# Business Report
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# PEOPLE'S ABILITY TO CHOOSE

*Program: (B412) Analytics for Business Decision Making*
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## ABSTRACT

This study delves into the intricate relationship between income levels and consumer preferences in selecting credit cards. As personal finance tools, credit cards play a pivotal role in facilitating various financial transactions and offering a spectrum of benefits. Using comprehensive data analysis, this research seeks to understand how income levels act as a crucial determinant in shaping user behavior and choices regarding credit card selection.

## INTRODUCTION

In the current competitive financial environment, companies must customize their strategies to understand the motivations and behaviors of their customers. In the credit card industry, knowing the influencing factors may be a game-changer for financial institutions.

The variety of choices available to customers in the current financial environment is an obstacle when making decisions. Consumer choices are influenced by many factors, from demographic factors (age, gender, or income level) to personal motivations. With so many possibilities, customers frequently face a difficult decision when evaluating offers that could significantly influence their financial situation.

To better understand our customers' behavior, in this business report, we are exploring the answers to the following questions:

- **Are our customers behaving differently depending on the type of video exposure?**
  Here, we will be comparing the impact of baseline and implementation videos on customers' behavior.
  **Baseline vs Implemental Videos for Credit Cards**
  In this experiment, two significant variables were manipulated within the research design that incorporated two types of videos:
    1. Baseline Video: These videos provide an engaging overview of credit cards and the potential traps commonly linked with credit cards.
    2. Implemental Video: These videos include a summary and additional information or advice after the baseline video.

- **Are catchphrases (taglines) playing a part in influencing our customers' choices?**
  Our analysis will review the quality of decisions based on using superfluous taglines.
  **No Taglines vs Superfluous Taglines**
  Apart from the videos, two types of advertisements were included:
    1. No Taglines/Ads: There were no catchphrases linked to any of the cards.
    2. Superfluous Taglines/Ads: There were catchphrases linked to the card, including "Minimum Payment Only $10/month," "0% Introductory APR," "No Annual Membership Fee," and "No Foreign Transaction Fee."

**Demographic Factors:** How do demographic factors affect the choice of credit cards?
- ○ Age: Is there a specific correlation between our customer base's age and how they choose their credit cards?
- ○ Gender: How do males differ from females when it comes to their credit card decisions?
- ○ Income: Is there any correlation between income and the quality of credit card choice?

In this business report, we review multiple features that constitute the best choice for a credit card: activation fee, APR level, APR changes, and credit limit.

To conduct our analysis, we used a dataset of cross-sectional data with 1,603 unique respondents. This study analyzes the credit card preferences of the respondents. The research focused on various aspects, including respondents' video exposure, credit card ownership age, gender, and income.

## METHODOLOGY

Our objective was to systematically assess the cred_card dataset and draw meaningful insights from it by using a combination of R programming and Microsoft Excel.

**Data Collection**
We began by using the dataset obtained for the academic journal article *Millennial-Style Learning: Search Intensity, Decision Making, and Information Sharing*. In an online experiment, 1,603 respondents from *Amazon's Mechanical Turk* (https://www.mturk.com/mturk/welcome) watched a short video and chose among four credit card offers below from four different issuers.

**R Programming for Statistical Analysis**
R was used by us in this analysis process to perform the following tasks:
- ● Descriptive Statistics: Basic statistical summaries, including mean, median, standard deviation, and quartiles, were calculated to gain an initial understanding of the data.
- ● Visualization: To visualize the distribution of key variables, we created histograms and boxplots in R. These graphical representations allowed us to identify patterns and trends within the data. The same was used to clean the data and exclude extreme outliers and missing data.

**Excel for Statistical Analysis**
Microsoft Excel was used by us in this analysis process to perform the following tasks:
- ● Pivot Tables: We generated various pivot tables to summarize and group data. This in turn helped us in providing a concise overview of specific variables and trends that exist in the database.

- Charts and Graphs: Different types of charts including bar charts, histogram were used in the analysis process to visually represent the data. This helped us to highlight the key findings and trends which can be understood even by a non-technical audience.
- Simple Random Sampling: Excel was further used to get a simple random random for further analyzing the data points. Excel function =*RAND()* was used to obtain the desired result.

**Data Interpretation**
The results of our data analysis were comprehended to extract meaningful inferences and actionable recommendations.

**Statistical Software and Versions**
We used *RStudio-2023.09.0-463* for all R-based analysis and *Microsoft Excel 365* for data visualization and pivot tables.

# RESULTS AND DISCUSSION

**Overview**

The dataset contains 1603 unique respondents and 68 variables. The analysis focused on various aspects, including respondents' age, credit card ownership, gender, video exposure, and income.

**Baseline vs Implemental Videos for Credit Card**

The analysis indicated a noteworthy impact of video content on the decision-making process of individuals, particularly in the context of credit card choices. Watching a video had a positive influence overall. However, when we take a deeper look at the data, it is very clear that the respondents who viewed the implemental videos showed a significantly higher inclination towards making informed and smart decisions about the credit card choice than those who watched the baseline videos.

*Table 1: Choice Proportion of Dominant Card V/S Video Type viewed by Respondents*

| Chosedom | Baseline | Implemental | Grand Total |
|---|---|---|---|
| 0 | 30.13% | 21.02% | 51.15% |
| 1 | 19.84% | 29.01% | 48.85% |
| **Grand Total** | **49.97%** | **50.03%** | **100.00%** |

**No Taglines/Ads vs Superfluous Taglines/Ads**

- The analysis pointed out that taglines have a potentially negative impact on the choice of the respondents.
- Respondents exposed to superfluous taglines seemed to make poorer choices compared to those who were not shown any taglines.

This implies that the wording or messaging in taglines might have been confusing or misleading, leading to suboptimal decisions. The data suggests that irrelevant or superfluous taglines might not positively impact smart card choices when combined with video content. Further research into specific taglines and their reception could provide insights into crafting more effective and clear messaging in marketing materials.

*Table 2: Choice Proportion of Dominant Card V/S Presence of Tagline*

| Chosedom | No taglines | Superfluous taglines | Grand Total |
|---|---|---|---|
| 0 | 23.27% | 27.89% | 51.15% |
| 1 | 26.89% | 21.96% | 48.85% |
| **Grand Total** | **50.16%** | **49.84%** | **100.00%** |

**Demographic Factors**

**Age**

The data set consists of one extreme outlier for the variable age. The value of the outlier equals 200, which is unrealistic for the age of a person. Furthermore, there are 3 respondents who did not respond to the variable age, hence we have 3 missing entries here.

The age variable ranges from 18 to 80 years (excluding the outlier).

Upon analysis, the results show that there is no significant relationship between age and choosing the dominant card.

**Gender**

There is no significant difference between genders in making credit card choices. 50.46% of females chose the best card, while 47.41% of males chose the best card. There is a statistically insignificant difference in the choices made by either gender (or even if the difference is significant, the percentage for females is greater than that of males). Hence, it is safe to say that gender does not correspond to better credit card choices.

*Table 3: Choice Proportion of Dominant Card basis Gender*

| Chosedom | Females (0) | Males (1) | Grand Total |
|----------|-------------|-----------|-------------|
| 0 | 49.54% | 52.59% | 51.15% |
| 1 | 50.46% | 47.41% | 48.85 |
| **Grand Total** | **100.00%** | **100.00%** | **100.00%** |

**Income**

The analysis suggests a nuanced relationship between income levels and credit card choices. Individuals with moderate to high incomes ($75,000 - $149,999) displayed a higher inclination towards specific card choices, potentially indicating a greater awareness of available options or specific card benefits.

Higher income corresponded to smarter financial decisions, likely due to higher education levels. However, at the same time, the group of people with extremely high incomes doesn't necessarily have a better education level since their income might not be because of education but due to generational family money. In that scenario, they do not make smarter choices.

The results can be shown with the help of the following graph:

*Graph 1: Choice of Dominant Card basis Household Income Levels*
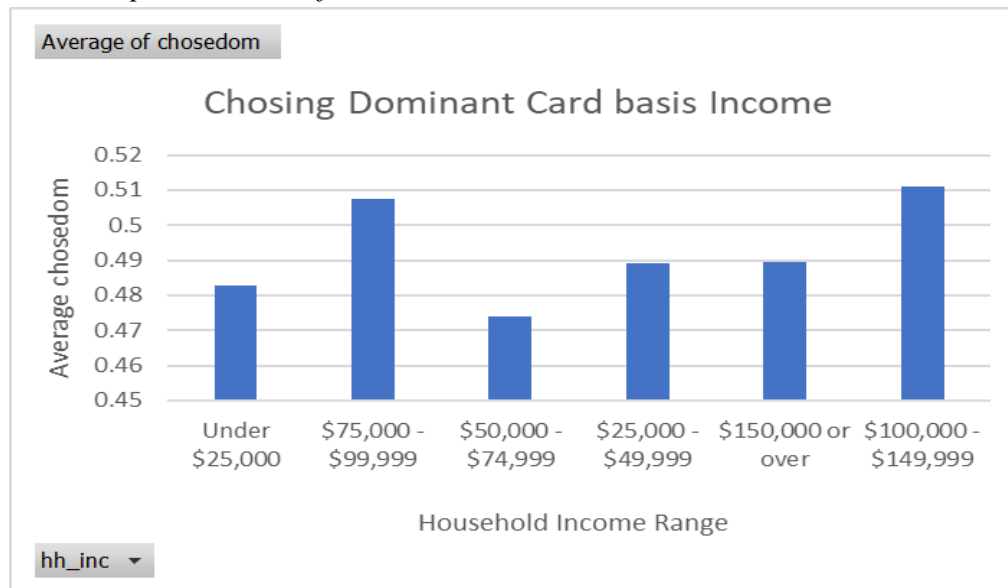


## CONCLUSION

In today's financial landscape, it has become crucial for companies, especially in the credit card industry, to truly understand their customers' motivations and behaviors. This study has revealed some findings to do the same. Firstly, the type of video exposure, whether it is an informative video, significantly impacts how customers behave. Informative videos that provide details seem to have an influence, suggesting that customers value having thorough insights when it comes to making credit card decisions. Furthermore, we also examined the impact of taglines. During the analysis we discovered that using irrelevant taglines may negatively affect the quality of decision-making. This underscores the importance of crafting relevant taglines for marketing strategies. Additionally, we also analysed how demographic factors influence credit card choices. We discovered a correlation between age and credit card preferences. This highlights the significance of adjusting credit card offerings to cater to age groups' preferences and needs. Surprisingly, we discovered that gender did not show an impact on credit card choices, indicating a gender decision-making process in this context. Moreover, our analysis revealed a connection between income levels and the quality of credit card selection; individuals with high income tend to make informed decisions.

This research provides insights for credit card providers to improve their strategies and offer customer solutions in the ever-changing credit card industry. The dataset used for analysis included responses from 1,603 individuals, making the findings more relevant and applicable.

## RECOMMENDATIONS

To make the most of these discoveries and improve customer satisfaction, we have some recommendations. Firstly, it's beneficial to optimize taglines through A/B testing to ensure they are clear and relevant. Secondly, investing in high-quality video content that effectively showcases the advantages of credit cards can increase customer engagement. Targeted marketing tailored to income groups should be used to connect with customer segments. Offering benefits, rewards, or interest rates based on income levels can attract a range of customers. Launching programs that inform customers about credit card features is crucial, along with providing easy-to-understand communication about credit card terms, rewards, and benefits. Lastly, creating initiatives that boost confidence for both female and male customers by simplifying financial concepts and clarifying credit card features can empower customers and enhance their decision-making process. By implementing these suggestions, credit card providers can improve their marketing strategies. Help potential customers make decisions.

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# DECLARATION

We, Aparna Verma, Nada Rocio Doublali, Mudit Kapoor, Muhammad Ramis Malick, Mariam Mimet, Ritika Devendra Pandey, declare that the attached assignment is our own work in accordance with the GBC Academic Policy. We have not copied any part of this assignment, manually or electronically, from any other source, including web sites, unless specified as references. We have not distributed our work to other students.

Specify what each member has done towards the completion of this work:

| Name | Task |
|---|---|
| Aparna Verma | Ques 1-15, Methodology, Results |
| Nada Rocio Doublali | Ques 10-12, Ques 15, Results, Recommendations |
| Mudit Kapoor | Recommendations, Conclusion |
| Muhammad Ramis Malick | Story, Abstract, Introduction |
| Mariam Mimet | Story, Abstract, Introduction |
| Ritika Devendra Pandey | Ques 1-16, Methodology, Results |