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Credit Cards: Average Monthly Unpaid Balance as Related to Certain Socio-Economic Factors

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CREDIT CARDS: AVERAGE MONTHLY UNPAID BALANCE AS RELATED TO CERTAIN SOCIO-ECONOMIC FACTORS

by

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Marsha Gaye Maughan Cooper

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ABSTRACT

Credit Cards: Average Monthly Unpaid Balance as Related to Certain Socio-Economic Factors

by

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Utah State University, 1978

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Department: Home Economics and Consumer Education

The purpose of this study was to determine the degree of relationship between selected socio-economic factors and the average monthly unpaid credit card balance subject to a finance charge. The socio-economic factors chosen were: 1) family and per capita income; 2) education of husband; 3) education of wife; 4) gainful employment of wife; 5) amount of savings; and 6) number of children.

The sample consisted of 80 couples, married in the year 1971, currently residing in the Logan, Utah, area.

A questionnaire was used to measure the six variables. The statistical tests used were the chi square and the gamma analysis.

It was found that the six variables tested had no significant relationship upon the amount of the average monthly unpaid credit card balance.

(55 pages)

INTRODUCTION

Credit cards have been an important aspect of business for many years. Prior to the First World War, credit cards were issued by a small number of companies for the purpose of identifying a customer and also as a method of record keeping. In 1950, the idea of using one credit card at a variety of establishments was introduced by the Diner's Club. American Express and Carte Blanche soon followed with similar cards. Banks entered the credit card market in 1951, adding the new dimension of the revolving credit feature. Credit usage continued to expand to the extent that in 1970, seven billion dollars were charged on revolving bank cards (Mandell, 1972). In 1976, it was estimated that there were about 330 million revolving credit accounts used by consumers, in comparison to about 135 million non-revolving accounts (Dunkelberg, 1977).

Today, three main types of credit cards exist: 1) single purpose cards, i.e., oil, motel, telephone, car rental, and department stores; 2) food, travel and entertainment or multipurpose cards, i.e., Diner's Club, American Express and Carte Blanche; and 3) bank credit cards, i.e., BankAmericard and Master Charge.

According to a study conducted by the Survey Research Center of the Institute for Social Research at the University of Michigan, roughly one-half of all American families, about 35 million, hold at least one credit card. More than 17 million families use three

or more cards and about six million families use nine or more credit cards (U. S. News, October 8, 1973). In 1975, the number of travel and entertainment cards in use was approximately six million. Bank credit card circulation in 1975 was more than 65 million with nearly 12,000 banks participating (Porter, 1975). Recent Master Charge statistics show that the number of cardholders grew from 5.7 million in 1967, charging $312 million of purchases, to 40 million cardholders in 1976, totaling $13.5 billion in credit bills (Time, February 28, 1977).

Credit usage has greatly increased, as Cohen (1975) verifies by comparing today's consumer debt with that of 1941:

> Consumer debt is now approaching $600 billion. Of this, over $375 billion is mortgage debt on family homes, while over $180 billion is in consumer credit of various forms. In 1941, total consumer credit was about $9 billion.

Credit has mushroomed to the point that, for the average family, credit cards, charge accounts, and monthly bill paying have become a way of life (U. S. News, October 8, 1973).

> You can now use credit cards to pay for: tooth extractions, tombstones, and taxi rides; driving lessons, diamonds and dog kennel fees; music lessons, movie admissions, and marriage costs; and savings bonds and scuba diving instructions, church tithes and college tuition, garbage removal and psychiatric care . . . (Porter, 1975, p. 115)

> Unfortunately, consumer credit has two sides, the good and the bad. While the granting of consumer credit is generally considered to be good both for the individual and for the economy, its overextension may bring some undesirable results. (Wolf, 1975, p. 121)

As Waddell (1970) points out, the overextension of consumer credit usage has been a cause for concern:

> The fact that there are individual families who have overextended themselves to the point of insolvency or bankruptcy is most apparent from the soaring number of bankruptcies among individuals and families and the soaring number of garnishments seen through the country. Bankruptcy figures, for example reveal that 181,266 of the total 197,811 bankruptcies in this country were personal bankruptices (91.6%). Bankruptcies among individuals and families have increased substantially in the past 20 years. The phenomenal rise in bankruptcies, about 7 percent to 8 percent per year corresponds to the tremendous rise in consumer credit. (Waddell, 1970, pp. 34 and 36)

An article in U. S. News (July 15, 1974, p. 77) also points to credit usage as a source of financial problems for families.

> Bankruptcy judges, attorneys and consumer-credit counselors all agree that it is no longer personal setbacks-such as divorce, medical bills or unemployment that bring most families to their knees. It is primarily mismanagement of a mushrooming array of borrowing arrangements: assorted credit cards, automatic bank loans, overdraft privileges on checking accounts and various loan packages.

At the end of the 1976 fiscal year, the Supreme Court counted 211,348 U. S. personal bankruptcies, which was slightly less than in 1975, but a 25 percent increase over 1974. "One reason for the rise: bankruptcy is losing its old stigma in the Credit Society" (Time, February 28, 1977). And so it seems that credit cards have been used and misused.

The literature is replete with comment concerning credit usage and young marrieds. According to Business Week (October 1974, p. 95), ". . . households in the 25-to-34-year-old age bracket with family incomes of $10,000 to $15,000 . . . account for 60% to 70% of all consumer debt." Maynes and Ryan (1969, p. 107) found that, "A large portion of excessively indebted consumers are newly married couples and those that have been married for five years or less." Caplovitz (1967, p. 102)

noted that, ". . . young married families have many pressing consumer needs and therefore greater debts." Lewis Mandell's (1972, p. 6) nationwide study of credit cards also concluded that "younger families, particularly those with children, are more likely to use credit cards than are other groups. These families are also more likely to incur debt on their cards."

Today's families seem to place greater emphasis on credit usage to meet their consumer needs. According to William C. Dunkelberg of the Credit Research Center, Purdue University:

> Revolving credit is the fastest growing component of consumer credit, making up about 15 percent of total outstanding credit today. Although revolving credit still makes up a fairly small percentage of consumer credit, its importance . . . is much larger. Large retail firms estimate that half or more of their volume is "charged" on some type of credit card.

Relative to these findings, interest is justifiably kindled in specific relationships between the credit card debt feature and socio-economic factors of young marrieds, whose overextension, due to credit card usage, is a cause for concern.

The Purpose

It is the purpose of this study to relate certain socio-economic characteristics with average monthly unpaid balances. The characteristics to be studied are: 1) family income, 2) education of the husband, 3) education of the wife, 4) gainful employment of the wife, 5) amount of savings and 6) number of children.

Operational Definitions

For the purpose of this study, the following operational definitions will be used:

Average monthly unpaid balance. Based upon the six month period, November 1, 1976 to April 1, 1977, the average monthly amount of money owing to the credit card company on which a finance charge was imposed.

Credit card usage. (a) Convenience: "Use" of the credit card for convenience purposes, where the debt is paid off before a finance charge incurs. (b) Debt feature: "Use" of the credit card so as to incur a finance charge on the unpaid balance due, which is treated as an installment-type debt.

Gainful employment of wife. Receives monetary compensation for skills, earned either inside or outside the home.

Young marrieds. Couples married approximately five to six years or less.

Hypotheses

Families with higher per capita incomes will have higher average monthly unpaid credit card balances.

Families whose husbands have higher educational levels will have higher average monthly unpaid credit card balances.

Families whose wives have higher educational levels will have higher average monthly unpaid credit card balances.

Families with wives gainfully employed in the labor market will have higher average monthly unpaid credit card balances.

There is no relationship between monetary sums in savings accounts and average monthly unpaid credit card balances.

There is no relationship between number of children and average monthly unpaid credit card balances.

REVIEW OF LITERATURE

Credit Card Ownership and Usage

The Michigan Survey Research Center of the Institute for Social Research found that roughly one-half of all American families, about 35 million, hold at least one credit card. More than 17 million families use three or more cards and about six million families use nine or more credit cards (U. S. News, October 8, 1973). Mandell (1972, p. 6) states that "of families who use a credit card, the median number of cards used is three, with a fairly sizable proportion using six cards or more."

The Survey Research Center also found that the most widely held type of credit card in the United States was the store issue credit card. Gasoline cards, bank cards and travel and entertainment cards followed respectively (Mandell, 1972). Bank credit card circulation in 1975 was more than 65 million with nearly 12,000 banks participating. Approximately 6 million travel and entertainment cards were also in use (Porter, 1975).

Specifically researching each type of card, Michigan's Survey Research Center ascertained that more than one-third of all American families and 40 percent of car-owning families used a gasoline credit card. Sixteen percent of the families used a bank credit card, with the greatest users located in the suburbs of the large cities and in the

West, where bank credit card usage was twice as heavy as anywhere else in the United States. Travel and entertainment cards, such as Diner's Club, Carte Blanche and American Express were used by 9 percent of American families. The limited percentage (9 percent) was explained by reason of the annual fee assessment made by the companies (Mandell, 1972).

Blackwell, Hawes, and Talarzyck (1975, p. 5) verified that "although the traditional department and chain store cards dominate the credit field, they are subject to some encroachment from BankAmericard and Master Charge in frequency of use by consumers."

American consumers are using credit cards and many regard them with a "positive, generally accepting attitude" (Blackwell, Hawes, and Talarzyck, 1975, p. 6).

Credit Card Usage Related to Young Married Families

A 1957 conference on credit held in New Jersey concluded that "debt is most frequent in the expanding stage of the life cycle when people are married and have young children" (Edwards, 1964, p. 5). Kibe (1967, p. 40) agreed that "In the majority of cases, the younger the head of the family, the more he or she has need of credit." Kibe (1967, p. 30) also found that "married heads of families between 30 and 44 years of age used credit extensively."

Nationwide statistics indicated that 60 percent of the married persons under the age of 45 used credit cards. Bank cards were also found to be used more frequently by younger family heads (Mandell, 1972).

Outstanding debt amounts have also been related to the age of the family head or the stage in the family life cycle. "Among families with heads below the age of 25, 56 percent have an unpaid balance. This increases slightly to 59 percent of families with heads between the ages of 25 to 34 but decreases steadily for families with heads above the age of 35" (Mandell, 1972, pp. 77 and 83).

Usage: Convenience Feature Versus Debt Feature

The word credit card "usage" is difficult to define. "Usage" to some means "using" the convenience feature of the credit card, while to others, the word "usage" means "using" the debt feature. Blackwell, Hawes, and Talarzyck (1975, pp. 5-6) found that "Consumers perceive the 'convenience' function to be more important than the 'borrowing' function of credit cards," while Mandell (1972, pp. 7-8) noted an opposite conclusion in a nationwide study:

> . . . for most card users, the credit use of their card is most important. This is particularly pronounced in the income groups below the very highest. Among high income people the card is seen as a convenience instrument to facilitate transactions, while among most other groups, the card is seen largely as an instrument for incurring consumer debt.

The aforementioned study also found:

> . . . at least half of all credit card users use the debt feature of their credit cards. Of this proportion, approximately half treat their debt like an installment loan, that is, they pay a little bit each month, generally the minimum allowable monthly payment. The other half of credit card users treat their debt as a convenience, and attempt to pay the debt off as quickly as they can. (Mandell, 1972, pp. 7-8).

Of the 47 percent that used the debt feature, 12 percent owed less than $50 monthly, 8 percent owed between $50-$100, 7 percent owed between $100 and $200 and 15 percent owed a balance of at least $200 (Mandell, 1972). Based upon this statistical evidence, Mandell (1972, p. 95) hypothesized "that some credit card users are substituting credit card debt for the more traditional installment debt paper."

Credit Card Usage Related to Income

As early as 1958, Kobrack concluded that income had been the chief factor influencing the use of consumer credit and that credit usage was a middle class phenomenon. Studies since that time have substantiated those findings. Burda (1975, p. 96) quoting a study by the Federal Reserve Bank of Atlanta, indicated "that as a household's gross income increases so does its use of credit cards."

The Michigan Survey Research Center of the Institute for Social Research's nationwide study concluded that "Income is the major determinant of credit card use" (Mandell, 1972, p. 6).

> The use of credit cards is directly related to the level of family income . . . 81 percent of families making at least $25,000 per year use a credit card, whereas only 17 percent of families making less than $3,000 per year use credit cards. (Mandell, 1972, p. 10)

Mandell (1972) explained that the higher income families can afford to purchase more of the luxury or non-essential goods which are usually purchased on a credit card, resulting in what he identified as higher credit card usage.

Other survey data discovered that store credit cards were used by 50 percent of the families in the $10,000 to $15,000 range, while heavy use of bank credit cards was more pronounced among upper income families than families with incomes below $10,000 per year (Mandell, 1972).

Concerning the use of the debt feature of credit cards, the Michigan study noted, "Families earning less than $10,000 per year are far more prone to treat their credit card debt as an installment type of loan than are families earning more than $10,000 a year" (Mandell, 1972, p. 90).

Credit Card Usage Related to Education

The Michigan Survey Research Center of the Institute for Social Research found that "Families with better educated heads are more likely than others to use credit cards" (Mandell, 1972, p. 6).

> Education is strongly related to income. Consequently it is not strange to find that credit card use increased monotonically with the level of the head's education, as is true with income . . . persons who completed between 6 and 8 grades of school are far less likely to use credit cards than college graduates or holders of advanced degrees. (Mandell, 1972, p. 13)

Additional statistics found:

> Among families with both incomes above $7,500 per year and heads who have had post high school training, credit card use is 78%. At the other extreme, only 20% of families with incomes under $7,500 per year and heads who have not completed high school use a credit card. (Mandell, 1972, p. 18)

Conclusive evidence citing the influence of the woman's education on family credit card usage could not be located. A study by

Edwards concerning credit knowledge found that ". . . wives with higher educational status had higher levels of credit knowledge" (Edwards, 1964, p. 52). Spitze (1961) concluded that women make or participate in many decisions regarding credit use and that women with higher educational levels have greater credit knowledge.

This research study will consider the wife's education as an influence on the use of the debt feature of the credit card.

Credit Card Usage Related to the Wife's Employment Status

Blodgett (1971, p. 152) estimated that "40% of all married women hold full or part-time jobs, and the proportion is increasing." Professor Philip M. Hauser, director of the Population Research Center at the University of Chicago, in July 1975, calculated that "half of families making $15,000 or over have working wives . . ." Continuing on, he estimated that "half of the married women in America soon will be in the work force" (Advertising Age, July 1975, p. 22).

Kobrack (1958) noted that the employment of the wife was one of the factors which affected consumer credit and evidence indicated a greater use of credit if the wife and husband were both employed. Kobrack also determined that credit use increased with the wife's employment outside the home, while Edwards study (1964, p. 54) contradicted those findings, by declaring, "Married students used credit more frequently when the wife was not employed outside the home." Explanation of this contradiction may be attributed to the fact that Edwards' study consisted of married students, while Kobrack's study included a larger married population.

Sociologist Peter Rossi of the University of Massachusetts indicated that working wives will mean:

> An increase in certain types of spending and a decrease in others. With more disposable income in the family, it will tend to spend more for marginal luxury items, such as electronic stereos and the like. (Advertising Age, July 1975, p. 22)

The question then becomes: Will these purchases be made using the debt feature of the credit card?

Credit Card Usage Related to Savings Account Balances

Specific literature relating to the influence of savings account balances on credit card usage, was not located. Mandell (1972, p. 8) did find that "credit card use has little effect on the size of checking account balances held."

Determining whether or not a savings account balance could have an effect on credit card usage is a variable for research included in this study.

Credit Card Usage Related to Number of Children in Family

Kobrack (1958) found that family size was related to credit use as families with children used installment credit more frequently than families with no children.

Kibe's (1967, p. 30) consumer credit study at Utah State University among the staff members concluded:

> There is a direct relationship between the family size and use of credit, i.e., the larger the size of the family, the greater would be the proportion of people owing consumer credit. For example, beginning with families with three or more members, in all cases the proportion of staff members using credit was

higher than those not using credit. These proportions were strikingly higher for families with 7 or more family members. During the inquiry period, 12 of 16 families with seven members, 4 of 6 families with eight members, and 15 of 21 families with nine or more family members used credit. Only in one and two member families did less than 50% use credit. Size of the family was thus closely related to the use of credit.

Summary of Review of Literature

Certain socio-economic characteristics have generally been associated with the growth in credit card usage, i.e., income, husband's education, wife's employment status and number of children. However, little research has been conducted concerning "use" of the credit card in terms of the debt feature or average monthly unpaid balance and these same socio-economic factors. Most prior research that dealt with credit card "use" made no clarification between convenience "use" and "use" of the debt feature in their statistical findings.

In addition to the aforementioned characteristics, this study included two factors for which previous research could not be located. They were: 1) the influence of the wife's education on credit card usage and 2) the relationship of the savings account balance to credit card usage.

METHOD OF PROCEDURE AND PROPOSED ANALYSIS OF DATA

The subjects of this study were couples, married approximately five to six years, randomly selected from the 1971 marriage license records located at the Cache County Courthouse in Logan, Utah. The Logan Telephone Directory was used to determine if the couples still resided in the area. If a couple did not appear in the Logan Telephone Directory, another couple was chosen from the marriage license records and the same procedure carried through.

One hundred fifty questionnaires were mailed to gather information regarding 1) personal socio-economic factors and 2) the amount of credit debt incurred, as shown in the average monthly unpaid credit card balance upon which a finance charge was imposed. An addressed, stamped return envelope was included in the mailing. A follow-up postcard was mailed to all couples one week after the questionnaire mailing as a reminder. The sample size was determined by the number of responses received within a three week period. It was not possible to contact those couples who did not respond because the questionnaire was not coded, but was kept anonymous, in an attempt to gain a higher response rate. Therefore, the identity of those not responding could not be determined.

The questionnaire was pre-tested for clarity during the month of March 1977. Pre-test results led to minor changes in wording and numerical categories in questions number 12 and 13.

The chi square test for independence and the gamma test for relationship were used to determine which factors influence a family's use of the credit card debt feature. The independent variables tested were family income, education of the husband, education of the wife, gainful employment of the wife, amount of savings and number of children. The constant variable was the number of years married.

RESULTS AND DISCUSSION

The present investigation was concerned with the influence of selected socio-economic characteristics on the average monthly unpaid credit card balance.

Description of Sample

The questionnaire was mailed to 150 couples married in the year 1971. Five hundred ninety (590) names were randomly selected from the marriage license records at the Cache County Courthouse, Logan, Utah, to locate 150 couples residing in the area, as listed in the Logan City Telephone Directory. Eighty-seven questionnaires were returned by the cut-off date, 80 of which were useable for the study. The other seven were either incomplete, did not meet the marriage requirement of five to six years duration, or had moved to a location outside of the Logan area.

Forty-three of the eighty couples (54 percent) had been married for five years, while the other thirty seven couples (46 percent) had been married six years (Table 1).

Table 1. Number of years married

Years married	Respondents	
	Number	Percentage
Five years	43	54
Six years	37	46
Total	80	100

The age of the husbands ranged from the early twenties (20-25) to over forty-three years of age. Eighty-two percent of the husbands were between 20 and 31 years of age (Table 2).

Table 2. Age of husband

Age	Respondents	
	Number	Percentage
Under 20 years	0	0
20-25 years	23	29
26-31 years	42	53
32-37 years	9	11
38-43 years	2	2
over 43 years	4	5
Total	80	100

The majority of the husbands were employed full-time; three were unemployed (Table 3).

Table 3. Husband's gainful employment

Employment	Respondents	
	Number	Percentage
Full time	73	91
Part time	4	5
Not employed	3	4
Total	80	100

The combined family income of husband and wife ranged from less than $4,000 to more than $17,001. One-third of the sample population was in the $9,001-$13,000 income bracket (Table 4).

Table 4. Family income level

Income level	Respondents	
	Number	Percentage
$4,000 or under	1	1
$4,001 - $6,500	2	2
$6,501 - $9,000	12	15
$9,001 - $13,000	31	39
$13,001 - $17,000	19	24
$17,001 or more	15	19
Total	80	100

Per capita income ranged from $667 to $9,500 (Table 5).

Table 5. Per capita income level

Income level	Respondents	
	Number	Percentage
$667 - $2,200	14	18
$2,500 - $3,800	46	57
$4,750 - $9,500	20	25
Total	80	100

The educational level of the husbands ranged from high school certificates to completion of university advanced degrees. One-third had received some university training, while 35 percent completed a BS or BA degree or beyond (Table 6).

Table 6. Education of husband

Education	Respondents	
	Number	Percentage
Less than high school	0	0
High school	21	26
Some college	31	39
BS or BA degree	15	19
Some post graduate	6	7
Advanced degree	7	9
Total	80	100

The educational level of the wives ranged from less than high school certificates to completion of university advanced degrees. One-third of the wives had also received some college education, with 22 percent completing a BS or BA degree (Table 7).

Table 7. Education of wife

Education	Respondents	
	Number	Percentage
Less than high school	3	4
High school	32	40
Some college	27	34
BS or BA degree	15	19
Some post graduate	2	2
Advanced degree	1	1
Total	80	100

Of the 80 wives, 12 were employed full time, while 49 wives (61 percent) were not employed (Table 8).

Table 8. Wife's gainful employment

Employment	Respondents	
	Number	Percentage
Full time	12	15
Part time	19	24
Not employed	49	61
Total	80	100

The number of children in the families ranged from none to four or more (Table 9).

Table 9. Number of children

Children	Respondents	
	Number	Percentage
None	9	11
One	11	14
Two	32	40
Three	23	29
Four or more	5	6
Total	80	100

Eighty-four percent of the sample, 67 couples, had savings accounts ranging from less than $100 to more than $1,701. One-third of those couples had $100 or less in their savings accounts. Sixteen percent, 13 couples, had no savings accounts (Tables 10 and 11).

Table 10. Respondents having savings accounts

Savings accounts	Respondents	
	Number	Percentage
Yes	67	84
No	13	16
Totals	80	100

Table 11. Amount in savings accounts

Savings amounts	Respondents	
	Number	Percentage
$100 or less	23	34
$101 - $500	15	22
$501 - $900	10	15
$901 - $1300	10	15
$1301 - $1700	2	3
$1701 or more	7	11
Total	67	100

Credit Cards

The most widely held type of credit card was the private store card, followed by the bank card, and then the gasoline credit card. None of the 80 respondents held travel and entertainment cards (Table 12). Blackwell, Hawes and Talarzyck (1975) also concluded that chain store cards dominate the credit card field, followed closely by bank cards.

Table 12. Respondent totals for credit card types

Credit card types	Respondents	
	Number	Percentage
Bank	47	72
Store	58	89
Gasoline	24	37
Travel and entertainment	0	0

Sixty-two percent of the respondents (50 couples) owned one to four credit cards, 19 percent held five to nine credit cards, while the other 19 percent of the sample did not own credit cards (Table 13). According to Mandell's (1972) nationwide study, 50 percent of all American families hold at least one credit card. This population sampling, therefore, is higher than the national average in ownership of at least one credit card.

Table 13. Total number of credit cards held by respondents

Total credit cards	Respondents	
	Number	Percentage
None	15	19
1 - 4 cards	50	62
5 - 9 cards	15	19
10 - 14 cards	0	0
15 or more cards	0	0
Totals	80	100

Of the sixty-five couples who owned credit cards, the average monthly unpaid revolving credit card balance ranged from no outstanding amount to amounts over $401 (Table 14). Forty percent of the sample (26 couples) had no outstanding balance. Mandell (1972, pp. 7-8) also found that "at least half of all credit card users use the debt feature . . . the other half . . . treat their debt as a convenience, and attempt to pay the debt off as quickly as they can." Of those using the debt feature, 39 couples, 15 percent owed less than $50 monthly. This also relates to Mandell's (1972) tabulation which found 12 percent owing less than $50 monthly, as an unpaid credit card balance.

Table 14. Credit card owners average unpaid revolving balance

Unpaid balance	Respondents	
	Number	Percentage
None	26	40
less than $50	10	15
$51 - $150	6	9
$151 - $275	5	8
$276 - $400	11	17
over $401	7	11
Total	65	100

Due to finding that 19 percent of this sample (15 couples) did not own credit cards, the number of categories used in the contingency tables for the chi-square and gamma tests were reduced to accommodate the smaller sample size. Under each hypothesis tested, the reduced tables, specifically listing credit card owners, will first be shown, followed by the test results for that group.

Hypothesis I: Effect of Family Per Capita Income on Average Monthly Unpaid Credit Card Balance

The first hypothesis states that families with higher per capita incomes will have higher average monthly unpaid credit card balances. Per capita income range for credit card owners is shown in Table 15.

Table 15. Per capita income level of credit card owners

	Owners	
Income level	Number	Percentage
$667 - $2,200	15	23
$2,500 - $3,800	37	57
$4,750 - $9,500	13	20
Total	65	100

The hypothesis was tested using the chi square test for independence at the .05 significance level. The chi square value for per capita income was near the .05 level, although not significant. The findings did become significant at the .10 level of 10.64 (Table 16).

Table 16. Effect of per capita income on unpaid balance--chi square

Chi square value	11.34
Critical value at .05 level	12.59*
Critical value at .10 level	10.64*

*df = 6

The gamma test, another statistical measure of relationship, was also used to test the hypothesis at the +1 level. The positive value obtained (+.19) suggests that there is a slight possible relationship between higher per capita incomes and higher unpaid balances (Table 17).

Table 17. Effect of per capita income on unpaid balance--Gamma

Gamma value	+ .19
Critical relationship value	+1.00

Mandell (1972) previously asserted that higher family incomes lead to higher credit usage, while his findings also suggested that use of the credit card debt feature was more pronounced in lower income families, those earning less than $10,000 per year. This study found that use of the credit card debt feature was more pronounced in higher income families (Table 18). The majority of families owing over $401 monthly were those with incomes of $17,001 or more.

Table 18. Family income related to use of the credit card debt feature

	Unpaid balance					
Income level	Zero	$0-50	$51-150	$151-275	$276-400	over $401
$4,000 - under	1	0	0	0	0	0
$4,001-6,500	0	2	0	0	0	0
$6,501-9,000	2	3	1	1	1	0
$9,001-13,000	10	2	2	1	7	2
$13,001-17,000	9	1	1	2	1	1
$17,001 or more	4	2	2	1	2	4
Total	26	10	6	5	11	7

Statistical measurement for hypothesis I implies that a possible relationship exists between the two variables: per capita income and unpaid credit card balance. Acceptance of the first hypothesis, however, is not possible at critical significance levels.

Hypothesis II: Effect of Husband's Education on Average Monthly Unpaid Credit Card Balance

The second hypothesis states that families whose husbands have higher educational levels will have higher average monthly unpaid credit card balances. The husband's educational level for credit card users is shown in Table 19.

The hypothesis was tested using the chi square test for independence at the .05 level of significance. The chi square value did not approach the critical level at either the .05 or .10 level. The chi square value was not significant (Table 20).

Table 19. Husband's education related to use of the credit card debt feature

	Unpaid balance					
Education	Zero	$0-50	$51-150	$151-275	$276-400	over $401
Less than high school	0	0	0	0	0	0
High school	7	1	1	0	3	1
Some college	10	5	4	1	6	4
BS or BA	7	0	1	2	1	0
Some post-graduate	0	3	0	1	0	0
Advanced degree	2	1	0	1	1	2
Total	26	10	6	5	11	7

Table 20. Effect of husband's education on unpaid balance--chi square

Chi square value	3.66
Critical value at .05 level	12.59*
Critical value at .10 level	10.64*

*df = 6

The hypothesis was also tested using the gamma test for relationship at the +1 level. The positive value obtained (+.26) suggests that there is a possible relationship between higher educational levels and higher unpaid balance (Table 21).

Table 21. Effect of husband's education on unpaid balance--Gamma

Gamma value	+ .26
Critical relationship value	+1.00

Mandell's (1972) study also concluded that families with better educated heads are more likely than others to use credit cards.

Critical values are not significant enough, in either the chi square or gamma test, to lead to acceptance of the second hypothesis.

Hypothesis III: Effect of Wife's Education on Average Monthly Unpaid Credit Card Balance

The third hypothesis states that families whose wives have higher educational levels will have higher average monthly unpaid credit card balances. The wife's educational level for credit card users is shown in Table 22.

Table 22. Wife's education related to use of the credit card debt feature

	Unpaid balance					
Education	Zero	$0-50	$51-150	$151-275	$276-400	over $401
Less than high school	0	0	0	0	2	1
High school	9	5	2	1	3	2
Some college	10	3	4	0	5	2
BS or BA	5	2	0	4	1	1
Some post-graduate	2	0	0	0	0	0
Advanced degree	0	0	0	0	0	1
Total	26	10	6	5	11	7

The hypothesis was tested using the chi square test for independence at the .05 level of significance. The chi square value was not significant (Table 23).

Table 23. Effect of wives' education on unpaid balance--chi square

Chi square value	3.63
Critical value at .05 level	12.59*
Critical value at .10 level	10.64*

*df = 6

The hypothesis was also tested using the gamma test for relationship at the -1 level. The low negative value obtained (-.081) indicates that there is no relationship between higher educational levels for wives and higher unpaid balances (Table 24). The third hypothesis was not accepted.

Table 24. Effect of wives' education on unpaid balance--Gamma

Gamma value	- .081
Critical relationship value	-1.00

Hypothesis IV: Effect of Wife's Employment Status on Average Monthly Unpaid Credit Card Balance

The fourth hypothesis states that families with wives gainfully employed in the labor market will have higher average monthly unpaid credit card balances. The wife's employment status for credit card users is shown in Table 25.

Table 25. Wife's employment related to use of the credit card debt feature

Employment	Unpaid balance					
	Zero	$0-50	$51-150	$151-275	$276-400	over $401
Full time	4	3	1	0	1	2
Part time	3	3	0	2	3	2
Not employed	18	5	5	3	7	3
Total	25	11	6	5	11	7

The hypothesis was tested using the chi square test for independence at the .05 significance level. The chi square value was not significant (Table 26).

Table 26. Effect of wife's employment status on unpaid balance--chi square

Chi square value	6.93
Critical value at .05 level	12.59*
Critical value at .10 level	10.64*

*df = 6

The gamma test was not used to measure the fourth hypothesis because the gamma test is an ordinal-level measurement. It was not possible to separate or categorize women's employment into orders, where one type of employment or non-employment could be categorized as higher than or less than the other two categories.

Previously, Kobrack (1958) had noted that the employment of the wife was one of the factors which affected consumer credit and evidence indicated a greater use of credit if the wife and husband were both employed. However, the chi square test results for this study show that there is no relationship. The fourth hypothesis could not be accepted.

Hypothesis V: Relationship of the Amount in Savings Account and Average Monthly Unpaid Credit Card Balance

Hypothesis V states that there would be no relationship between the monetary sum in the savings account and average monthly unpaid credit card balance. Savings amounts for credit card owners are shown in Table 27.

Table 27. Savings account amounts related to use of the credit card debt feature

	Unpaid balance					
Saving amounts	Zero	$0-50	$51-150	$151-275	$276-400	over $401
$100 or less	5	3	2	1	4	4
$101-500	4	2	1	1	3	1
$501-900	4	1	1	0	0	1
$901-1300	4	1	1	0	1	0
$1301-1700	2	0	0	0	0	0
$1701 or more	5	0	1	1	0	0
Total	24	7	6	3	8	6

Note: Only 54 of the 65 credit card owners had a savings account.

The hypothesis was tested using the chi square test for independence at the .05 level of significance. The chi square value obtained was near the critical .05 level, while becoming significant at the .10 level of 10.64 (Table 28).

Table 28. Effect of savings amount on unpaid balance--chi square

Chi square value	11.70
Critical value at .05 level	12.59*
Critical value at .10 level	10.64*

*df = 6

The hypothesis was also tested using the gamma test for relationship at the -1 level. The high negative value obtained (-.569) suggests that there is a fairly strong relationship between higher savings amounts and lower unpaid balances (Table 29).

Table 29. Effect of savings amount on unpaid balance--Gamma

Gamma value	-.569
Critical relationship value	-1.00

The statistical tests imply that a possible relationship does exist between savings account amounts and unpaid credit card balance. However, rejection of the fifth hypothesis, stated in the null form, is not possible at critical significance levels.

Hypothesis VI: Effect of the Number of Children on Average Monthly Unpaid Credit Card Balance

Hypothesis VI states that there would be no relationship between the number of children and the average monthly unpaid credit card balance. The number of children for credit card owners is shown in Table 30.

Table 30. Number of children related to use of the credit card debt feature

Children	Unpaid balance					
	Zero	$0-50	$51-150	$151-275	$276-400	over $401
None	4	0	1	0	2	1
One	5	1	0	1	3	0
Two	6	8	3	1	4	3
Three	8	1	1	3	2	2
Four or more	3	0	1	0	0	1
Total	26	10	6	5	11	7

The hypothesis was tested using the chi square test for independence at the .05 significance level. The chi square value was not significant at either the .05 or the .10 level (Table 31).

Table 31. Effect of number of children on unpaid balance--chi square

Chi square value	4.46
Critical value at .05 level	12.59*
Critical value at .10 level	10.64*

*df = 6

The hypothesis was also tested using the gamma test for relationship at the -1 level. The low negative value obtained (-.052) suggests that there is no relationship between the number of children and unpaid balance (Table 32). This finding contradicts Kobrack (1958) and Kibe (1967) who previously found that there was a relationship between families with children and credit usage. Both found that the frequency of credit usage increased as the number of children increased.

Table 32. Effect of number of children on unpaid balance--Gamma

Gamma value	- .052
Critical relationship value	-1.00

Despite the gamma test's implications, the chi square value was not significant enough to lead to rejection of the sixth hypothesis, which was stated in the null form.

Additional Comments

The questionnaire provided no space for respondent's comments, yet three people wrote directly on their questionnaire. The comments included: "Don't use credit cards"; "We only use our credit cards for identification purposes"; and "Unpaid balance is always none."

It was interesting to note the number of people in the sample who hold or use credit cards. Mandell (1972) estimated that roughly one-half of all American families hold at least one credit card. Sixty-five

of eighty couples (81 percent) in this sample held at least one credit card. Of those sixty-five couples, thirty-nine (60 percent) had an outstanding monthly credit card balance. This difference may be attributed to the increased use of credit in the seven year span since Mandell's data was collected.

SUMMARY AND CONCLUSIONS

The influence of selected socio-economic characteristics on average monthly unpaid credit card balance was investigated. An instrument was developed to measure socio-economic characteristics.

The instrument, in the form of a questionnaire, was mailed to 150 couples, still residing in the Logan area, who were married in the year 1971, as recorded in the marriage license records at the Cache County Courthouse. Eighty-seven questionnaires were returned by the cut-off date, May 9, 1977, of which 80 were usable.

Six hypotheses were tested:

1. Families with higher per capita incomes will have higher average monthly unpaid credit card balances.

2. Families whose husbands have higher educational levels will have higher average monthly unpaid credit card balances.

3. Families whose wives have higher educational levels will have higher average monthly unpaid credit card balances.

4. Families with wives gainfully employed in the labor market will have higher average monthly unpaid credit card balances.

5. There is no relationship between monetary sums in savings accounts and average monthly unpaid credit card balances.

6. There is no relationship between number of children and average monthly unpaid credit card balances.

The chi square test for independence and the gamma test for relationship were used to determine significance. Hypotheses 1, 2, 3 and 4 could not be accepted. Hypotheses 5 and 6 could not be rejected. It should be noted that Hypotheses 5 and 6 were in the null form.

Limitations

The following limitations are noted for this investigation:

1. Sample. The study was conducted in a college community using young married couples, some of which could have been students with a limited income. This sample, then, was perhaps more homogenous than young married couples in the general population.

2. Outstanding balance. Of the 80 couples, 65 owned credit cards and of those 65 only 39 had any outstanding balance. The original sample size was reduced, leaving limited data to work with in terms of relating socio-economic factors to unpaid balance or the credit card's debt feature.

Recommendations

It is recommended that a similar study be conducted with young married couples who 1) do not live in a college town, 2) live in an area of the United States with a broader socio-economic base and heterogenous population, and 3) have consistent outstanding balances as part of their financial planning.

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APPENDIX

Chi-Square Analysis

Chi-square is a statistical test for analyzing differences in distribution between sample means. The statistical formulas used for computing a X^2 value are:

$$X^2 = \frac{(O - E)^2}{E}$$

where

O = observed frequencies

E = expected frequencies

$$df = (r - 1)(c - 1)$$

where

df = degrees of freedom

r = number of rows in the contingency

c = number of columns in the contingency table

Frequencies are entered in the cells of a contingency table. The computed value is checked for significance with the X^2 distribution table, which indicates probabilities at various degrees of freedom. Significance is based on the probability that a particular deviation occurred by chance.

Gamma Test Analysis

The gamma test is a statistical test for analyzing relationships between concordant and discordant pairs in an attempt to determine relationship strengths.

The statistical formula for computing the gamma value is:

$$\text{Gamma} = \frac{C - D}{C + D}$$

where

C = concordant pairs

D = discordant pairs

Frequencies are entered in the cells of a contingency table. The computed value is checked for significance with either the -1 or the +1 level. If the gamma value takes on a positive values it signifies that the concordant pairs predominate. A negative value shows predomination of the discordant pairs. The value of gamma can be taken as the probability of correctly guessing the order of a pair of cases on one variable once the ordering on the other variable is known.

The gamma test is an ordinal-level measurement which is ordered into categories with respect to degree. Thus the statistics are categorized into orders: higher than, less than, etc., in an attempt to measure the strength of the relationship between two variables.

UTAH STATE UNIVERSITY · LOGAN, UTAH 84322
COLLEGE OF FAMILY LIFE

DEPARTMENT OF
HOME ECONOMICS AND
CONSUMER EDUCATION
UMC 29

April 15, 1977

Dear

As a graduate student at Utah State University in the Department of Home Economics and Consumer Education, I have selected a research project concerning the use of credit cards by young married couples. To complete this study, I need information from couples regarding their use of credit cards during the period of November 1, 1976 to April 1, 1977. Your name was randomly selected from the 1971 marriage licenses at the Cache County Courthouse.

The enclosed questionnaire has been sent to you asking for your participation in this research study. Your cooperation will be greatly appreciated. Please keep in mind that this study is concerned only with credit cards. Mortgage loans, auto loans, student loans, etc., are not included.

The information obtained will be confidential and will not be identified in any way with your name. Data from all questionnaires will be compiled and reported collectively.

Please return this questionnaire in the enclosed stamped, self-addressed envelope as soon as possible, so it will reach me before May 9, 1977.

Thank you, I do appreciate your assistance.

Sincerely,

Marsha Maughan Cooper
Graduate Student

QUESTIONNAIRE

In the box at the right of each question, please enter the "code" number reflecting your answer.

1. Number of years married to current spouse:

Code	Years Married	Code	Years Married
1	One or less	4	Four
2	Two	5	Five
3	Three	6	Six or more

(1-6)

2. Age of husband:

Code	Age	Code	Age
1	Under 20	4	32-37
2	20-25	5	38-43
3	26-31	6	over 43

(1-6)

3. Education of husband:

Code	Education	Code	Education
1	Less than high school	4	BS or BA degree
2	High school certificate	5	Some post-graduate
3	Some college	6	Advanced degree

(1-6)

4. Education of wife:

Code	Education	Code	Education
1	Less than high school	4	BS or BA degree
2	High school certificate	5	Some post-graduate
3	Some college	6	Advanced degree

(1-6)

5. Indicate the husband's gainful employment in the labor market:

Code	Employment	Code	Employment
1	Full-time	3	Not employed
2	Part-time		

(1-3)

6. Indicate the wife's gainful employment in the labor market:

Code	Employment	Code	Employment
1	Full-time	3	Not employed
2	Part-time		

(1-3)

7. Total family income: (Income of both spouses, if both are gainfully employed)

Code	Income Range	Code	Income Range
1	$4,000 or under	4	$9,001-13,000
2	$4,001-6,500	5	$13,001-17,000
3	$6,501-9,000	6	$17,001 or more

(1-6)

8. Number of Children:

Code	Number of Children	Code	Number of Children
1	None	4	Three
2	One	5	Four or more
3	Two		

(1-5)

9. Do you have a savings account?

Code	Savings Account
1	Yes
2	No (If "no", skip to number 11)

(1-2)

10. If "yes", estimate the average amount, in your savings account, during the last six month period.

Code	Amount	Code	Amount
1	$100 or less	4	$901-1300
2	$101-500	5	$1301-1700
3	$501-900	6	$1701 or more

(1-6)

11. If you do own credit cards, indicate which types you own: (You may enter more than one code number...)

Code	Type
1	Bank credit card (i.e.,BankAmericard,Master Charge)
2	Specific store card (i.e.,ZCMI,J.C.Penneys,Sears)
3	Gasoline credit card (i.e.,Texaco,Conoco,Chevron)
4	Travel & entertainment card (i.e.,Diners, Carte Blanche)

(1-4)

12. How many total credit cards do you own?

Code	Total	Code	Total
1	None	4	10-14
2	1-4	5	15 or more
3	5-9		

(1-5)

13. Using the last six month period, Nov. 1,1976 to April 1,1977, estimate the average monthly unpaid balance on your credit cards on which you have had to pay a finance charge. Do not include the amounts you paid off before the finance charge was added. Please estimate as accurately as possible.

Code	Unpaid Balance	Code	Unpaid Balance
1	None	4	$151-275
2	less than $50	5	$276-400
3	$51-150	6	over $401

(1-6)

Thanks!

Follow-up Card

A follow-up postcard was sent to every couple who received a questionnaire. These were sent out one week after the questionnaire as a reminder.

Dear

Recently you received a questionnaire concerning the use of credit cards. If you have already mailed it, THANK YOU. If you haven't returned it, I would appreciate you taking time to participate in this study. Thanks.

Sincerely,

Marsha Cooper

VITA

Marsha Gaye Maughan Cooper

Candidate for the Degree of

Master of Science

Thesis: Credit Cards: Average Monthly Unpaid Balance as Related to Certain Socio-Economic Factors

Major Field: Home Economics and Consumer Education

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