Linkages Between Credit Cards and Consumers' Impulsive Buying Behavior : An Empirical Analysis

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Abstract

The demand for credit cards in the Indian banking sector has been increasing in the last few years. In its most basic form, a credit card scheme is a method of obtaining credit through rental transactions in which the cardholder can purchase on credit up to the amount agreed upon with the credit card business by using the card rather than cash. This paper focused on understanding whether credit cards help consumers save or put them under debt. It further built a model that will help detect the defaulters in the real world. The paper adopted a conclusive research design with a questionnaire-based research method and collected data from 184 respondents. The random forest technique was applied to analyze the data. The results indicated that customers who did not manage their funds had high chances of falling into the trap of debt, and there was a strong correlation between variables such as repayment of previous bill, billing amount, and payment of present bills. These variables were found to be relatively stronger together in predicting about the customers.

Keywords : **Credit card, plastic money, reward points, convenience, impulsive buying behavior, debt, random forest technique, plastic money**

JEL Classification Codes : D6, E4, G2, G4, M2, P0

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For the past few years, the financial industry across the world has been going through a quick transformation. The use of technology has not only assisted better tracking and fulfillment of responsibilities, but has also helped in delivering various programs for online clients. The Indian banking sector has been benefitted immensely from the use of technology in its day-to-day operations. The online platform has provided financial institutions a whole new experience of building their client base at a rapid speed and delivering the services as fast as possible, and that too at the convenience of the customers. Use of online

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facilities in financial transactions has greatly reduced the physical exchange of paper money and currency from one place to another or even from one person to another, which has resulted in the reduction of cost for financial institutions. Online transactions may include wire exchanges, digital funds exchanges, and transactions through debit cards, credit cards, and others.

Credit card is another tool that is used as a system of payment by its users. It has received much popularity in recent years due to its feature of giving credit to users for a certain period of time and that too without even charging any interest on the amount credited/used by the cardholder. A cardholder not only has access to borrowing certain amount of money without even paying the interest but can also buy consumer durable goods that may not be within their reach earlier due to the lack of funds. For the users of credit cards, it is an innovative way to pay for the purchases. They can go for instant purchases without checking their real financial position and at the same time they can satisfy their purchase feeling. Having a credit card in the pocket makes the cardholder not to worry about the financial emergencies and provides a sense of financial confidence as well.

Credit cards, however, are linked with the term 'impulse buying', which exhibits that consumers tend to buy those commodities too which they did not plan before or they did not have the need at the time of purchase. Credit card is often seen as a payment tool that makes the consumers lose self-control when the matter of purchasing a commodity comes. This kind of buying habit results in overspending, and ultimately the cardholder comes under the burden of debt. There are various factors that actually trigger the cardholder to show impulsive buying behavior. Some of them are social influence, stimulation level of an individual, demographic factors, and so on. Previous research has concentrated on the topic of impulsive buying behavior in connection to retail purchases such as clothing, snacks, cosmetics, and online shopping.

Consumers' impulsive buying depends on the two categories of factors: internal factors such as Hedonic motivation and Credit card and gender and the external factors such as shopping environment, promotional activities, and visual merchandizing.

In view of this backdrop, it is important to examine customers' satisfaction level after using credit card and estimate the scope of impulsive buying behavior of customers who use credit cards. Further, there may be a possibility of customers falling in debt trap due to the use of credit cards, and this aspect also needs further consideration.

External Factors of Impulsive Buying Behavior

Visual Merchandizing

In visual merchandizing, the appearance of the product is manipulated in such a way that customers are attracted to it the moment they visit the store, which leads to impulsive buying on the part of the customer. This approach is assumed to educate the customers about the product in a more effective and creative way. Most of the retail stores now look to the presentation of a good image of their stores through attractive presentation of their products and the variety of goods in order to seek customers' attention. This helps make the customers loyal towards their brands and thus enable them to take the decision to purchase self surely.

Promotional Activities

Offering the products on discounted price or giving bundled products at a promotional price, when compared with non-promotional price, creates impulse purchasing behavior among customers. Marketers have learned that consumers have the fear of future with regard to whether they will have money to purchase a product later, or whether the product will be available later, or whether the same offer would stay until then, and hence are driven to purchase the product right away. Offers like scratch-and-win, buy-two-get-one-free, stop-and-shop, coupons, referral gifts, and lucky draws can manipulate consumers in to value and cost saving. Consumers get the feelings that they are conserving resources when buying or getting extra and therefore avoid looking for the competitors.

In Store Shopping Environment

The exterior appeal of a store can often affect a purchaser's selection. It has been observed that color, texture, and music play a vital role in changing consumers' behavior. The purchase environment includes coloring and decoration of store, placement of the commodities in display within the store, and the location of the product in display. All these factors help in intensifying the purchase decision of customers. Motivation and environmental attractiveness conditions strengthen impulse buying behavior among customers.

Internal Factors of Impulsive Buying Behavior

Gender

Gender has an important role in impulsive buying behavior. It has been experienced from past studies that men tend to shop on the basis of need of the product, its price, its suitability, and its value for them. On the other hand, women shop on the basis of their emotions, sentiments, relationship, and appearance in the society. Therefore, gender also affects the impulsivity towards buying a product.

Hedonic Motivation

It refers to buying a product for having a sense of fulfillment, enjoyment or pleasure, or even to change the mood sometimes. This motivation has a noteworthy influence on impulse buying as customers do not purchase things for economic reasons, but rather for non-economic reasons, for instance to turn bad mood into good mood, for spending spare time, or even as a habit or fantasy. Sometimes, consumers even go for shopping to get out of the stress/depression. There is a famous saying in relation to this, “Shopping is cheaper than a psychiatrist.” So, some customers go for shopping as a part of their stress therapy while some do it as a routine habit of buying anything that comes in the market for the first time. Keeping all the factors in mind, addition of hedonic motivation in our analysis becomes important.

Credit Cards

The inclusion of a credit card in the customer's wallet triggers impulsive purchasing behavior even more. Credit card users not only get the access to funds at no interest but also get a good amount of time to pay for the purchase. In this way, credit card appears to be a cost effective tool for consumers to buy necessary commodities for their consumption. People have become impulsive as a result of having easy access to a credit card.

Review of Literature

Credit card is considered as an open ended payment tool which is capable of giving money without charging any interest (Lee & Kwon, 2002). Use of credit card by consumers as a mode of financing their purchase has actually created a competition between credit card and traditional loans (Brito & Hartley, 1995). Many consumers borrowed up to their credit limit without incurring transaction charges, which includes the time and effort required to get a loan from a bank. Canner and Luckett (1992) highlighted that customers ended up paying higher interest rates rather than finding low-interest loan. The credit card multiplied its acceptance because of the convenience to carry a card rather than taking a cheque or cash along. Further, limited liability associated with credit card helped in its usage more (Chakravorti & Emmons, 2001). It is used more frequently for paying utility bills, shopping online or doing internet transactions. Though, Yang et al. (2005) opined that the use of credit card is dependent upon behavior and attitude of the consumer and there are many psychological reasons attached to it. Xiao et al. (1995) explored a 38-item scale in order to measure the behavioral attitude of consumers toward credit cards. They found that consumers showed impulsive behavior not immediately after having a credit card but after getting used to buying with it.

Ausubel (1991) suggested that some consumers do not pay attention to interest rate while making purchases as their intention is to use credit period only to purchase commodities. Stavins (1996) argued that customers use credit cards for the reasons of convenience, reward points, rental insurance, extended warranties, and fast dispute resolution. However, Ausubel (1991), Calem and Mester (1995) claimed that less creditworthy customers tend to use credit card more than availing loan in the traditional mode. However, Singhal and Gupta (2020) observed that innovations in credit card provided much needed financial help, such as the Kisan Credit Card, which played an active role in accelerating the pace of development of the agriculture sector.

Credit Cards and Perceived Risk

Because of uncertainty, people want to manage their risk in exchanges. As Bienstock (2002) opined that customers use information to increase certainty and lower the risk. Similarly, Mitra et al. (1999) examined that risk perceived is used as a variable for explaining risk perception. Murray (1991) expressed that higher the degree of risk perceived, the higher will be the consumer's propensity to know more about the product. In the marketing literature, Jacoby and Kaplan's (1972) definition and classification of risk is used widely. Kaplan et al. (1974), in particular, have done some study on perceived risk. According to them, five distinct types of dangers have been identified as perceived risks (Jacoby & Kaplan, 1972; Kaplan et al., 1974). Jacoby and Kaplan (1972) recognized five different risk measurements, namely, psychological risk, physical risk, performance (functional) risk, social risk, and financial (monetary) risk. However, threat of time is also recognized as the sixth significant risk parameter (Mitra et al., 1999). Mitra et al. (1999) observed that there is a time risk associated with a greater loss or a time related to the satisfactory delivery of service in relation to credit cards. The major categories of risk that customers perceive during the decision of product purchase includes functional risk (the perception that a product is not going to work as per the expected level), physical risk (commodity may constitute a risk to oneself and others), financial risk (the risk that money spent is not equal to value derived from a product), social risk (the risk that a product may create social embarrassment due to poor selection), psychological risk (the risk that poor choice of product will hurt the customer's ego), and time risk (the risk that the time spent on searching more about the product will go in vain if product is not going to work as expected).

Impulsive Buying Behavior

Numerous studies on impulse buying behavior have looked into the impact and frequency of customers' impulse purchases in a variety of sectors, including sale patterns (Clover, 1950), cosmetics and food (West, 1951), buying pattern and consumer type (Applebaum, 1951). Previous researchers followed a school of thought for defining impulse buying behavior with the help of impulse purchasing of goods. In the starting phase, a number of scholars (Abratt & Goodey, 1990; Applebaum, 1951; Clover, 1950; Kollat & Willett, 1969; West, 1951) explored and defined impulse buying as a behavior where the consumer did unplanned purchase that is not based on any pre-planning of the same purchase. However, Rook and Fisher (1995) suggested that although impulse buying is a type of purchase decision that is based on lack of control on self and exhibition of irrational, immature, wasteful decisions, certain consumers do try to control themselves and refrain from impulse buying. Previous researchers have brought out several factors that are responsible for impulse buying in consumers; for instance, situational aspects like optimum stimulation level and consumer impulsiveness (Sharma et al., 2010), demographic factors (Brici et al., 2013), social influence (Amos et al., 2013), and use of store and media display (Hultén & Vanyushyn, 2014). There are research that focused on impulsive buying in overall spending or retail formats, such as clothing (Dawson & Kim, 2009; Hultén & Vanyushyn, 2014 ; Park & Choi, 2013), snacks (Duarte et al., 2013), cosmetics (Wu & Lee, 2015), and shopping online (Ozen & Engizek, 2014; Wu & Lee, 2015). Kakkad and Jadhav (2021) attempted to analyze select digital payment systems and observed that digital payment systems, after the credit card revolution, are going to drive the growth story of Indian financial sector.

Karbasivar and Yarahmadi (2011) explored an essential association between external cues and impulse buying. Muruganantham et al. (2013) examined and opined that impulse buying is associated with multifaceted personality of consumers. The modern development of culture and retailing has resulted in significant changes in earnings, lifestyle, and credit. In India, the retail industry provides a wide range of opportunities for consumers to convert impulsive purchases both offline and online for a variety of products. The study indicated how media formats affect the customer's indications and impulse buying. They used various media formats and each had its own verbal or visual impact on buying decision. This study illustrated that playing a song by blending the lyrics of the song, instead of video and still images, can elevate impulse buying by invoking an optimistic feeling. Therefore, marketing managers should find innovative ways of incorporating verbal and visual media formats to obtain positive consumer response (Adelaar et al., 2003).

Park and Choi (2013) explored the influence of normative effect on impulse buying across cultures. Their findings verified that there was a difference between purchase influenced by impulsive behavior due to credit card usage and normal purchase of goods. More research on shopping environment would provide further understanding of socio-psychological factors and their benefits. Another viewpoint is that people are still not much aware about the usages of credit cards. Subramaniam (2016) examined the approaches and strategies that are needed to tackle future global businesses. It was found that globalization is generating a major influence on culture and, slowly, a global culture is emerging. The role of debit and credit cards in the growing business has been immense and it is contributing a lot in the growth. Jain et al. (2018) studied the influence of credit cards on young Indian consumers and found impulsive purchase behavior among them. Arora and Rathi (2018) tried to find the factors concerning adoption of digitization in SMEs. The study categorized various determinants into internal and external factors. It was detected that lack of support from the top management and shortage of experts are the major challenges in the digitization of the firms. The study by Sangeetha and Natarajan (2019) focused that emotional intelligence along with psychological factors played a major role in changing the perception of people. Mishra (2019) found that changing perception is the very first step towards one's attraction to a business. If an institution wants to grow its business, then the business first requires understanding of the psychological factors of customers.

The review of literature showed that although many studies have been conducted in relation to credit cards, there is an absence of focus on identifying the reasons behind customers choosing a particular bank over the others and their expectation from the bank. Moreover, studies on understanding customers' satisfaction in using a credit card are also less and needs further exploration.

Objectives

The following objectives have been framed for the present study:

(1) To examine customers' satisfaction level after using credit card.

(2) To examine the scope of impulsive buying behavior of customers who use a credit card.

(3) To examine the possibility of customers falling in debt trap due to the use of credit cards.

Hypotheses

- **H01 :** Customers' behavior is unaffected by the use of credit cards.
- **Ha1 :** The credit card service is well appreciated by customers.

- **H02 :** Customers do not redeem their credit card reward points regularly.
- **Ha2 :** Customers redeem their credit card reward points regularly.

- **H03 :** If there are no incentives, customers do not prefer to use a credit card.
- **Ha3 :** If there are no incentives, customers still prefer to use a credit card.

- **H04 :** Customers are not aware of the defaulter charges on a credit card.
- **Ha4 :** Customers are aware of the defaulter charges on a credit card.

- **H05 :** A credit card does not cause impulsive buying behavior.
- **Ha5 :** A credit card causes impulsive buying behavior.

- **H06 :** Customers do not feel they are in control of their debt.
- **Ha6 :** Customers feel they are in control of their debt.

Research Methodology

Type of Research

A conclusive research design was adopted in the present study and a cross-sectional design was used where the sample data was gathered in relation to population at a particular point of time. The primary aim of the research was to provide more information and a description of impact of credit cards on consumers, that is, whether it helped consumers in saving money or did it put them into debt traps.

Scaling and Measurement Procedures

A general checklist, which consisted of multiple-choice questions in the form of a questionnaire, was used in the research.

Data Collection Method

Data was gathered by way of primary research (survey) to investigate the consequences of using a credit card on customers. Secondary research (dataset) was employed in order to comprehend whether customer would default payment in future or not.

Sampling Process, Sample Size, and Period of Study

The sampling technique employed for the research was non-probability or convenience sampling. Also, care was taken to recognize the influence of a non-random, judgment sample. The study used a sample size of 184 people. Data from the respondents were collected during January–March, 2021.

Random Forest Technique

Random forest is a managed learning algorithm which is used for regression and classification. However, it is mainly used for classification problems. Random forest test is used on the basis of large number of individual decision trees that operate as an ensemble. In statistics and machine learning, ensemble method uses multiple algorithms for obtaining better predictive performance than could be produced using only one of the learning algorithms that make up the system. Unlike a statistical ensemble in statistical mechanics, a machine learning consortium is made up of just a finite number of alternative models, but it usually allows for far more flexibility in the structure of those models. Each tree in the random forest generates a class prediction, and the class with the maximum polls turns out to be the prediction of our model. For the purpose of running this test, Stata 16.1 software was used.

Analysis and Results

As far as the gender of respondents is concerned, 62.5% (115 respondents) were male while 37.5% (69 respondents) were female and 71.7% of respondents were in the group of 20–30 years who were the potential target customers for the bank. The study showed that a respondent carried two credit cards on an average and used the credit cards on a daily and weekly basis. It thus indicates that customers use credit cards regularly and these have become part of their lifestyle and a preferred payment system.

As per the respondents, there are three main reasons for choosing a credit card: convenience, enjoyment and need. The purposes of using a credit card include shopping, booking flight tickets, meeting personal expenses and these are the areas where customers get huge cash back offers from the respective banks. Most of the respondents preferred HDFC, ICICI, CITI Bank, and SBI credit cards. Individuals choose a particular bank on the basis of offers provided for shopping, more reward points, and lower interest rates.

Of the respondents, 17.9% owed interest on credit card in the past and the reasons chosen by the individuals for owing the interest rate are improper fund management and ignorance to the reminders which they received from the bank. In general, the respondents have certain expectations from the banks and they are: clean terms and conditions, timely reminders, good customer relations, help-desk support, and customization of credit limit.

The *t*-test's significance level was set at 5% and the critical value was determined by the level of significance and the degree of freedom. If the estimated *t*-statistic is greater than the critical value established by the *t*-statistics test, the null hypothesis is rejected; otherwise, it is accepted.

Customer Satisfaction

As per the research, 167 respondents reported that they were highly satisfied with the service of the credit card. After applying *t*-statistics test, we rejected the null hypothesis H01 and accepted the alternate hypothesis Ha1. It implies that the customers are happy with credit card services that they are using. It is observed from both self-assessment and results of hypothesis testing.

Customer Reward Points

The holders of credit cards are well aware of the reward points they get when they choose to make a payment through credit card, and 70% of the respondents reported that they redeem their points on a regular basis. After applying the *t*-statistics test, we rejected the null hypothesis H02 and accepted the alternate hypothesis Ha2. It implies that the customers redeem their credit card reward points regularly as it helps them in buying a commodity they need through the catalogue of the bank, which otherwise they would have purchased from another place by paying in cash for the item.

Choice of Payment if There is No Reward Point on Credit Card

In terms of absence of reward points in the service, we received equal response for using a credit card and for not using it. After applying the *t*-statistics test, we rejected the null hypothesis H03 and accepted the alternate hypothesis Ha3. It implies that customers do not use a credit card if rewards or incentives are not associated.

Customers' Awareness About Interest Rate and Defaulter Charge

In the study, 91.8% respondents were found to be well aware of the defaulter charges and the interest rate they would be paying in case they failed to make the payment on time. After applying the *t*-statistics test, we rejected the null hypothesis H04 and accepted the alternate hypothesis Ha4. It implies that customers are aware of the defaulter charges and the annual fees of the credit cards they use.

Impulsive Buying Behavior

Approximately 60% of the respondents felt that they used a credit card to buy things and services that they didn't intend to acquire as per their necessities and wants, but to change their mood only. After applying the *t*-statistics test, we rejected the null hypothesis H05 and accepted the alternate hypothesis Ha5. It implies that the customers show impulse buying that means they buy more because of the credit card service.

Customer in Control of Debt

The response to this question may be biased because it is a personal question and the appropriate answer can be expected only in a personal interview. As per the responses, 67.4% respondents felt that they were in control of debt. After applying the *t*-statistics test (as per Table 1), we rejected the null hypothesis H06 and accepted the alternate hypothesis Ha6. It implies that the customers believe that card debt is on their head.

Table 1. *t-Test Statistics*

	Mean	Variance	Degree of Freedom	*t*-stats value	*t*-critical value
Customer satisfaction	59.6	8656.3	2	1.11	2.91
Points redeemed regularly	60	3268	2	1.81	2.91
Choice of payment when there is no incentive	90.5	4.5	1	60.33	6.31
Awareness of defaulter charges	59.6	8981.3	2	1.09	2.91
Impulsive buying behavior	77	2450	1	2.2	6.31
Control of debt	58.3	3416.3	2	1.72	2.91

Random Forest Analysis

The variables in data are ID, Limit_Bal, Sex, Education, Marriage, Age, Pay_1 to Pay_6, Bill Amount_1 to Bill Amount_6, Pay Amount_1 to Pay Amount_6 and Defaulter. The variable 'Pay' implies repayment status of the month, Bill Amount implies the amount of bill statement of the month and Pay Amount implies the statement of the previous month.

Module 1 : Importation and Understanding of Data

The analysis began when the environment was cleaned and data was imported into the R studio. Summary and structure function gives the understanding about minimum value, maximum value, mean, median, and details about the variables in data set and types of variable.

Module 2 : Data Cleaning and Processing

In the first part of the data cleaning exercise, the names of variables were changed in order to have a proper idea about what exactly a variable represented. In the next step, we merged the categories in education and marriage because there were some categories which had low values. Thus, merging the necessary categories made the processing easier and the categories with low values could be merged together.

The correlation used helps in understanding the correlation between data variables and the outcome is a matrix that defines the strength of the association between the variables. The resolution of principal component analysis (PCA) catches the most significant component that captures all the relevant data to be utilized to generate the random forest model. PCA method is used to extract relevant variables from large data. It creates a low-dimensional set of features by projecting unimportant dimensions from a high-dimensional data set, with the goal of capturing as much information as possible. PCA forms different components and gives the description of each component in the form of standard deviation, the proportion of variance, and cumulative proportion of variance. After the PCA was conducted, 24 components were formed, out of which 18 components captured 98% of the relevant information.

Module 3 : Dataset Partition

For splitting the data, the first step takes into consideration only the important variables which are utilized in the building of a haphazard forest model. The variable is chosen through the PCA and the target variable, that is the defaulter, is chosen. Thus, all these variables make the new data. The data is split into 75:25 ratios. The training dataset consists of 75% of the entire data set, while 25% data forms the testing dataset.

Module 4 : Random Forest Model and Confusion Matrix

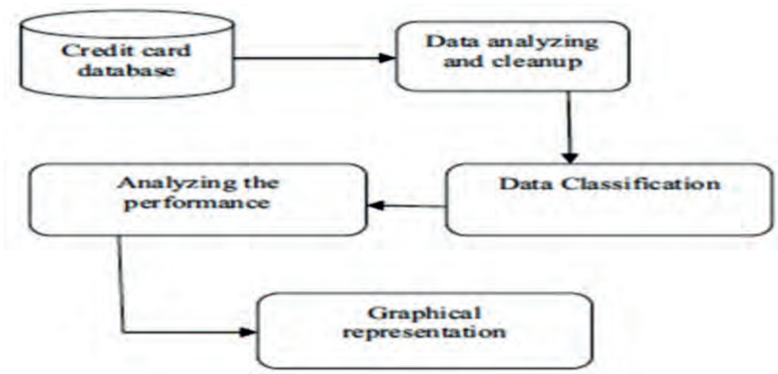
The random forest model is created with the assistance of a random forest package. The data used to create the model is the training data set, which forms 75% of entire data set. The number of trees for the model is 10. For prediction, the testing data set is used and finally, with the help of the prediction we can create the confusion matrix (Table 2).

Thus, the overall accuracy of the model is 80.6%, which is computed with the formula TN+TP/ TN+TP+FP+FN. Sensitivity of the model is 92.94% and specificity is 36.01%.

Table 2. ***Confusion Matrix***

Prediction	Reference	
	0	**1**
0	5750	1093
1	437	615

Figure 1. *Model Adopted in the Study*



Model 5 : Fitting of the Random Forest Model

In fitting the random forest (as depicted in Figure 1), the number of trees is changed and then the accuracy of model is checked. The number of trees is changed from 10 to 5, 8, 12, 15, 50 and 70 and the accuracies obtained are 78.8, 80.25, 80.68, 81.29, 81.80 and 81.61, respectively. In this model, the accuracy does not change much and, thus, we can choose the model with 15 trees which gives the accuracy of 81.29%.

Discussion and Conclusion

Credit cards have created a spending pattern for people in India and have had a major influence on consumers' spending power. The respondents of this study chose HDFC and ICICI as their most preferred banks as they believed that that these banks provide the most cash back and discount offers to credit card users. The results reveal that holders of credit cards use them due to convenience, need, and enjoyment, as they don't have to carry cash or worry about the balance in their accounts while making purchases. Customers holding a credit card are aware about the defaulter charges, which are levied whenever they fail to make a payment on time. They are also aware of the incentive points associated with purchases, or bill payments, or bookings made through credit cards. Customers use the points or rewards on a regular basis, and this is also one of the motives of using a credit card. It is likely that if the bank withdraws offers of incentives/reward points associated with the card, customers will switch their payment option to cash or debit card payment.

Credit card holders also believe that they become inclined to buy products or amenities they don't necessarily need, but end up buying, mostly because of the habit of doing transactions through credit cards. The use of the card does not actually give the real sense of spending the money, and hence while making payment through credit cards customers are more likely to purchase the products or service to satisfy their emotional needs or for having a sense of fulfillment or fantasy or joy, or even to bring a change in their mood. The random forest model provided the insight into the relations between variables such as reimbursement of previous bills, billing amount, and payment of current bills, and high association were observed between these variables. Thus, we can predict the likelihood of customers who would default in future payments of bills, thereby falling into debt traps.

Implications

The conclusions of this study have a number of ramifications. For instance, banks should satisfy the expectations of the cardholders regarding the terms and conditions and should provide proper help-desk support. They should also provide timely reminders so that good customer relationship can be maintained, which will also help in making customers loyal to the bank. Banks should concentrate on potential clients by educating them about credit cards and making their terms and conditions clear so that customers not having prior experience of using a credit card do not fear being trapped in debt. A credit card's potential target customers are between the ages of 18 and 24 years, and policies and attractive offers should be formulated based on the preferences and choices of this age group, which accounts for nearly half of the population. This age group values convenience the most, is technologically savvy, and will do anything for the sake of perceived status. Banks can also focus on women; as of now, only 22% of the women from total respondents hold credit cards, which is a far lesser percentage than men. Thus, banks can formulate offers, rules, and regulations for the extra benefit of women's cardholders, which will help the bank in increasing their customers with equal proportion of both genders.

This study is beneficial to marketers with regard to devising strategies to encourage consumers' spontaneous buying behavior and, thus, increase their product sales. Customer service plays a critical role in the credit card business, and creating a skilled and pleasant customer care department can assist the issuing bank project a positive image. As opposed to the marketing campaigns in the world where the message is mostly based on dream and fantasy, a marketing strategy that entices general population to use credit cards to get what they always wished for will always be a smart tactic.

Limitations of the Study and Scope for Future Research

Like any other study, this study also suffers from limitations. The first limitation is that the sample size is not very big and is not a full representative of population in any manner. The study consists of only 184 consumer responses from urban areas, and hence the findings cannot be generalized. However, for validity and reliability, future research should go for a large sample size consisting of both rural and urban populations. Second, while this study focused solely on impulsive purchase behavior connected with credit cards, future research might look into the relationship between credit card limit and impulsive buying behavior or pattern. Third, the model created using random forest technique consists of static data which may become outdated. Future research can focus on a dataset that is updated regularly for the purpose of obtaining more promising results.

Authors' Contribution

Prof. Amit Kumar Singh and Dr. Sandeep Kumar Goel conceived the idea and developed qualitative and quantitative design to undertake the empirical study. Ms. Kirtika Chahar extracted research papers with high repute, filtered these based on keywords, and generated concepts and codes relevant to the study design. Prof. Amit Kumar Singh and Dr. Sandeep Kumar Goel verified the analytical methods and supervised the study. The primary data was collected by Ms. Kirtika Chahar. Dr. Rohit Kumar Shrivastav helped in filtering the relevant data for the study and crystalized the research problem. The numerical computations were done by Ms. Kirtika Chahar using kaggle. Dr. Rohit Kumar Shrivastav wrote the manuscript in consultation with Prof. Amit Kumar Singh and Dr. Sandeep Kumar Goel. Dr. Rohit Kumar Shrivastav analyzed the data, interpreted the results, and Ms. Kritika Chahar completed the final writing part with emphasis on implications and provided qualitative inputs for the discussion.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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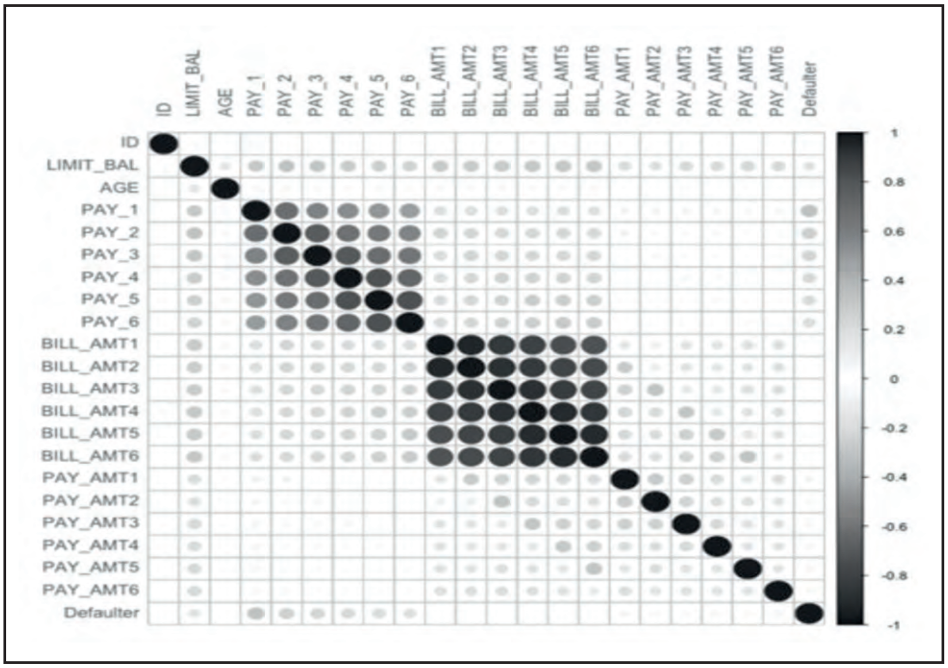
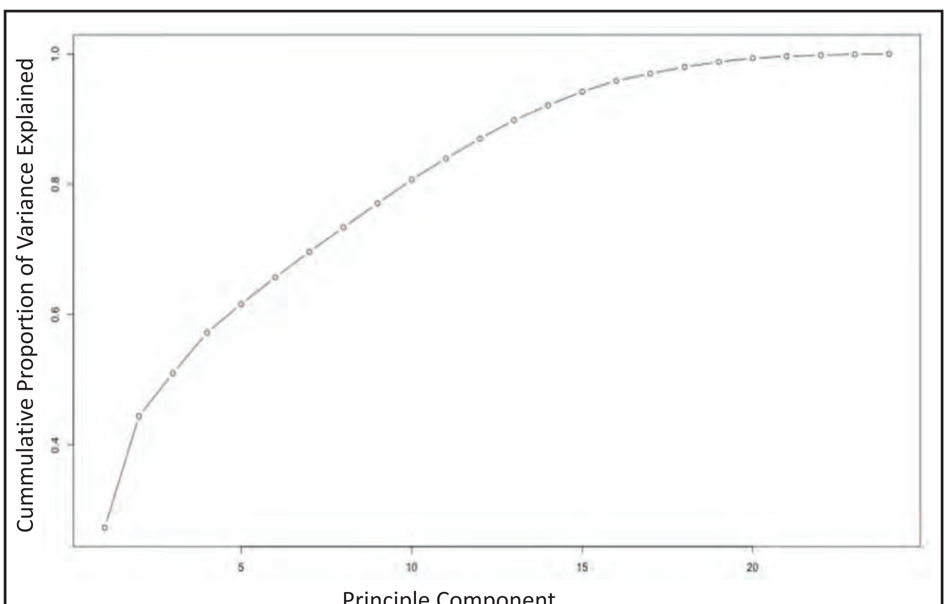
Appendix

Correlation Matrix

The color intensity and the size of the circle are proportional to the correlation coefficients. Positive correlations are in blue color while the negative correlation is in red color.





Cummulative proportion of the variance (PCA Graph)

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