

Determinants of Bank and Retail Credit Card Use

Data from the 1989 Survey of Consumer Finances were analyzed to find factors related to credit card use. The findings from logistic regression show that a positive attitude toward credit, a professional or managerial occupation, and home ownership were positively associated with the likelihood of using both types of cards after controlling for other socioeconomic factors. With only one exception, retail card use, the attitude variable was significantly related to credit card use. The findings provide useful information to educators and counselors who develop credit education programs and work with households on debt problems.

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Introduction

Over the past three decades the credit card has become an important financial tool for the majority of American families. Today, approximately 70% of all U.S. households have at least one credit card, up from 50% in 1970 (Canner & Luckett, 1992). Although 75% of card-holding families have at least two credit cards, the average number of credit cards held by all card-holding families is six (Kennickell, 1992). Not only has the probability of holding credit cards increased, but the type of credit cards held by American families has also changed during the last twenty years. Between 1977 and 1989, the proportion of families holding a bank card had increased from 38% to 54% while the holding of retail credit cards has stayed around 54% since 1977 (Canner & Luckett, 1992). At the same time, the popularity of gasoline and specialty cards has declined (Calem, 1992).

The growth of consumer acceptance of credit cards has been accelerated by several factors. The lower standard of eligibility for ownership offered by retailers has been an important factor (Canner & Luckett, 1992). At the same time, aggressive marketing strategies have increased consumers' acceptance of and willingness to pay interest. Benefits which have been marketed include the convenience of smaller payments, flexible repayment terms, and interest free periods (Luckett & August, 1985). In addition to these conveniences, the growing acceptance of bank cards without surcharges by local stores is another reason for the popularity of bank credit cards (Yeo, 1990).

Although household debt grew substantially during the 1980s, it was credit card debt and automobile loans in particular that increased over this period (Kennickell & Shack-Marquez, 1992). For all income

and demographic groups, the median payment-to-income ratio (not including mortgages) shifted upward between 1983 and 1989.

Purpose of the Study

Increased knowledge of credit card use could serve as a foundation for the development of credit education programs. Therefore, the first objective of this study was to profile users and non-users of credit cards. The second objective was to determine factors related to the use of specific types of cards. An understanding of the gender, age, education, race, income, and debt of bank and retail card users can assist financial counselors and educators in explaining the marketing strategies used to attract clientele.

Background

Credit Card Use

Numerous studies on credit card use have shown that income is an important factor (Canner, 1988; Danes & Hira, 1990; Heck 1987; Hirschman & Goldstucker, 1978; Johnson, 1979; Martell & Fitts, 1981; Wasberg, Hira & Fanslow, 1992). Previous research has shown a negative relationship between age and credit card use (Awh & Waters, 1974; Danes & Hira, 1990; Garcia, 1980; Hirschman & Goldstucker, 1978; Johnson, 1979; White, 1975).

Researchers have found a positive relationship between education and credit card use (Adcock, Hirschman & Goldstucker, 1977; Awh & Waters, 1974; Canner, 1988; Danes & Hira, 1990; Garcia, 1980; Johnson, 1979; Lindley, Rudolph & Selby, 1989; Plummer, 1971). In a descriptive study focusing on

changes within the credit card market, Canner (1988) found that the amount charged each month by both revolvers and convenience users increased as education increased. Danes and Hira (1990) indicated that education was one of the key determinants of knowledge about consumer credit and credit cards. Moreover, they concluded that those respondents with a high level of knowledge about credit cards tended to use credit cards for installment reasons.

Respondents with more favorable attitudes toward credit tend to use cards more than those with less favorable attitudes toward credit (Awh & Waters, 1974; Heck, 1987; Mathews & Slocum, 1969; Shay, 1971). Awh and Waters (1974) theorized that attitude toward a credit card was the most important predictor in differentiating active from inactive card holders. Heck (1987) showed that a negative attitude toward credit had negative effects on the use of all credit cards except retail store cards.

The relationship between gender and credit card use is not clearly shown by previous research (Adcock et al., 1977; Heck, 1987; Lindley et al., 1989; White, 1975). White (1975) found that single males were more likely to use credit cards; Adcock et al. (1977) found that bank card users were more likely to be male than non-users. However, Heck (1987) found that households with male heads were positively related to the probability of using special credit cards, but they were negatively associated with the rate of usage of retail cards. Lindley et al. (1989) found a positive relationship between female respondents and usage of credit cards for the purchase of household goods and clothing.

Studies examining the relationship between credit behavior and race have provided inconsistent results. Lindley et al. (1989) indicated that whites were more likely to use credit cards as payment methods in all types of consumer purchases. In contrast, White (1975) found that nonwhites tended to have more credit card debt and were more likely to use credit cards as a means of installment credit. Heck (1987) found conflicting evidence about the interaction between race and alternative credit card payment systems. Heck indicated that being nonwhite was directly associated with usage of retail cards but inversely associated with usage of special account cards.

Research explaining the relationship between occupation and credit card usage has shown that individuals in professional or managerial occupations were more likely to use credit cards. Based on the 1983 Survey of Consumer Finance, Canner and Cyrnak (1985) found that families headed by a person with a professional, technical or managerial occupation were

more likely to hold credit cards and use them more frequently.

Lindley et al. (1989) found that homeowners were less likely to use a credit card for purchasing household goods than renters. However, a study by Wasberg et al. (1992) concerning the changes of credit card usage found a positive effect of the homeowner variable on the amount of credit card debt. Two separate regression estimates showed that homeowners were more likely to use credit cards than renters in both 1982 and 1986.

Type of Card Used

A limited amount of research has focused on the characteristics of consumers using specific types of credit cards. Adcock, et al. (1977) concluded that demographic factors had a strong effect on discriminating bank card users from non-users. Hirschman and Goldstucker (1978) found that credit card holder who were "non-users" were more likely to consist of young single households who had retail cards while the "users" were more likely to belong to a higher social class and to earn higher incomes.

Hypotheses

When a household has both retail and bank credit cards, it was assumed that households would choose the type of card which gave them maximum utility. As bank and retail cards provide similar services, it was expected that the preference for a specific card would be derived from different characteristics of consumers. Based on previous research, the following hypotheses were formulated. Income, education, a positive attitude toward credit, being a member of a professional or managerial occupation, and home ownership were expected to be positively related to the probability of using credit cards. Age was expected to be negatively related to the probability of using credit cards. The association between gender and race or ethnic background and use of credit cards was not clear. The lack of previous research on the use of specific types of cards limited the prediction of directional effects.

Methodology

Data

The data were drawn from the 1989 Survey of Consumer Finances (SCF) which was collected by the Survey Research Center at the University of Michigan for the Federal Reserve Board (Kennickell, 1992). About 75 percent of the 3,143 households in the SCF were randomly sampled from the population of the United

States. The remaining households were selected from tax data to insure that the sample included a sufficient number of wealthy households. A weight variable was used to account for the over sampling of wealthy households. The SCF obtained information on assets, liabilities, use of credit cards, and attitude toward credit. Non-response errors were adjusted by multiple imputation of unanswered questions (Kennickell & Shack-Marquez, 1992). Since every missing variable in the 1989 SCF was given five imputations, five complete data sets were created (Kennickell, 1992). A more detailed discussion of imputation is provided in the Appendix. The sample used to analyze the first research question on usage of credit cards consisted of 1,839 households who had both bank and retail credit cards. The second question focused on the difference in usage of bank and retail cards; those who had not used a card during the previous month were deleted.

Method of Analysis

Because the dependent variables were dichotomous in nature, logit analysis was used (Kennedy, 1992). The maximum likelihood method was applied to estimate the coefficient of the explanatory variables for the empirical models and the Chi-square statistic was used to test the marginal effect of each variable for each separate data set (SAS Institute Inc., 1989). Then inferences from each data set were combined using the method suggested by Rubin (1987).

Dependent Variables

The dependent variable for the first question was a binomial variable to predict the probability of using a credit card. If the household had used the credit card at least once during the previous month, the variable was coded as 1, if otherwise, as 0. For the second question, the dependent variable was assigned the value of 1 if the household chose a particular type of card and 0, if otherwise. The probability of using bank cards, retail cards, or both bank and retail cards was examined separately in three logistic equations which included the same independent variables.

Independent Variables

The independent variables which described the household's financial status were pre-tax household income and home ownership. Demographic characteristics included age, education, race, marital status, occupation, and gender of the household head. Since the respondents were not asked about their attitude towards credit card use, the question which asked consumer's attitude towards credit was used under the

assumption that a person's attitude does not vary with similar products.

Findings

Characteristics of the Sample

Household heads who used credit cards during the previous month tended to be younger than non-users (47 compared to 51), to have attained more years of education (13.76 compared to 12.51 years), and were more likely to be employed in professional or managerial occupations (34% compared to 19%). Half of the household heads (50.5%) in the user group had a positive attitude toward credit compared to only 34.4% of the non-user group. Those who used credit cards held more cards than non-users. The outstanding credit balance was higher for users than non-users (\$582 compared to \$49). On average, users had slightly higher incomes than non-users (\$53,780 compared to \$52,670).

For the second research question, households with no credit card use during the previous month were deleted leaving a sample of 1,225. Of these households, about 13% had only retail card debt, 38% had only bank card debt, and 49% had both bank and retail debt. Descriptive statistics are presented in Table 1.

Heads of households who had used only retail cards tended to be older (the average age was 53); 40% were divorced, single, or widowed, and over a third (35%) were female-headed. Only 21% of the group were employed in managerial or professional occupations. On average, they held 4 retail cards and between 1 and 2 bank cards.

Those household heads who had used only bank cards were less likely to be home owners than only retail card users (66% compared to 75%) and they had less income than those who had used only retail cards (\$46,323 compared to \$50,020). However, they had twice as much credit card debt outstanding as those who used only retail cards (\$418 compared to \$189).

When comparing the use of both types of cards to those who used only a retail or bank card, the average income was higher for those who used both types of cards. For the users of both types of cards, the head was more likely to be married and employed in a professional or managerial occupation, and they were more likely to say that the use of credit was good. Users of both types of cards held more bank and retail cards than users of only bank or retail credit cards. In addition, households who used both types of credit cards had four times as much debt outstanding as the retail card users and twice as much as the bank card users.

In summary, those households who had used their credit cards were more likely to be younger, to have more education, a slightly higher level of income, and a more positive attitude toward credit than non-users. The household heads who had used both types of credit cards were more likely to be married, male-headed, and employed in a professional or managerial occupation. Also, households who used both types of credit cards had larger amounts of income and outstanding credit card debt than households who had used only one type of credit card.

Determinants of Credit Card Use

The purpose of the first model was to examine the probability of credit card use of all respondents who held credit cards. The logit coefficients are presented in Table 2. Based on the combined results of five data sets, the F-test indicated that the model for credit card use was statistically significant at the 1% level (Rubin, 1987)³.

The following factors were significantly related to the use of credit cards: education, attitude toward credit, and being a female head of household. Education was positively associated with the probability of credit card use.

Household heads who said that "it is a good idea for people to buy things on credit", were more likely to use credit cards than others. It was expected that households with male heads would be more likely to use credit cards than households with female heads. However, previous studies which found a significant effect for use of credit cards by a male household had focused on the use of bank cards.

Determinants of Type of Card Used

The three empirical equations which examined which type of card was used were each statistically significant at the 0.01 level according to the F-statistic (Rubin, 1987). The logit coefficients for the three equations are presented in Table 3.

Bank Card

When household heads had a positive attitude toward credit, they were less likely to choose only a bank card when making credit card purchases. The finding appears to be reasonable because the positive attitude toward credit may indicate the use of both types of cards. The negative sign of the home ownership variable shows that renters were more likely to use only a bank card when purchasing by credit.

Households who were headed by a male were more likely to use only a bank card. A positive effect for the use of bank cards by male households was previously reported by White (1975). Married households were significantly less likely to use only a bank card. Thus, the results suggest that households headed by a single, divorced or widowed person were more likely to use only bank cards.

Retail Card

Age, gender, and occupation were associated with the probability of using only a retail card. Households who used only retail cards were more likely to be older and to be headed by females. These results are consistent with those reported by Heck (1987). In addition, when household heads were employed in a professional or managerial occupation, those households were less likely to choose only retail cards. As shown in the first model, households who have a head employed in a professional or managerial occupation were more likely to use credit cards than others. Thus, it seems unlikely that heads with professional or managerial occupations would use only a retail card.

Both Types of Credit Cards

As might be expected from analysis of households who used only one type of credit card, having a positive attitude toward credit and being in a professional/managerial occupation had a positive effect on the use of both types of cards. Further, homeowners were more likely to use both types of cards. This supports the finding that renters were more likely to use only a bank card.

Finally, heads with a racial background other than white were more likely to use both types of credit cards rather than one type of credit card. This result is consistent with White's (1975) finding that being non-white had a positive effect on the usage of credit cards. White theorized that non-whites may find it more difficult to get merchants to accept their checks than whites and, thus, they would be more likely to use credit cards which had been pre-approved.

In summary, factors which were related to the use of only bank cards included renting, having a male head of household, and a negative attitude toward the use of credit. Factors which were related to the probability of using only retail cards were being female-headed, being older, and blue collar occupations. Factors associated with the use of both types of cards were a positive attitude toward credit, a professional or managerial occupation, and home ownership. Ethnicity or race other than white was associated with the use of both types of credit cards.

Table 1
Sample Characteristics for Type of Card Used

| Variables | Bank Card | Retail Card | Both Types |
|-----------------------|-----------|-------------|------------|
| Income (\$) | 46,323 | 50,020 | 61,237 |
| Credit Card Debt (\$) | 417 | 189 | 820 |
| Home ownership (%) | 66 | 75 | 76 |
| White (%) | 87 | 89 | 84 |
| Married (%) | 64 | 61 | 71 |
| Male-headed (%) | 79 | 65 | 81 |
| Age of Head (years) | 46 | 53 | 47 |
| Education (years) | 14 | 13 | 14 |
| Professional (%) | 33 | 21 | 37 |
| Positive Attitude (%) | 47 | 49 | 54 |
| Number Bank Cards | 2.0 | 1.6 | 2.1 |
| Number Retail Cards | 3.2 | 3.9 | 4.6 |

Table 2
Logistic Regression Results for Probability of Credit Card Use

| Variables | Coef. | SE | F Value |
|-------------------|-----------|----------|---------|
| Intercept | 0.2229 | 0.3240 | 0.1534 |
| Income | 4.81E-6 | 2.98E-11 | 0.7793 |
| Home ownership | -0.0543 | 0.0342 | 0.0863 |
| White | -0.0533 | 0.0516 | 0.0550 |
| Male-headed | -0.4388* | 0.0514 | 3.7495 |
| Age of Head | -0.0064 | 0.0000 | 1.3796 |
| Education of Head | 0.1229*** | 0.0010 | 15.1795 |
| Professional | 0.3316 | 0.0492 | 0.2375 |
| Attitude | 0.7678*** | 0.0274 | 21.5447 |

*p < .05 **p < .01 ***p < .001

Table 3
Logistic Regression Coefficients for Probability of Type of Credit Card Used

| Variables | Bank Card | Retail Card | Both Types |
|-------------------|------------|-------------|------------|
| Intercept | -0.2826 | -1.7040** | -0.4525 |
| Income | -2.28E-6 | -6.86E-7 | 1.50E-6 |
| Home ownership | -0.3741*** | 0.1247 | 0.3330** |
| White | 0.2703 | 0.2984 | -0.3645** |
| Male-headed | 0.4706** | -1.1334*** | -0.0077 |
| Age of Head | -0.0046 | 0.0138** | -0.0026 |
| Education of Head | 0.0142 | -0.0469 | 0.0117 |
| Professional | -0.0707 | -0.4524* | 0.2566* |
| Married | -0.3754* | 0.6033 | 0.2336 |
| Attitude | -0.2596** | -0.0504 | 0.2713** |

*p < .05 **p < .01 ***p < .001

Discussion

Implications for Future Research

Data collected specifically to answer the difference in gender usage of credit cards would provide more information. The effect of attitude toward credit was measured by a general perception toward the use of credit. Researchers may want to include questions which are more specifically focused on attitude toward the use of credit cards. This should provide useful information for educators, lenders, and others who are interested in the use of credit cards.

Implications for Education

With only one exception, retail card usage, the attitude variable was significantly related to credit card use. This finding provides useful information to educators who develop and present credit education programs and for counselors who work with households on debt problems. The attitude held by consumers toward credit needs to be explored. A positive attitude toward credit may mean that the consumer believes it to be a convenient and safe means of payment. But for others, a positive attitude toward credit may lead to problems such as excessive debt and the inability to make prompt repayment. Awareness of the significance of attitude toward credit could prompt educators and financial counselors to work with clients to identify their beliefs about credit. It could be necessary to consider a change in attitude if the consumer has problems with the management of debt. It could be possible for consumers who have debt problems to improve their cash flow and the potential for savings for present and future needs.

Educators and counselors should explain to clients the financial and demographic characteristics which are associated with usage of credit and the different types of credit cards. This knowledge and awareness should help consumers to relate their own characteristics to credit card use. An analysis such as this or a case study approach profiling a typical credit card user should help consumers gain insight into their credit card usage. Furthermore, a better understanding of gender differences in payment behavior should be helpful to educators and financial counselors as they work with families to prepare budgets and manage debt. The issue of whether purchases using credit cards are done for convenience or to revolve the debt could be another topic for discussion.

Knowledge of the characteristics of bank and retail card users should be helpful in understanding how marketing strategies are designed to promote the use of credit. Finally, insight into consumer behavior in credit card usage provides relevant information to policy

makers in establishing regulations in the credit card market.

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3. Because the Survey of Consumer Finances was coded using multiple imputed values for the variables, it was necessary to analyze each of the five data sets using logistic regression and then to combine the inferences from each regression analysis using the method suggested by Rubin (1987, pp. 75-81). It is not appropriate to provide a measure of estimated variance such as a pseudo R^2 because the results of the logistic regression of each of the five imputed data sets are merged to provide the final result.

Endnotes

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