

Credit Card Customers' Data Visualization

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Abstract. Nowadays, there are many people who have credit cards, but the frequency of using them varies according to some personal factors, so many bank managers are worried because of the loss of some customers. Therefore, in this report, I have used a data set of 10,000 credit card holders' personal information and then selected and visualised this data. This will give a better understanding of the current cardholders and perhaps some banks or credit card companies can use the data to come up with effective solutions to recover some of their lost customers and find some potential credit card customers. According to the data analysis, it is not difficult to find that the current credit card users are mainly middle-age, with undergraduate degrees, and have an income below 40k dollars, with a total transfer amount between 2k-3k dollars or between 4k-5k dollars.

Keywords: credit card; Personal factors; Bank manager.

1. Introduction

Bank credit refers to money lending mediated by banks and requiring interest in return is known as bank credit, which encompasses borrowing services in the form of deposits, loans, credit cards, overdrafts, etc. Banks earn revenue through credit operations, while customers can borrow money to meet their advisory needs. This article will focus on the characteristics of the current customers of credit cards and extrapolate this to identify potential customers.

In theory, researching credit card customer segments can help credit card companies better understand customer needs and behaviour, so that they can develop more targeted marketing strategies and product solutions to increase market share and customer satisfaction. In addition, research on customer segments can also provide credit card companies with data to help them assess risk and develop risk management strategies more accurately.

Realistically, in practice, research on customer segments can help credit card companies better identify the needs of potential and existing customers, as well as their spending habits and credit history, so that they can better offer personalised services and products. In addition, research on customer segments can also help credit card companies reduce non-performing loan rates and improve profitability and operational efficiency.

As credit cards become a lot more prevalent and recognised, the concept of credit spending and overspending is becoming more and more popular. Because the advent of credit cards has brought convenience to many people's lives, an increasing number of people are going for credit cards.

This is a good thing from the perspective of the banks and credit card companies and helps them to reap the benefits, but not all customers will actively use their credit cards after applying for them, resulting in a loss of customers. If their existing customer profiles could be analysed to determine the reasons for the different frequencies of credit card usage, then perhaps a better credit card usage plan could be analysed.

Let's look at the contents of this data first next.

2. Data Analysis

2.1 Data description

My data selection is from <https://leaps.analyttica.com/>. These data give a very detailed picture of a customer's basic personal background and his corresponding credit card profile. It contains information on 10,000 credit card holders, specifically, age, gender, education level, income level, credit card type, Total Transaction Amount (Last 12 months) and Average Card Utilization Ratio.

2.2 Gender Analysis

First, I started with a brief analysis based on gender. The images below show the different percentages of male and female of these 10,000 credit card holders with the corresponding percentages of credit card types not used.

The chart 1.1 shows that women have a larger percentage of credit cards than men, but this difference is not significant so we can consider it as an equal distribution.

Meanwhile, the chart 1.2 shows the breakdown of cardholders by different card types. The largest number of people have a blue card in both male and female categories, while fewer people have a platinum card. Typically, the different types of cards are due to different limits, annual fees, benefits, thresholds and point values. The blue card has the lowest threshold and so the more people use it.

However, the difference in the number of people with the same card category is not large among both genders, and for the convenience of subsequent consideration, I have therefore not included the gender of the customer in the subsequent data analysis.

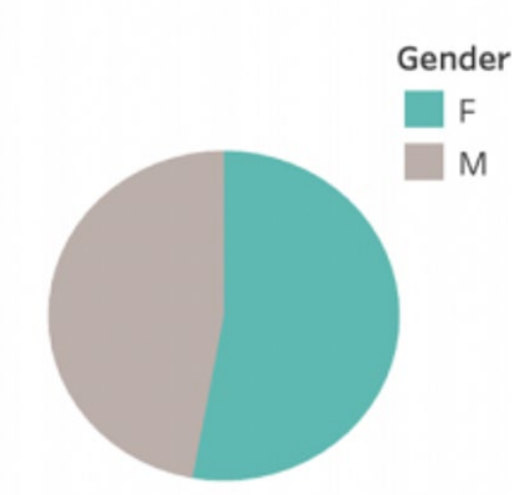


Fig.1 Gender

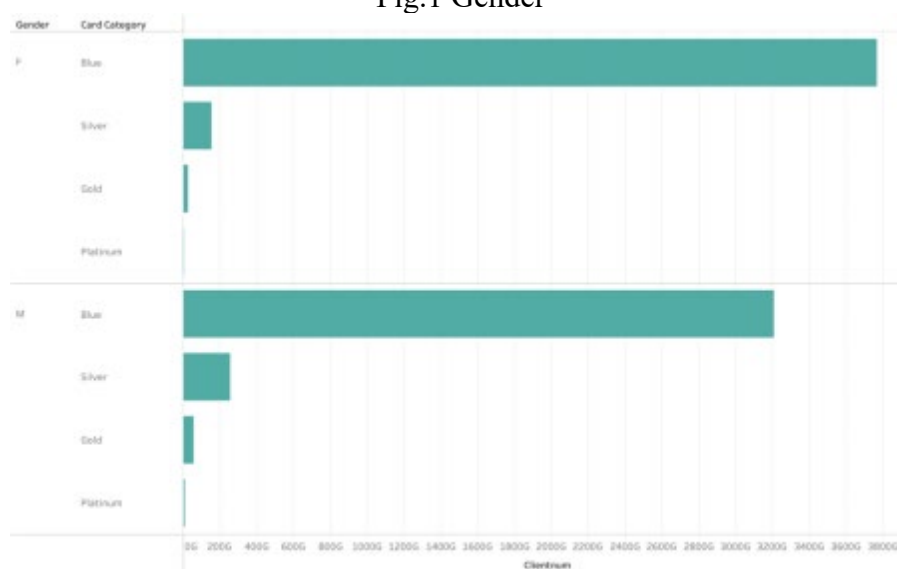


Fig.2 Gender and Card Category

2.3 Age Analysis

Secondly, I have visualised the distribution of customers based on their age, as seen in the graph below, in this dataset the distribution of customer ages follows a normal distribution. This implies that people in the middle age group, around 46-50 years old, tend to have more credit cards. Thus, under the assumption of normality, the age profile can be used further.

But why are credit card users concentrated in the middle age group?

I have given a few examples of reasons. One is financial stability: middle-aged people usually have a more stable income and financial situation, so they are more likely to have access to credit cards. Secondly, financial needs: middle-aged people may have more financial needs, such as paying for their children's education, buying a house or vehicle, etc. Credit cards can provide a source of funding. Thirdly, credit history: middle-aged people usually already have a long credit history, which can help them to obtain a higher credit limit and better interest rates. Lastly, purchasing power: middle-aged people usually have higher purchasing power, so they may be more receptive to the interest and fees of credit cards.

As a result, middle-aged people make up most credit card owners, so the potential customers for bank cards are likely to be found in the age group of less than 40, or more than 50 years old.

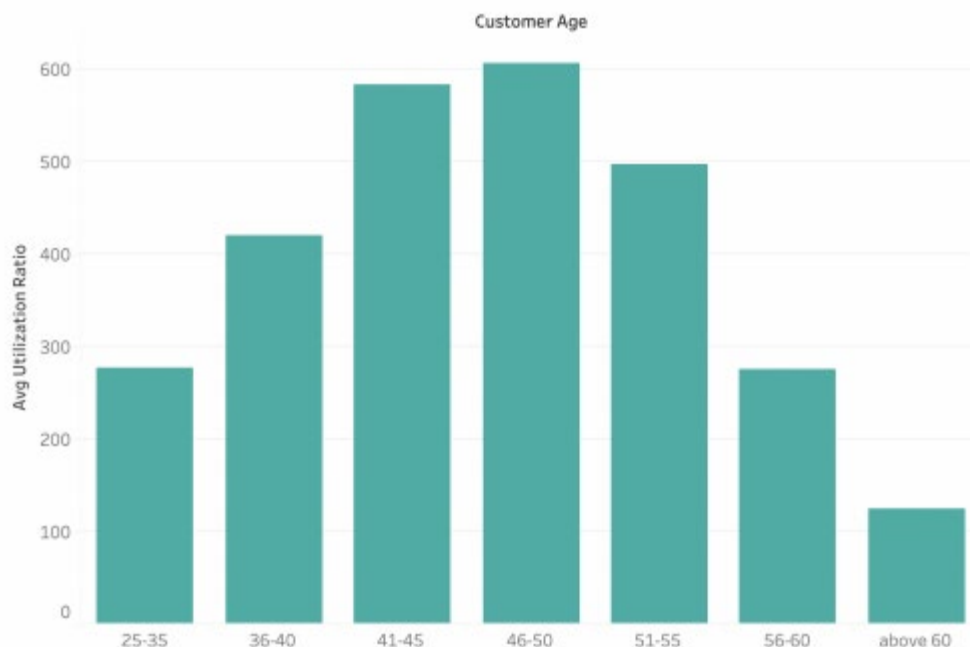


Fig.3 Age

2.4 Education level Analysis

Next, I analyse the 10,000 cardholders according to their education level. As shown in the graph 3.1, the x axis shows the distinction by education level, from this graph, it is clear to see that the undergraduate counterparts have more credit card holders.

This may be because many people are keen to have their own credit card when they reach adulthood or after graduation and according to reports, 93% of university graduates have at least one credit card, perhaps as a symbol of their entry into society; and as their education increases, they may become more aware of the concept of overspending and the rules for setting up credit cards. more understanding, they may be more careful in managing their finances, or more conscious of their credit history and financial situation.

Secondly, it could also be because of building credit: using credit cards responsibly and paying them off on time can help build a good credit history, which can be valuable for future financial decisions, such as buying a house or getting a loan, especially for those who have just graduated.

A final reason may be because of the rewards and benefits. Many credit cards offer rewards and benefits such as cashback, points or discounts on purchases, which can be attractive to students looking to save money.

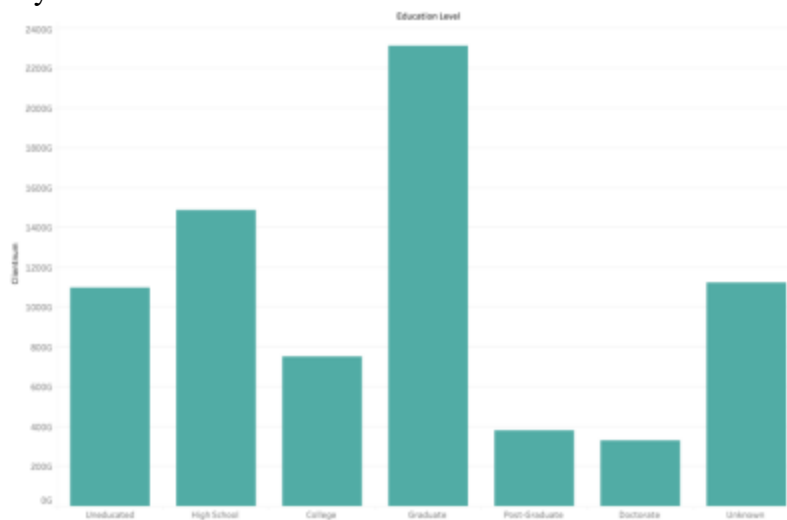


Fig.4 Education Level

2.5 Income level and average utilisation ratio analysis

After analysing the types of people who tend to have credit cards, then also need to check how often they use their credit cards.

The next graph, therefore, shows the relationship between income and average utilisation. The darkest colours indicate customers who mostly use credit cards in their daily lives. Thus, customers with incomes below \$40,000 tend to use credit cards more often.

There are several possible reasons for this. First, lack of access to other forms of credit due to their low income: people with low incomes may not have access to traditional forms of credit, such as loans from banks or credit unions. Credit cards can provide an alternative source of credit for these people (Kaynak, E. and Harcar, T. (2001)). Second, lack of financial literacy. People with low incomes may have limited financial literacy and may not understand the risks and responsibilities associated with using credit cards. They may be more likely to use credit cards impulsively or without fully understanding the terms and conditions of the credit card.

A final reason may be due to early spending. Buying something that they can't afford on their current salary but using a credit card can help them buy something now and pay it back later.

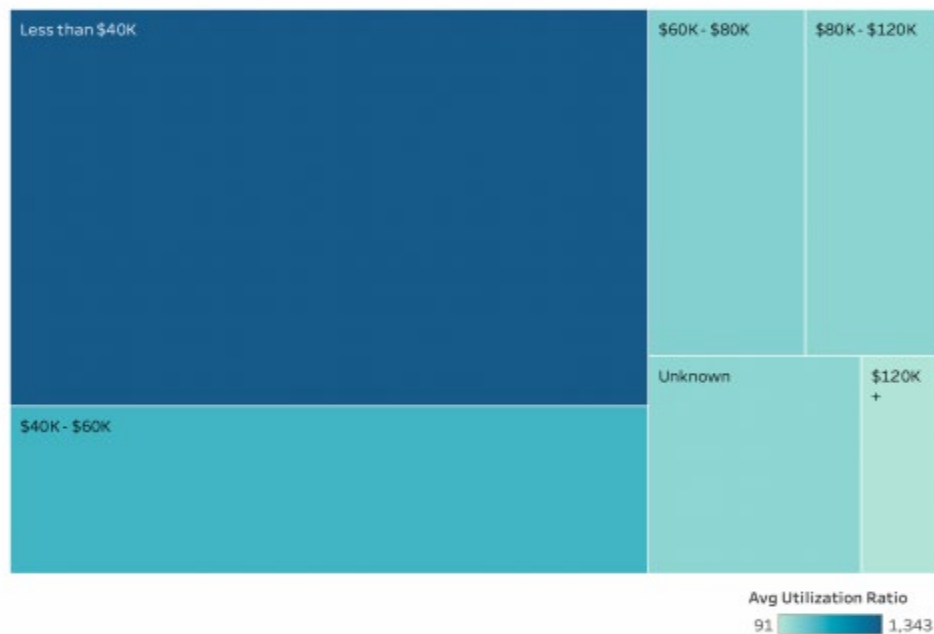


Fig.5 Income level and average utilisation ratio

2.6 Total transfer Amount Analysis

After looking at the data on the frequency of credit card use, it is also possible to analyse the credit cards according to the total amount used.

Here, the last graph shows the total conversion amount. This is a multimodal distribution with two peaks. Therefore, there could be some potential groups in our data. Perhaps bank managers should discover more data to understand what is causing this.

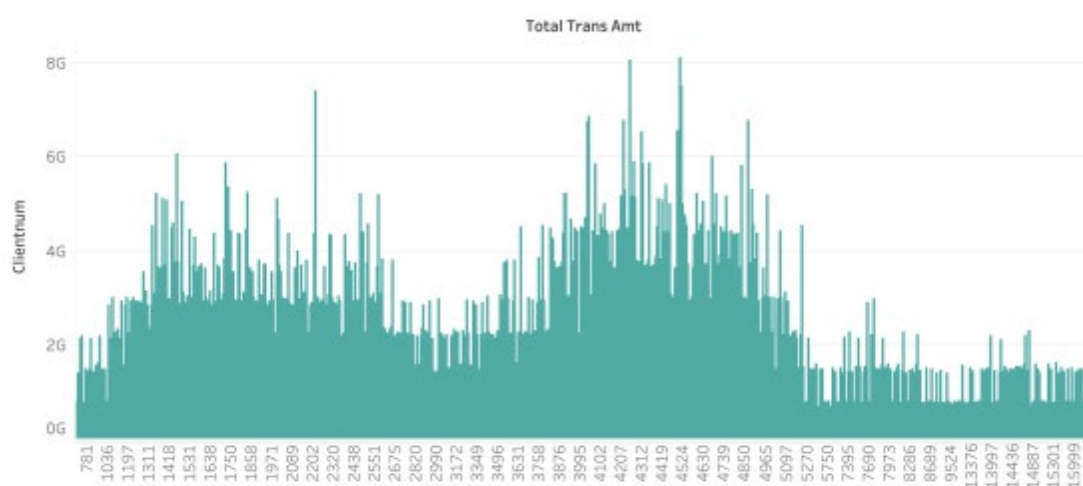


Fig.6 Total transfer Amount

3. Conclusion

Therefore, after these charts, the paper has several of findings. First, we can roughly understand that the current credit card customers are mainly middle-aged people between the ages of 46-50, with income levels of 40k dollars or less. Second, the potential customers that can be tapped by the bank's experience can be roughly focused on, age under 35; total transfers between 2k-3k dollars and 5k dollars or more; and income above 4k dollars.

Bank managers can therefore use this data to find ways to retain existing customers and tap into hidden ones, but they also need to be careful not to forget sustainability while encouraging the use of credit cards.

This is because, according to graph 3. 1, undergraduates have a high number of credit cards and use them more frequently, with a recent study reporting that about 70% of college students have at least one credit card, and another study reporting that 93% of college graduates have obtained at least one credit card. Meanwhile Manning (1999), in his study for the Consumer Federation of America (CFA), reported that the average credit card debt was \$2,226(Norvilitis, J.M., Szablicki, P.B. and Wilson, S.D. (2003)). Thus, consumer debt on college campuses is a burgeoning problem that plagues many students. As a tool that can be used for overspending purposes, the question of how to modify the threshold of applicants, i.e., who can apply, needs to be carefully considered, otherwise people's trust in credit cards will diminish as concerns increase that credit card companies are unfairly taking advantage of vulnerable people. Standing up to the banks is what will, in the future, gradually bring the credit card market down.

Hence banks and credit card companies need to analyse the threshold of applicants based on additional specific data. But while considering sustainability, don't forget to negotiate a credit card policy that is tailored to your country's situation and requires a revision of your marketing policy and management procedures rather than following a standardised approach(Barker, T. and Sekerkaya, A. (1992)). Then on these basis retain existing customers and explore potential customers.

References

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