

Sensation-seeking and College Students' Credit Card Debt

Abstract: Using the Student Financial Management survey data, collected by the Personal Financial Planning Department of the University of Missouri (2004), we examined the relationship of sensation-seeking and college students' credit card debt. Sensation-seeking was found to be significantly related to college students' credit card debt exceeding \$2000. Demographic variables such as age, gender, academic year and race are significant in predicting whether college students' credit card debt is above the basic average level or not.

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Introduction

From having no credit history to possessing several credit cards, college undergraduates are learning to manage their credit for the first time. In 2004, seventy-six percent of undergraduates owned at least one credit card in their first year of college, an increase by 40 percent compared to 1989 (Nellie Mae, 2005). This growth generates great concern that college students may face greater financial challenges due to greater indebtedness. A recent study by the Nellie Mae Corporation, a national student loan financing organization, reported that undergraduate student carried an average credit card debt of \$2,169 in 2004 (Nellie Mae, 2005).

Previous studies found that demographic characteristics are strongly related with college students' credit card use. Our question is, what is the role of psychological factors (such as sensation-seeking) in predicting financial risk tolerance, while controlling for personal characteristics? The concept of the trait of sensation-seeking was introduced by Zuckerman (1979) as "the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience". Horvath & Zuckerman (1992) found people who scored high in sensation-seeking tend to take more risky behaviors; including engaging in risky experiments, criminal activities, sexual behavior, smoking, drinking, illegal drug abuse, careless driving, and gambling, etc. Persons who have higher scores in sensation-seeking were also found to be more likely to choose flexible and risky jobs (Zuckerman, 1979). In a five-year longitudinal study from late adolescence to young adulthood, Newcomb and McGee (1991) found illegal drug use to be strongly related to sensation-seeking. Similar results were also found by Greene, Kremar, Waiters, Rubin and Hale (2000) in regard to drinking and delinquency.

The above studies suggest that there may be relationship between sensation-seeking and economic behaviors. Grable and Joo (2004) were the first to try to use sensation-seeking to predict financial risk-taking. Although they found there is no significant relationship between sensation-seeking and ownership of risky assets for young professionals, their study still suggest it may be a new field.

Based on the above, we posit that sensation-seeking may play a role in determining college students' credit card debt. Before we construct our model, we will specify our purposes and summarize a selected few previous studies on the traditionally selected independent variables such as gender, race, age and academic year. In this part, the literature on credit card debt and characteristics associated are examined, which are gender, race, academic year and age. The characteristics of sensation-seeking are not covered in an exhaustive review of the literature. No previous studies have examined its relationship with the credit card debt of college students.

Literature Review

Gender

Gender has been found to be a significant factor in determining credit card debt of college students. Armstrong and Craven (1993) were among the first to examine college students' credit usage and payment practices and found that women had more credit cards than men, but actually had lower balances on those credit cards, compared to men. A reason has been offered by other researchers. That is, women understand their credit cards better than their male counterparts, consistent with a study on students' knowledge about debt from financial aid (Hira and Brinkman, 1992). They found student respondents who were female, married, and older had a better understanding of their financial situations. Similar evidence came from a study about the influence of a consumer education course on college students' attitudes and knowledge. Here, researchers found female and older students to

exhibit positive change in their behaviors, following completion of a consumer education course (Carsky, Lytton & McLaughlin, 1984).

Another study regarding gender and credit card usage was carried out by Hayhoe, Leach, Turner, Reuin, and Lawrence (2000). They tried to identify the differences in spending habits and credit use of college students. Their path analysis model showed that there was a significant difference in the financial practices and financial stressors of male and female students. Similar results were also found in a more recent study by Lyons (2004).

Munro (1997) made a different argument in her master's thesis, where the coefficients on gender and the number of credit cards owned were insignificant in predicting credit card payment practices in the logistic model.

Race

Race is an important factor in predicting the credit card debt of college students. Armstrong and Craven (1993) found race to be significantly related with the number of credit cards a student owned. On average, white students owned 3.4 cards per person compared with black students' 2.3 cards per person. International students have the fewest cards with an average of 1.4 cards. In related studies, black students were found to feel more pressure when dealing with their financial situation compared with their white counterparts (Archer & Lammin, 1985; Murphy & Archer, 1996).

Similar studies found black students to be more worried about paying their monthly credit card bill compared with white students (Brobeck, 1992). Munro (1997) also commented that white students are better at managing their credit card debt and using their cards than are black students. Lyons (2004) found similar results that white students are more likely to make their credit card payments than black students.

Academic Year

Experience in the best teacher, but money management and financial knowledge are effected by many factors other than experience. In particular, how near one perceives their entry into the labor force, the greater their use of credit. Senior students, compared with the freshmen, have been found to spend more money and show less concern over their budget (Andersen, Camp, Kiss, Wakita, Weyeneth & Fitzsimmons, 1993). Munro (1997) also found that freshmen and sophomore, who acquired cards before college, make a better use of their credit, compared to minorities, juniors or seniors, graduate students, those who acquired their cards during college, and those owned more than three cards.

Other research seems to contradict these results. In one such study, upper-level students and those who lived off-campus exhibited greater knowledge about credit cards and general finances than lower-level students and those who lived on-campus (Danes & Hira, 1986). As such, academic year demonstrates mixed results on college students' credit card debt.

Age

There is limited literature on college students' ownership of credit cards when considering age since most research divides people into academic-year groups. Garmen and Bach (1995) found grade school students, compared to teenagers, to be able to learn money management practices more efficiently from their parents. It logically follows that a college student will be more likely to be a poor money manager if his parents are poor at managing their money. The effect of age on attitudes towards credit cards was studied by Brobeck (1992). He found that younger card holders worried about paying the minimum monthly credit card bills. Specifically, high school students and freshmen in college wanted to know more about their rights as credit card holders, as well as how to access information on their credit history.

Research Questions

Based on the above literature review, the primary research question to be addressed, restated, follows:

While controlling for demographic factors, is sensation-seeking significant in predicting whether a college student is carrying an outstanding credit card debt?

Data and Methods

To examine if there is a relationship between college students' credit card debt and sensation-seeking, data from Student Financial Management Survey (2004) is used in our study. The data were collected by the Personal Financial Planning Department at the University of Missouri-Columbia in the fall of 2004. The total sample size is

1619 students who were reported to have credit card debt during the survey. Among them, 517 students had a debt over \$2000, while 1102 students had a debt below \$2000.

Dependent Variable

The dependent variable is the total amount of the balance on their credit cards, a continuous variable. According to Nellie Mae (2005), undergraduate college students had an average credit card debt of \$2,169 in 2004. Given this, we focused our interest on whether the student had credit card debt above the level of \$2000. The variable is categorized as 0 for having a credit card debt below \$2000, and 1 if it is above \$2000.

Independent Variables

The focus variable of sensation-seeking included two factors, one each relating to health and risk factors. Health factors included frequency of seatbelt usage, use of nutritional labeling, frequency of exercise, and perceive healthfulness of their diet, coded with a five point Likert scale. Risk factors included smoking, drinking, marijuana or other controlled substances use, and unprotected sex, again coded as a Likert scale. The factor analysis may be seen in Table 1.

Table 1: Factor Analysis

Components	Health Factor	Risk Factor
v77food How often do you use nutrition labels to the select the foods you buy?	0.192	0.827
v79exerc How often do you engage in strenuous physical exercise?	0.124	0.601
v81diet How often do you choose foods for the purpose of creating a diet that will reduce your chances of having a diet-related illness?	0.275	0.800
v74belt When you are driving in a car, how likely is it that you are wearing your seatbelt?	0.526	0.016
v75smoke1 How often do you smoke cigarettes?	0.681	-0.092
v76drink1 How often do you drink alcohol?	0.728	-0.234
v78drugs1 How often do you take illegal drugs?	0.665	-0.163
v80unprot1 How often do you participate in unprotected sex?	0.644	-0.189

Extraction Method: Principal Component Analysis.

Table 2 displays the distributions of the other independent variables. Gender is a dummy variable coded 1 for male and 0 for female and 29.5% of student respondents were male. Questions on race resulted in 7.4% of the sample being African American/Black, 6.4% Asian American, 3.1% Hispanic, 0.4% Native American, 3.0% other, and 80.0% Caucasian. Each race was coded as a 0/1 dummy variable with Caucasian as the omitted category. Academic year found freshmen to make up 6.5% of the sample, sophomores were 9.5%, juniors were 20.6%, seniors were 28.5%, and graduate students, the omitted category, were 35.0% of the sample. Age was entered as a continuous variable.

Since the dependent variable is a dummy variable, a logistic model is chosen. Logistic regression is an approach to prediction, like ordinary least squares regression, but without problems of heteroscedasticity and predicted values lying outside the 0-1 range that plagues linear probability models. In this study, logistic regression analysis is used to predict students' likelihood to having credit card debt above \$2000 versus below \$2000. As the dependent variable is not continuous, the goal of logistic regression is to predict the likelihood that Y=1 given certain values of X. Therefore, a positive relationship between X and Y means that the value of X has the effect of increasing the probability, or odds, that a person will have a result of Y=1. Similarly, a negative value for the

coefficient means the independent variable has the effect of decreasing the odds that a person will have a result of $Y=1$. The “logistic” distribution displays a sigmoidal or S-shaped distribution function rather than a straight line. This distribution is similar to the standard-normal distribution but the probabilities are easier to calculate and the logit distribution constrains the estimated probabilities to lie between 0 and 1.

Table 2: The Frequencies of Variables
(N=1619)

Variables	Number of observations	Percentage (%)
Credit card debt		
>\$2000	517	31.98
<\$2000	1102	68.07
Academic Year		
Freshman	105	6.49
Sophomore	153	9.45
Junior	333	20.57
Senior	461	28.47
Graduate Students	567	35.02
Race		
African American /Black	116	7.42
Asian American	102	6.37
Caucasian	1281	79.96
Hispanic	49	3.06
Native American	6	0.37
Other	48	3.00
Gender		
Male	475	29.54
Female	1133	70.46

In table 3, we summarize the results of the fitted logistic regression model. Our focus will be on the significant odds ratio results. For students with high healthy factors, the odds of having a credit card debt above \$2000 are decreased by 19% at the significance level 0.05, implying students with greater health related practices are significantly less likely to have credit card debt above \$2,000. Age is significantly positively related to credit card debt and, with each additional year of age, the odds of having over \$2000 in credit card debt decreases by 5%, consistent with previous findings. Compared with male students, the odds of having credit card debt over \$2000 is 150% greater for female respondents. Race turns out to be a very surprising variable in predicting having credit card debt above \$2000 or not. There is no significant difference between Caucasians, Blacks, Hispanics, Native Americans, or others. Surprisingly, Asian Americans had a 275% greater likelihood of having credit card debt over \$2000 than Caucasians, inconsistent with previous studies. Our results regarding academic year is also surprising. The odds of freshmen with credit card debt over \$2000 are 1028% times higher than graduate students. The odds of sophomores with credit card debt over \$2000 are 689% times higher compared to graduate students. The odds of juniors having credit card debt over \$2000 are 806% greater than graduate students. While the odds of seniors having credit card debt over \$2000 are 263% greater than graduates for graduate students. One could argue that greater attention needs to be paid to the freshmen and sophomore classes when they enter university.

In summary, health consciousness was significantly related to lesser college student credit card debt. Sensation seeking as measured by risky behaviors, however, was not. Further research needs to be done in this new field. The selected demographic variables such age, gender, academic year and race are significant in predicting whether college students’ credit card debt in above the average level.

Table 3: Logistic Model

a=0.1; **a=0.05; ***a=0.01

Variables	Value	Estimate	Odds Ratio	χ^2	P-value
Intercept	_____	1.2812	3.6*	2.88	0.0899*
Risk Factor	_____	0.1355	_____	1.95	0.1621
Health Factor	_____	-0.2114	0.81**	4.36	0.0369**
Age	_____	-0.0498	0.95** *	7.95	0.0048***
Academic Year	Freshman	2.3298	10.28* **	12.97	0.00003***
	Sophomore	1.9295	6.89** *	15.40	<0.0001***
	Junior	2.0865	8.06** *	36.23	<0.0001***
	Senior	0.9667	2.63** *	13.56	0.0002***
	Graduate Students	_____	_____	_____	_____
Gender	Male	_____	_____	_____	_____
	Female	0.4040	1.50*	3.36	0.0670*
Race	African American/Black	0.3573	_____	0.73	0.3920
	Asian American	1.0104	2.75** *	9.11	0.0025***
	Hispanic	0.0666	_____	0.01	0.9195
	Native American	-21.9632	_____	0.00	0.9997
	Other	0.4614	_____	0.77	0.3787
	Caucasian	_____	_____	_____	_____

References

- Allen, J. L., & Jover, M. A. (1997). Credit card behavior of university students: ethnic differences. Consumer Interest Annual, 43: 162-170.
- Anderson, J., Camp, P., Kiss, E., Wakita, S., Weyeneth, J., & Fitzsimmons, V.S. (1993). The money attitude scale: what college students think about the green stuff. Proceedings of the American Council on Consumer Interests, USA, 39, 377-384.
- Archer, J. Jr., & Lamnin, A. (1985). An investigation of personal and academic stressors on college campuses. Journal of College Student Personnel, 26, 210-215.
- Armstrong, C. J., & Craven, J. M. (1993). Credit card use and payment practices among college students. Proceedings of the 6th Annual Conference of the Association for Financial Counseling and Planning Education, 148-159.
- Blair, Alan (1997). A High Wire Act: Balancing Student Loan and Credit Card Debt. Credit World, 86(2), 15-18.
- Brobeck, S. (1992). Consumers' attitudes toward credit cards. Credit World, 80 8-13.
- Carsky, M. L., Lytton, R.H., & Mclaughlin, G. W. (1984). Changes in consumer competency and attitudes: Do students characteristics make a difference? Proceedings of American Council on Consumer Interests, USA, 30, 166-173.
- Churaman, C. V. (1998). College Student Use of Consumer Credit. Proceedings of the American Council on Consumer Interests, pp.107-113. ACCI. Columbia. MO.

- Danes, S. M., & Hira, T.K. (1987). Money management knowledge of college students. Journal of Student Financial Aid, 17, 4-16.
- Dillman, A. D. (2000). Mail and internet surveys: the tailored design method, 2nd edition. New York: John Wiley & Sons.
- Hayhoe, C. R., Leach, L. J., Turner, P. R., Bruin, M. J., & Lawrence, F. C. (2000). The Journal of Consumer Affairs. Vol. 34. Iss.1. pp 113-126.
- Garman, E. T., & Bach, A. L. (1995). Key concepts in consumer economic textbooks. Proceedings of the American Council of Consumer Interests. USA, 41, 212.
- Grable, J & Joo So-Hyun. (2004). Accessing the link between sensation-seeking and financial risk taking. The Register. Vol 5. No. 5.
- Greene, K., Kremar, M., Walters, L.H., Rubin, D. L., & Hale, J. L. (2000). Targeting Adolescent Risk-Taking Behaviors: The Contributions of Egocentrism and Sensation-seeking. Journal of Adolescence, 23, 439-461
- Lyons, A. C.(2004). A Profile of Financially At-risk College Students. The Journal of Consumer Affairs. Vol. 38, Iss 1. PP56-81.
- Mae, N.(2002). 2001 Credit Card Usage Analysis. Retrieved on 04/01/05. from <http://www.nelliemae.com/library/research>.
- Mae, N.(2005). Undergraduate Students and Credit Cards in 2004. Retrieved on 04/28/06. from <http://www.nelliemae.com/library/research>.
- Muffo, J. (1996). College student needs assessment (ACT). Blacksburg: Virginia Polytechnic and State University, office of academic assessment.
- Murphy, M. C., & Archer, J., Jr. (1996). Stressors on the college campus: A comparison of 1985 and 1993. Journal of College Student Development. 37, 20-28.
- Zuckerman, M, (1979). Sensation-seeking. Lawrence Erlbaum, Hillsdale.

Endnotes

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