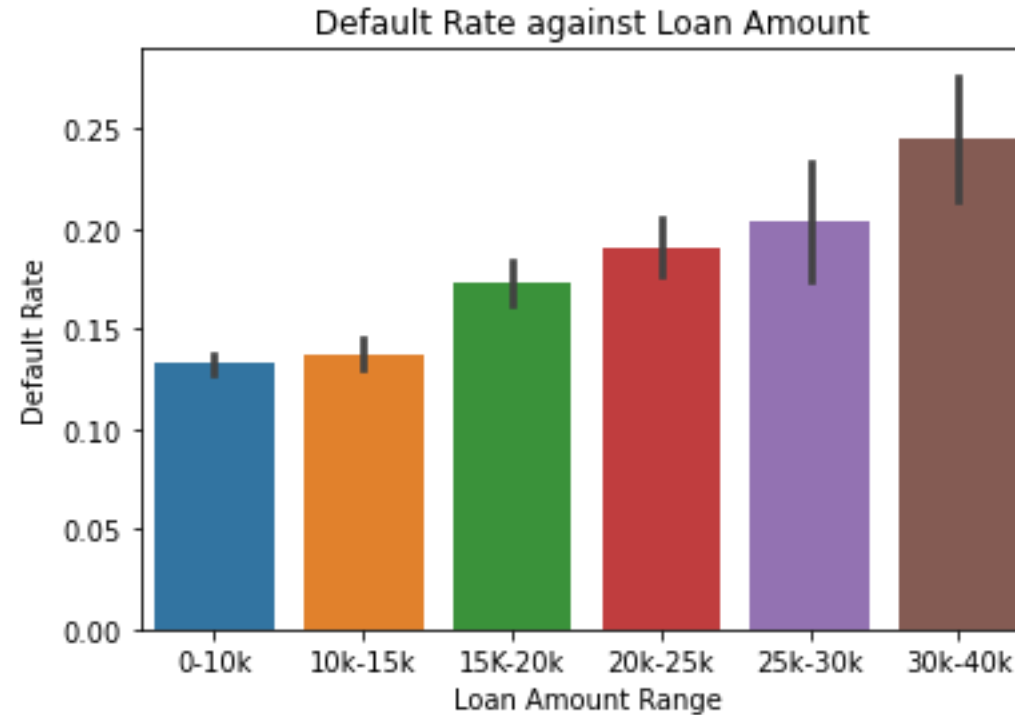
## Observations and Actions



- Defaulting reduces as income increases

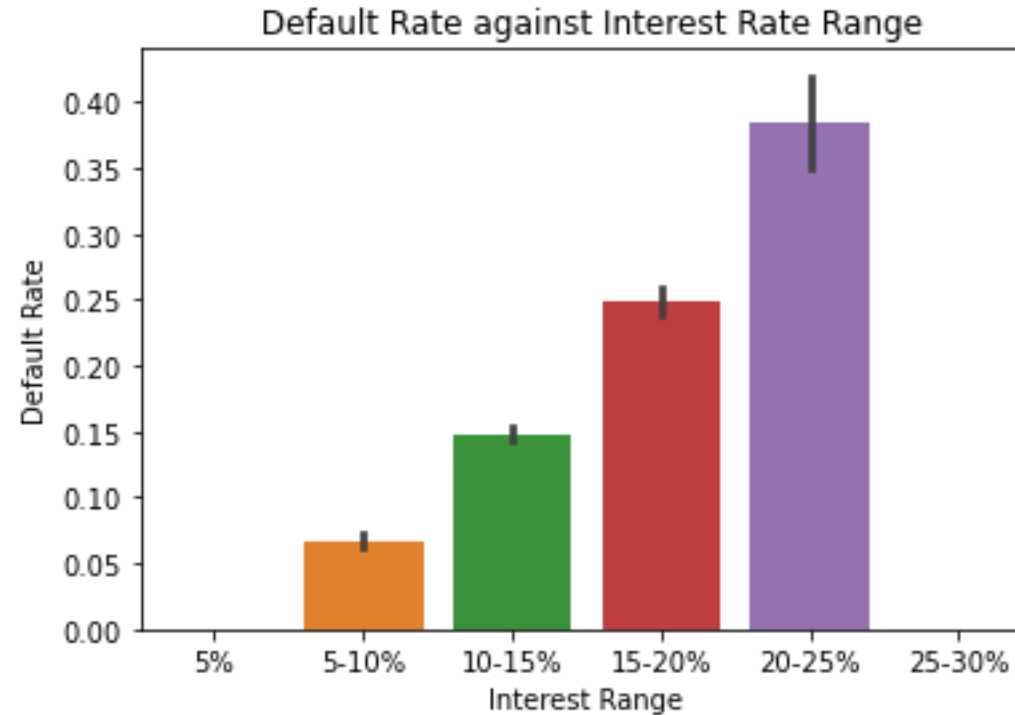


## Observations and Actions



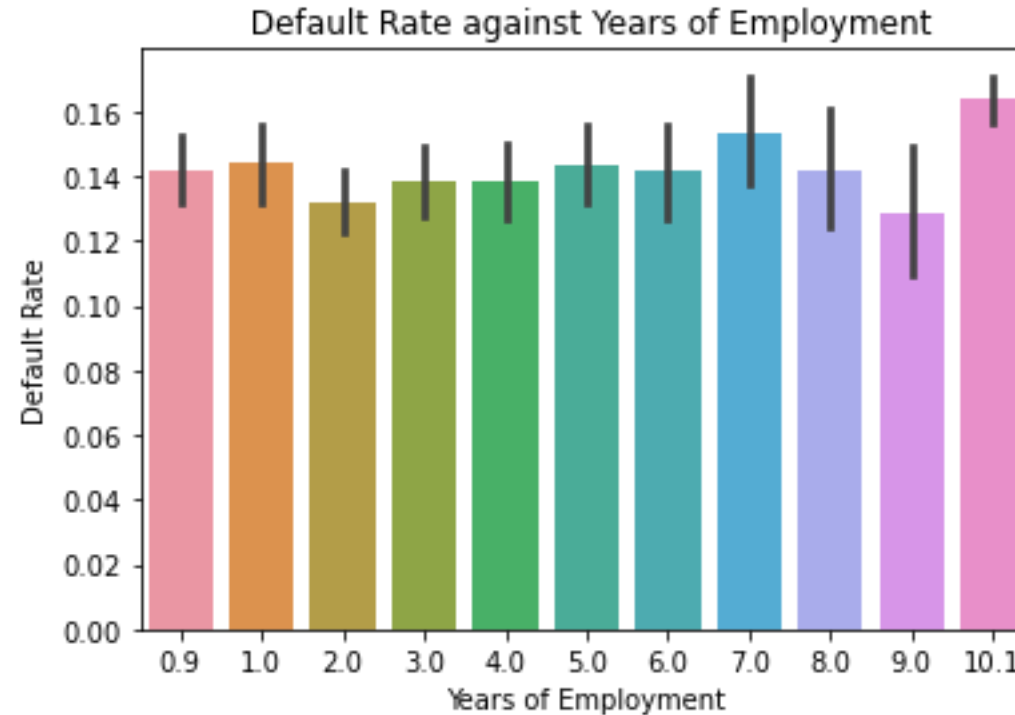
- Defaulting Increases as the Loan Amount increases

## Observations and Actions



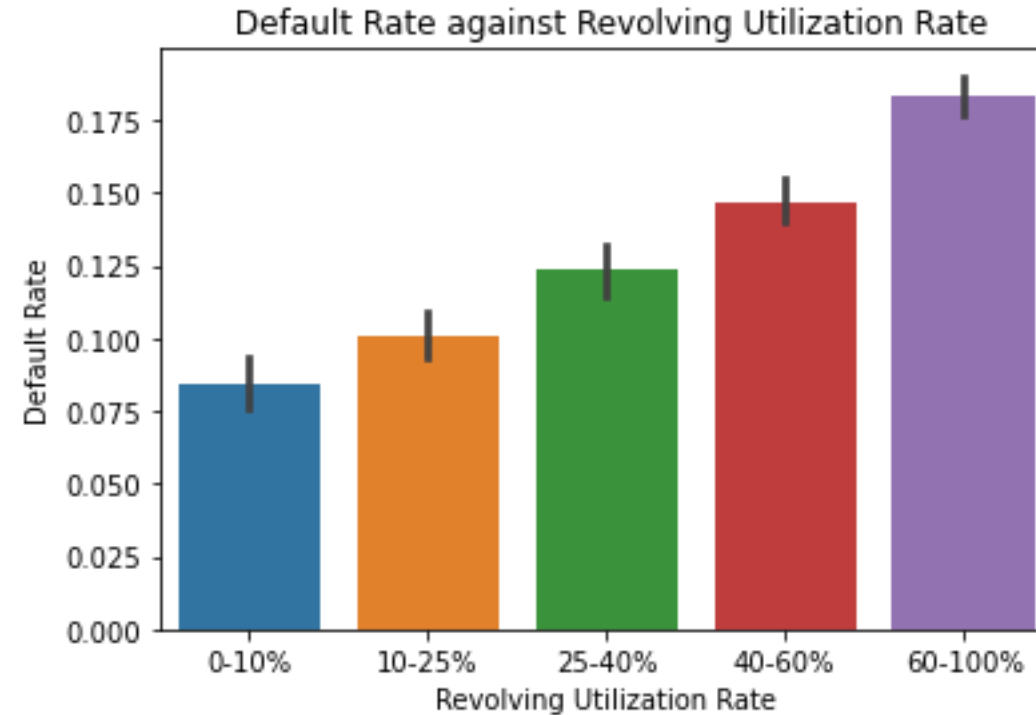
- Defaulting Increases as the Interest Rate increases

## Observations and Actions



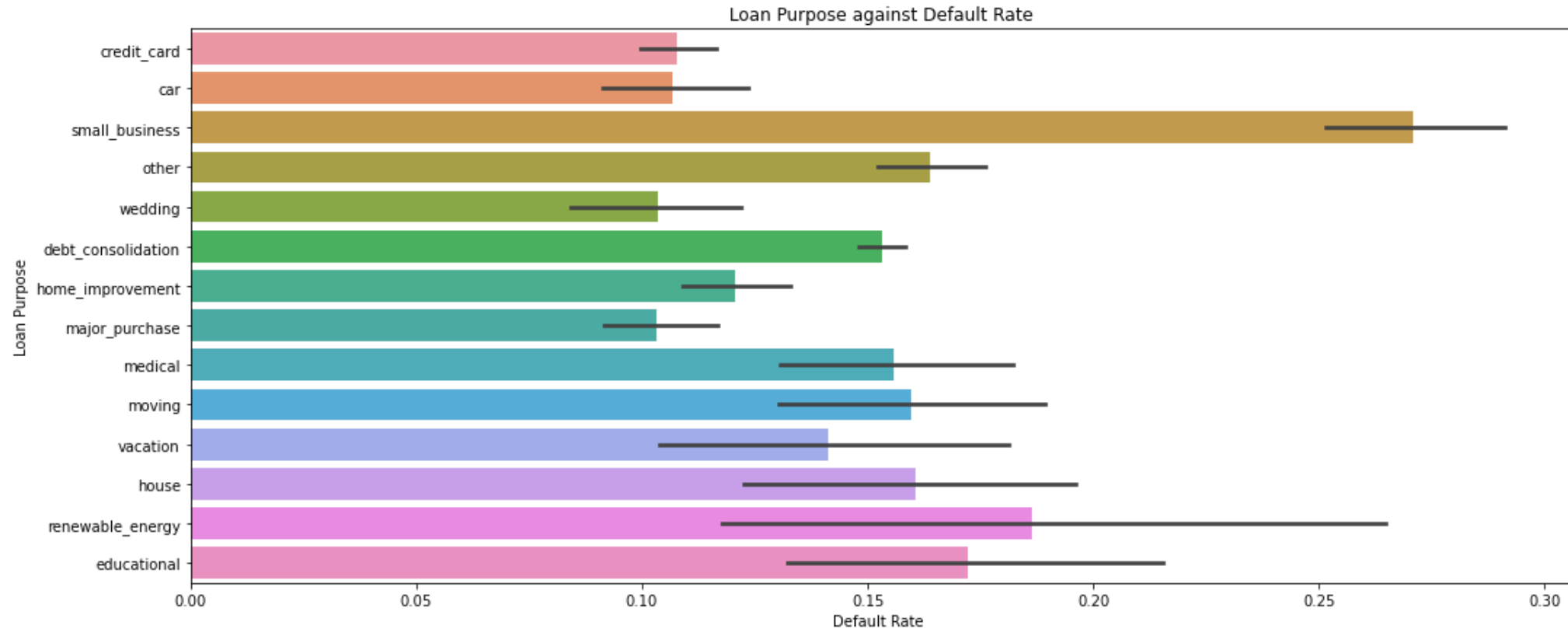
- There is not much of a trend. Defaulting is uniform across all ranges

## Observations and Actions



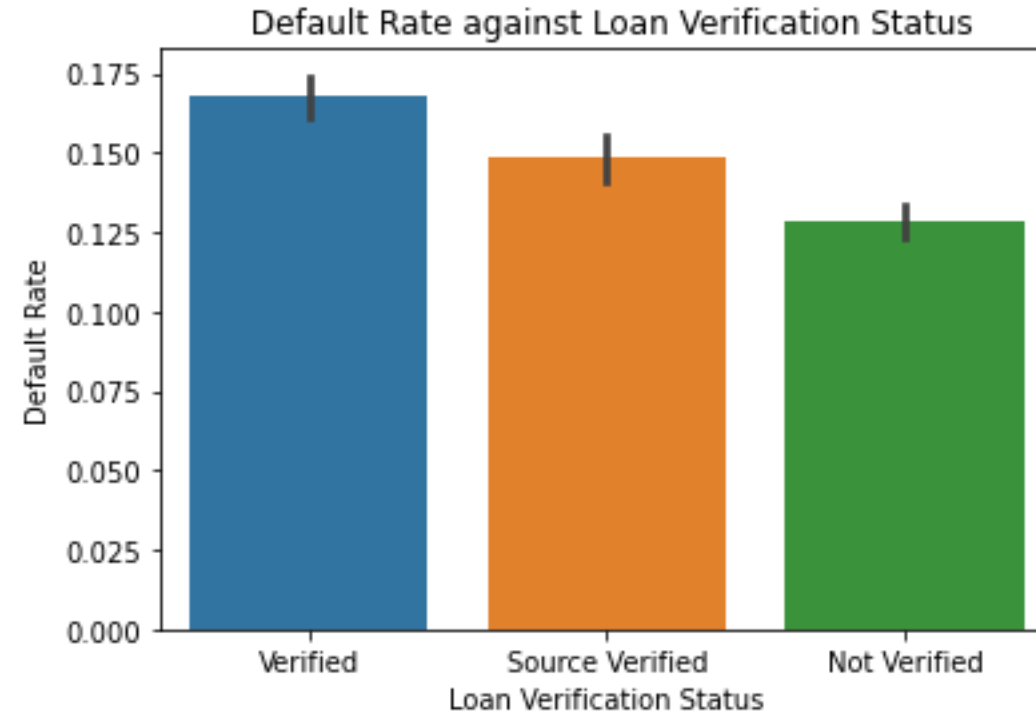
- Defaulting increases as the Revolving Utilization rate increases

# Observations and Actions



- There is a significant increase in defaulting when the purpose is “Small Business”

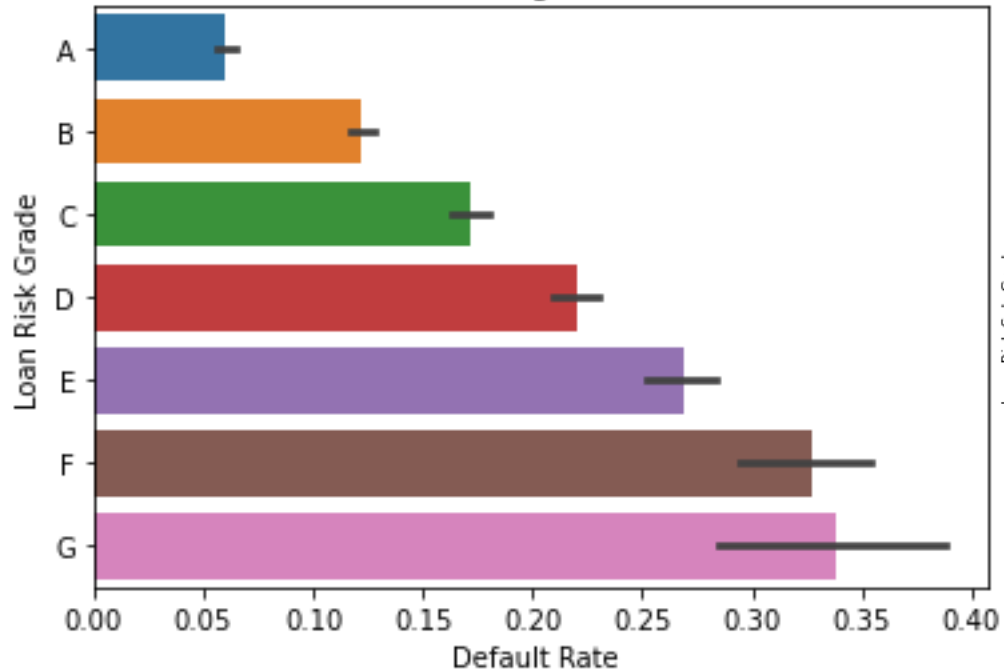
## Observations and Actions



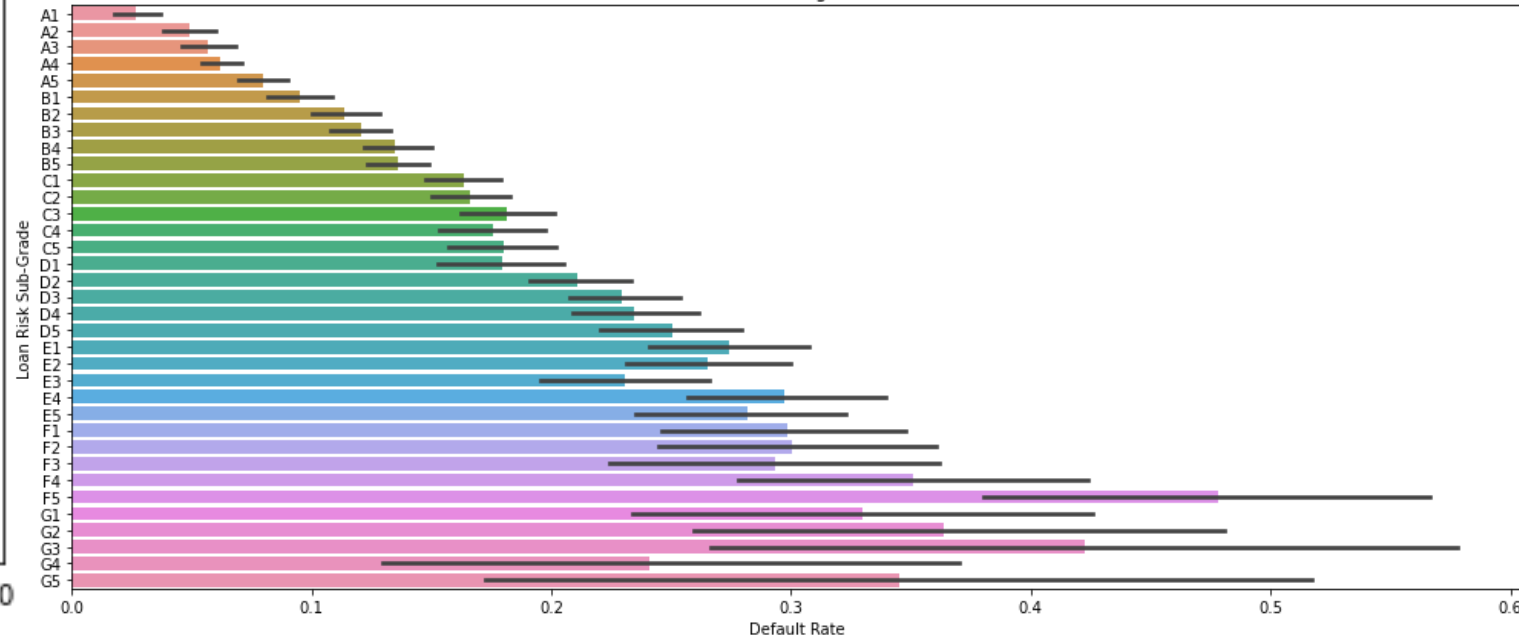
- Lending Club needs to improve the verification process since the verified accounts have more defaults than unverified

## Observations and Actions

Loan Risk Grade against Default Rate

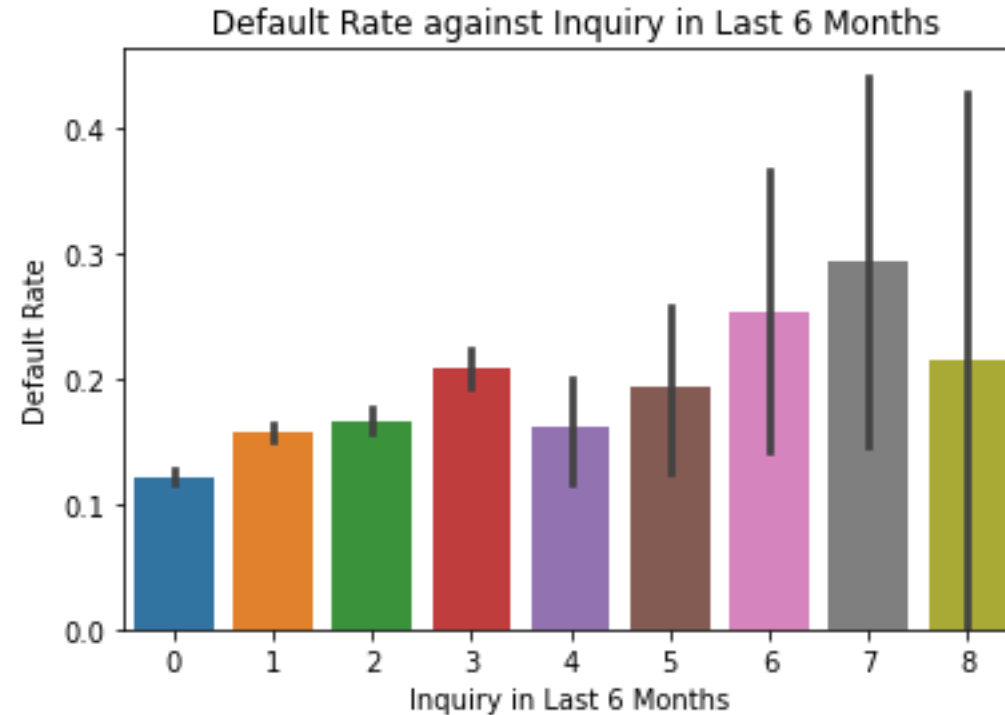


Loan Risk Sub-Grade against Default Rate



- As the grade increases, defaulting increases.
- The defaulting also increases as the subgrade increases. Some variation is seen in G grade.

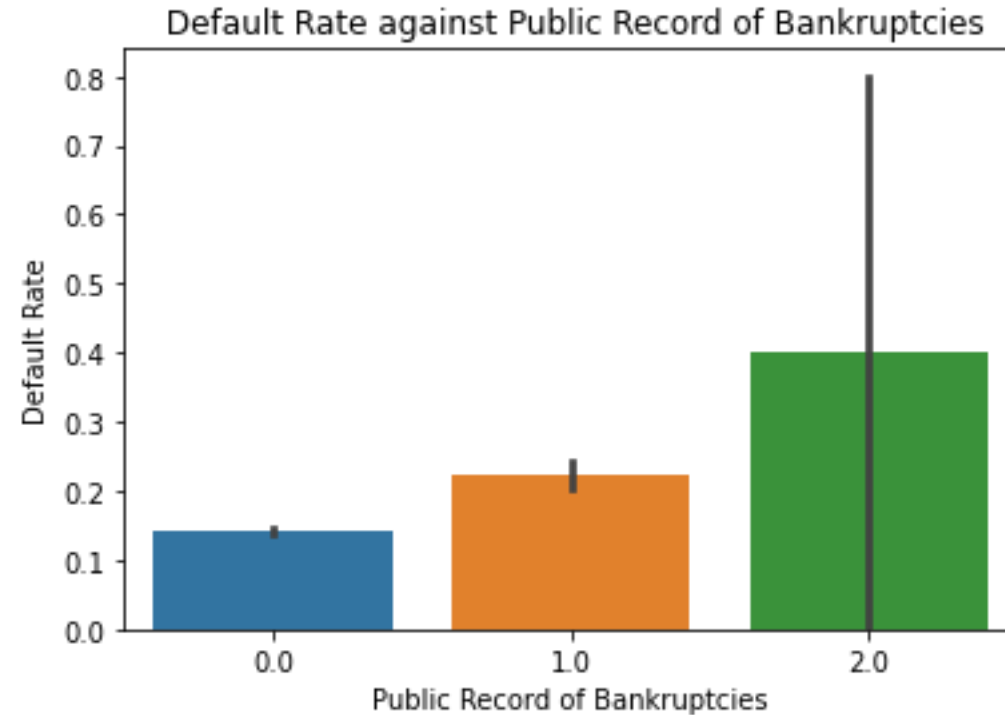
## Observations and Actions



- A slight saw-tooth trend but no conclusive statement can be made



## Observations and Actions



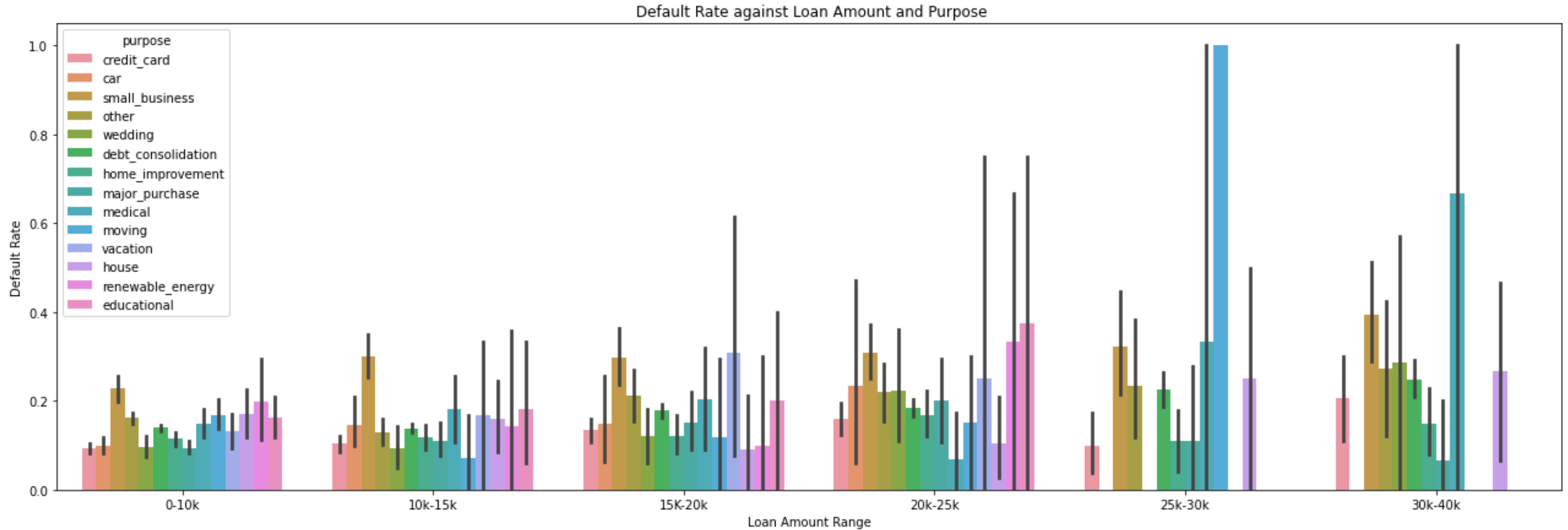
- Having 2 or more bankruptcies in the person's record should be a warning sign

# Let's Look at Driving Factors for Loan Default

## Bivariate Analysis

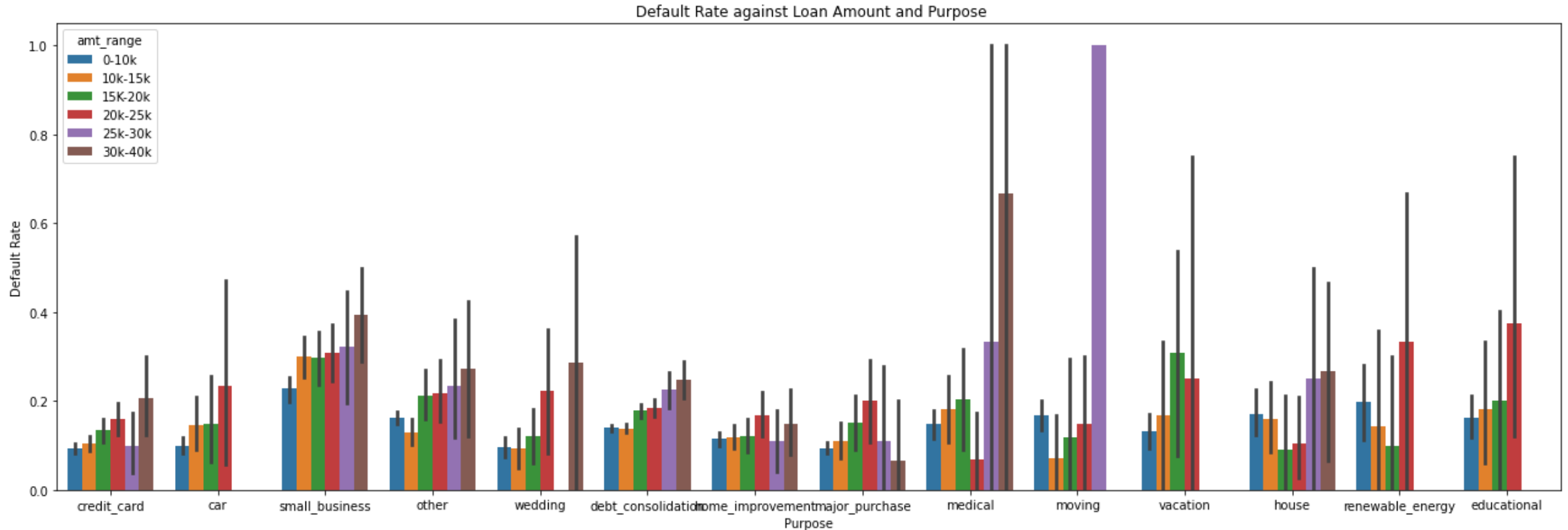
- Let's look at combination of loan / customer attributes against the Loan Default Rate

# Observations and Actions



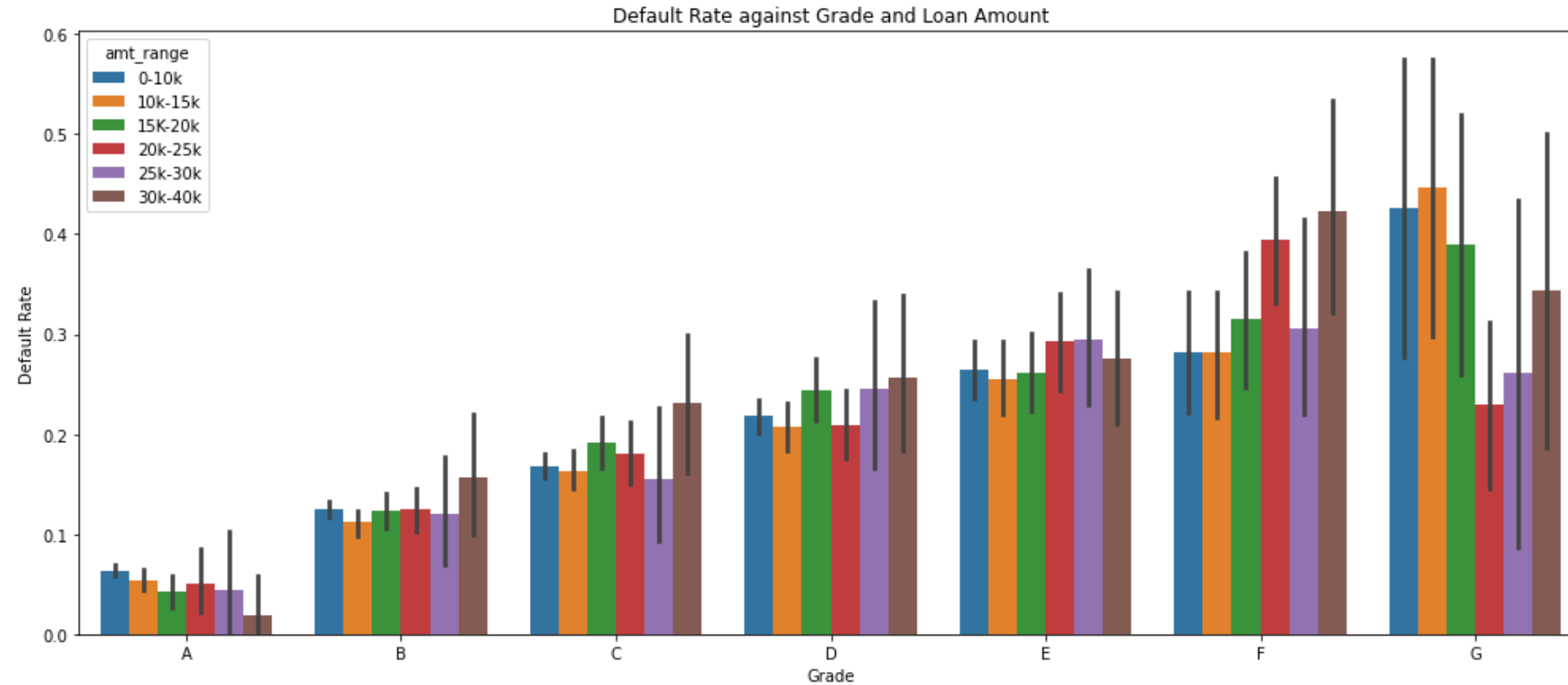
- Checking Loan Amount and Purpose. It generally seems similar across different loan amounts.

# Observations and Actions



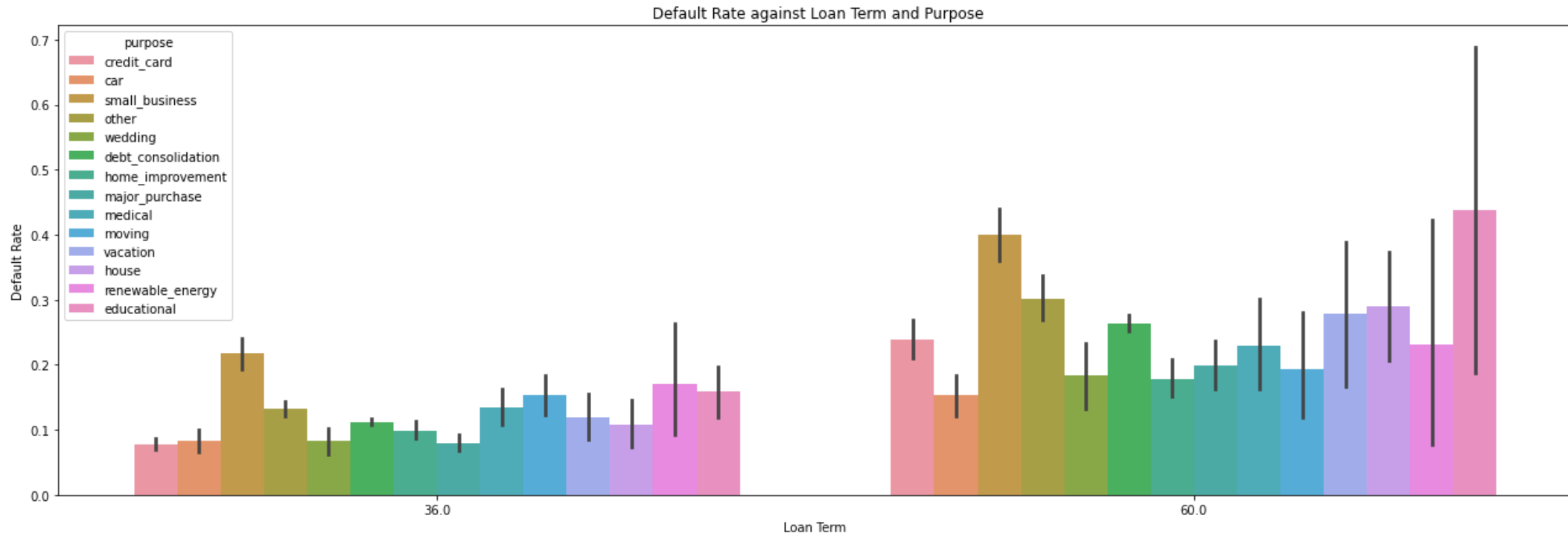
- Small business has more defaulting than other purposes for loan amount ranges

# Observations and Actions



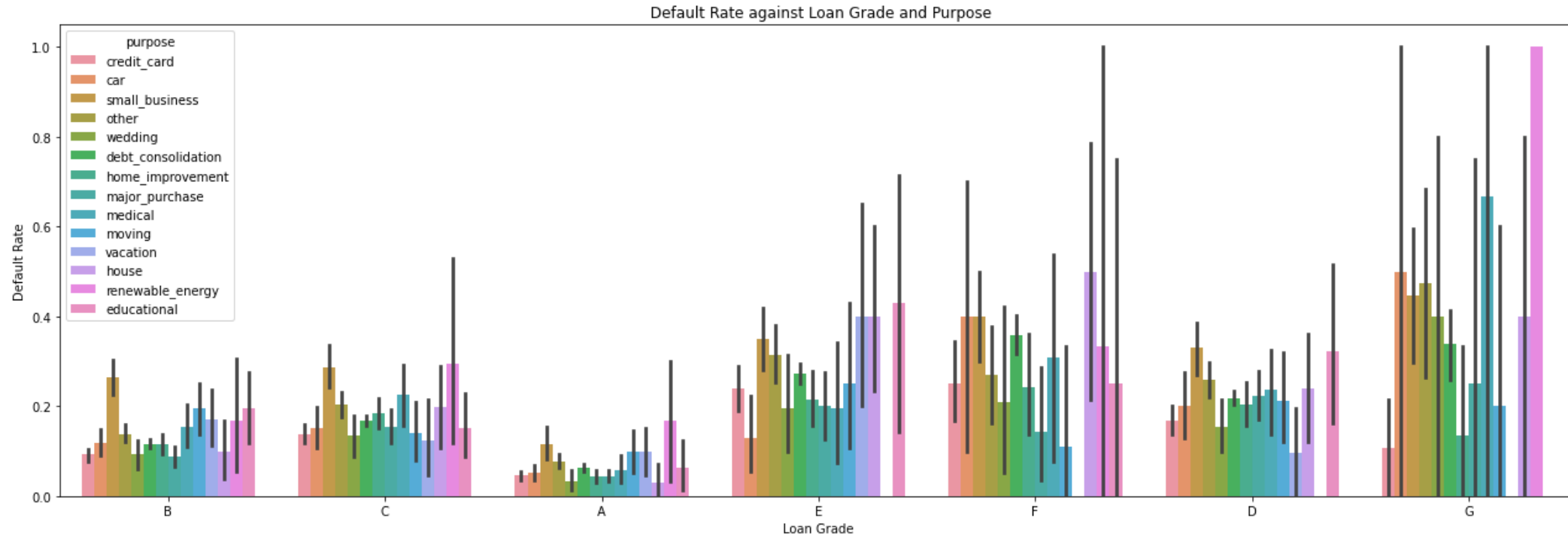
- Consider how they grade because above 20K income F grade has defaulted more than G grade
- A grade at above 30K has least default

# Observations and Actions



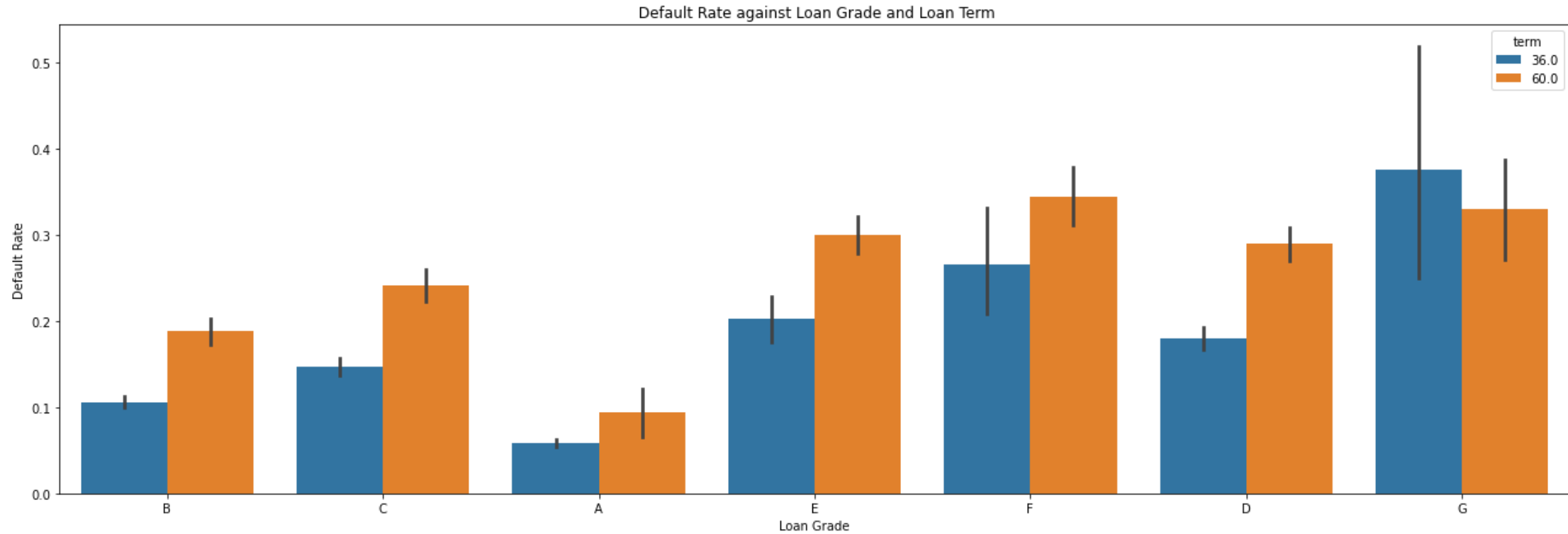
- For term with 60 months, educational loan defaulters more than doubles 0.2 to above 0.4
- similar observation for : credit\_card, small\_business(significant)
- consider giving for lesser term for all of above

# Observations and Actions



- grade is a good indicator of defaulting whatever maybe the purpose

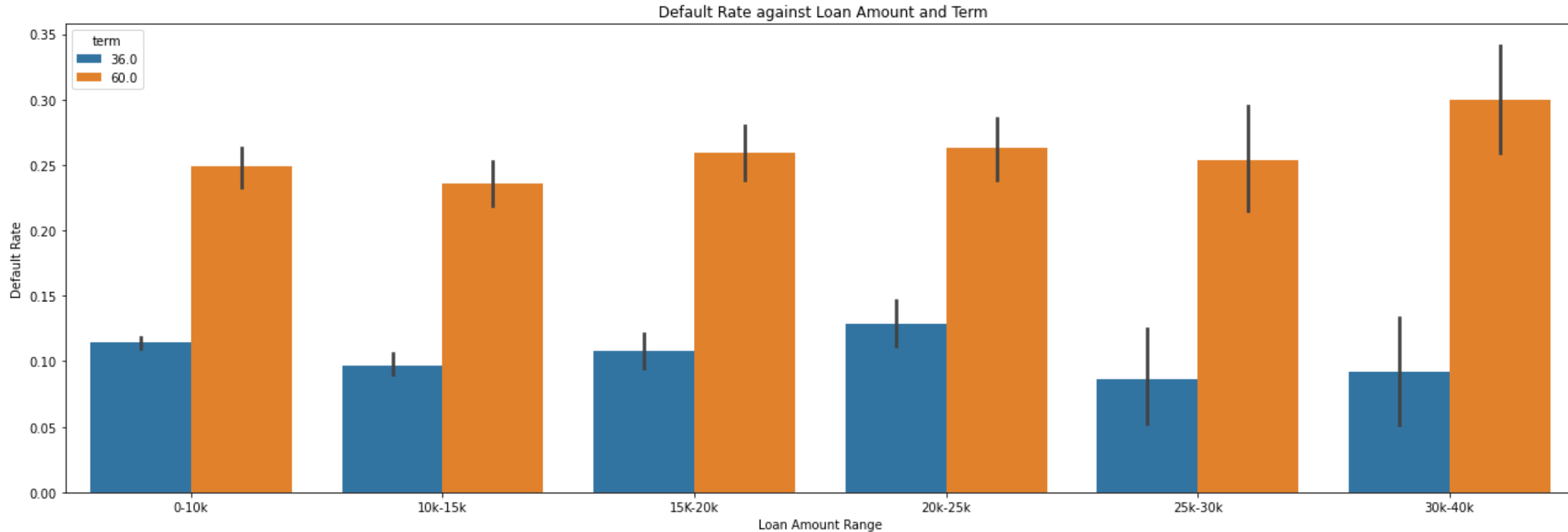
# Observations and Actions



- for all grades except G , term of 60 is having more defaulter

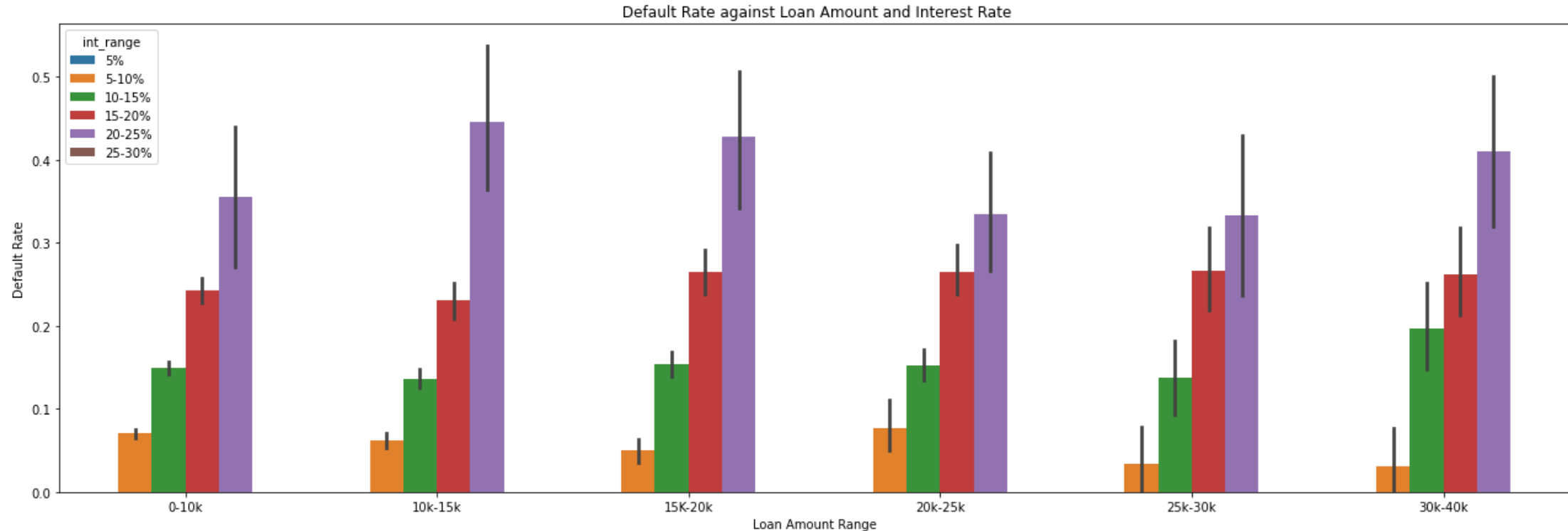


# Observations and Actions



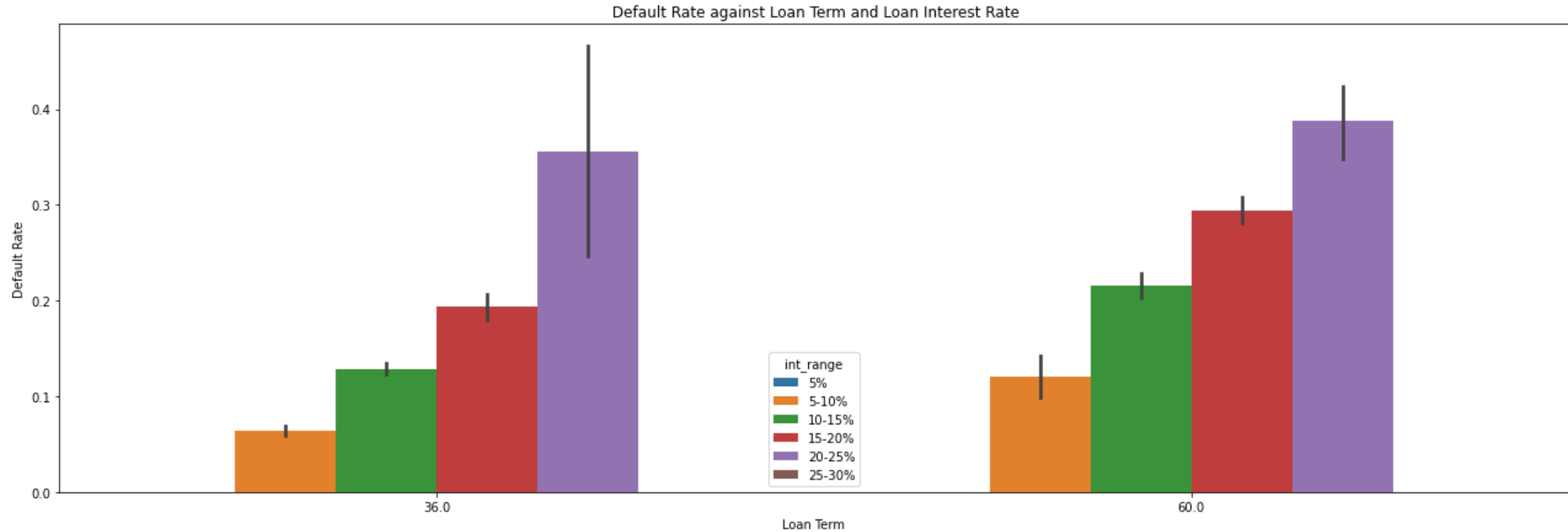
- Across all Loan Amount Range, loans with 60 month term are getting defaulted more

# Observations and Actions



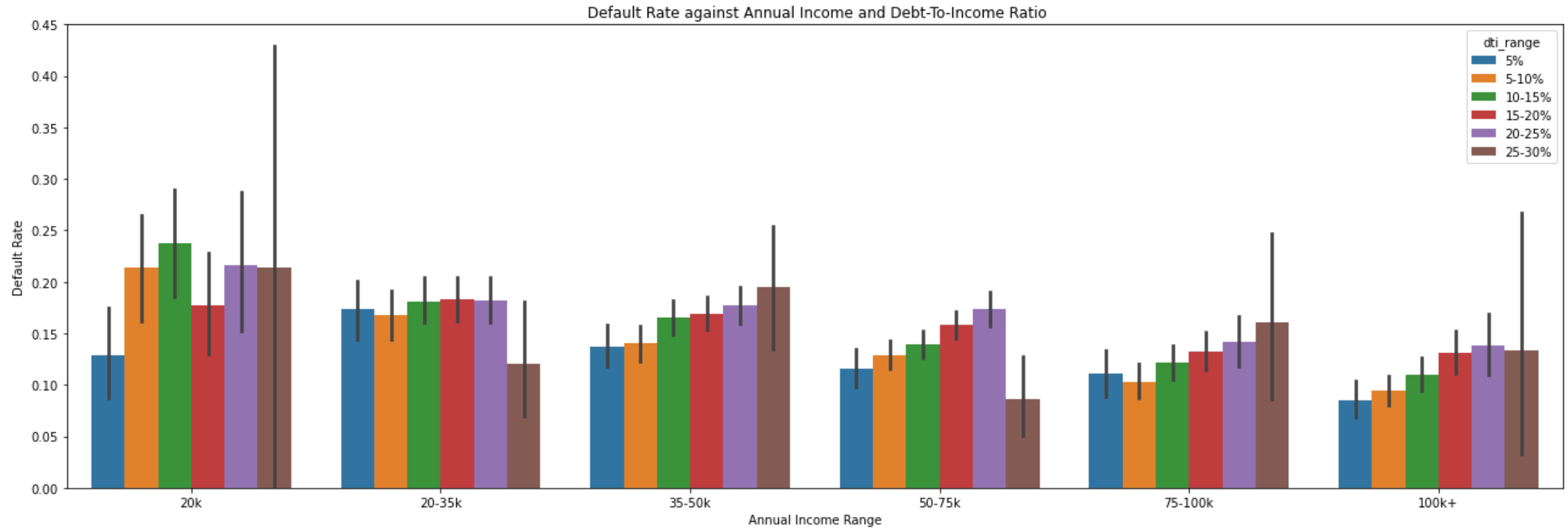
- For a given loan amount, defaulting increases as Interest rate increases

# Observations and Actions



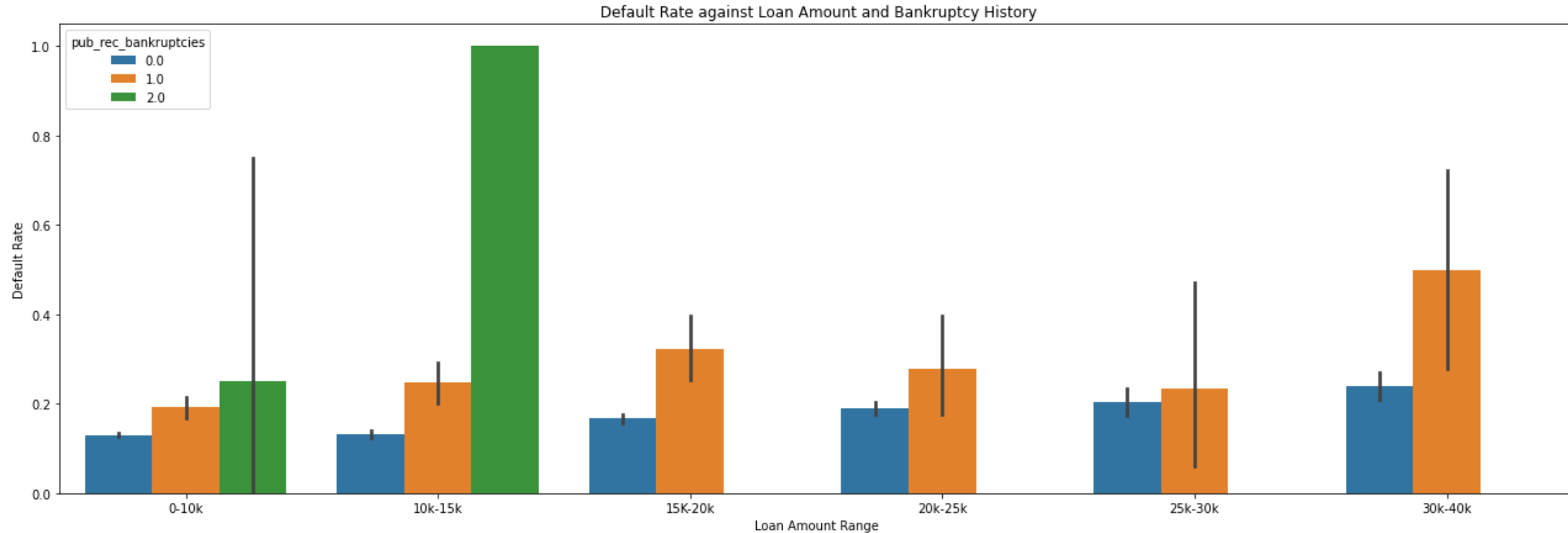
- Higher Term and higher interest rate has more defaulting

# Observations and Actions



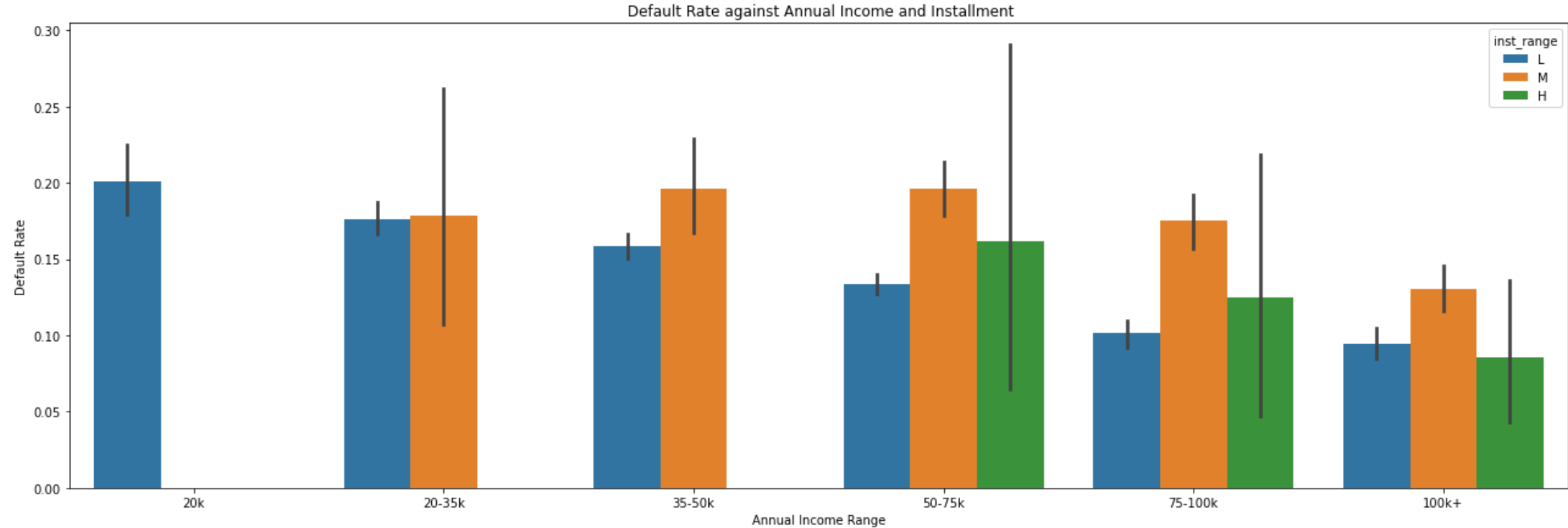
- Income Range and DTI. Not much trend, Other than what was already observed for income groups

# Observations and Actions



- Bankruptcies if present then it should be considered as the most risky factor for defaulting the loan

# Observations and Actions



- As income increases and installment decreases, defaulting decreases

# Recommendations:

- Driving Factors:
  - Interest Rate / Grade
  - Loan Term
  - Annual Income Range
  - Revolving Utilization
  - Bankruptcies (if present, they are quite risky)
- This are the strong indicators where the loan defaulting trends are seen. So before loan approval this factors can be looked at.

# Observations:

- The verification process can be looked at as the no of people defaulting in verified are greater then those in not verified sources
- If the purpose of loan is for small business then the probability of default is higher.
- Probability of people defaulting on education loans with term 60 months is 200% more compared to that with term 36 months.
- Above 20k of annual income, F grade loans have defaulted greater then G grade loans