Determinants of consumer debt: an examination of individual credit management variables.

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ABSTRACT

The consumer debt burden has become such a problem that the United States recently passed legislation reforming the U.S. bankruptcy codes. Through the use of empirical data from the 2001 Consumer Expenditure Survey this work employs two stages of statistical review to find implications of a propensity to consumer indebtedness. A preview of this particular research shows individuals with higher education levels exhibit a tendency toward having higher consumer debt. A number of financial sources of varying compositions are utilized in this paper. Many of these financial sources exhibit a positive relationship with an individual's level of consumer indebtedness.

Keywords: consumer debt, individual credit management variables, 2001 consumer expenditure survey, education debt, minority debt.

INTRODUCTION

Of concern in recent years in the United States has been the ever growing rise in consumer debt. Previous literature has evaluated consumer debt in the aggregate, however, it is paramount that one understands the micro-implications runaway debt has not only on individuals, but, possibly the economy on the whole (Garner 1996). This paper is unique as it serves to determine, from the second quarter data of the 2001 Consumer Expenditure (CEX) Survey of 7579 households, demographic, economic, and credit management factors of individuals at more risk than others of having higher consumer indebtedness, often leading to default.

This work is divided into two separate stages of analysis. Stage one explores presiding factors contributing to a consumer credit balance of all 7579 households in the sample. Stage two of the paper is narrowed to 3021 households answering in the affirmative to having a consumer credit balance at the beginning of the month. Section one of this paper will provide a literature search, section two shall describe the methodology. Section three will provide results and discussions of the statistical findings. Section four provides concluding remarks and further research ideas. An appendix is included with this work and serves to house the tables discussed throughout the manuscript.

LITERATURE REVIEW

In 1935, John Maynard Keynes wrote in his highly regarded text "The General Theory of Employment, Interest and Money" that consumption is a function of income. As one's income rises their expenditure level will rise as well. Keynes noted consumer expenditure should rise to a level somewhat less than the increase in income, furthering the foundation for marginal propensity to consume (MPC). Thus, the Absolute-Income Hypothesis posits MPC stability over time with respect to consumer income. Of particular interest to the Keynesian findings is the critical point that MPC is affected by consumer credit. One must be cognizant of this point to truly understand demographic, economic, and credit management effects on consumer credit. Gross and Souleles (2002) showed that for households in The United States, credit cards, in particular bankcards, serve as a leading source of unsecured credit. Gross and Souleles also point out that the marginal propensity to consume is much larger for people nearer their credit limit.

Duesenberry (1959) found implications that people in general base their savings and consumption decisions not only on their own resources, but, of the consumption patterns and behavior of their peers. In general if consumers feel peer pressure toward conspicuous consumption, a higher level of consumption may be exhibited. Consumption, then, during a lack of income yields credit debt if consumption is to occur at all. Jappelli, Pischke, and Souleles (1998) show that households without bankcards are liquidity constrained, and that people with bankcards are much more equipped to smooth out their consumption. The fact is in the past few decades Americans have become quite comfortable with the use of consumer credit as a means of smoothing income (Durkin 2000). A recent Federal Reserve statistical release (2005) shows over $793 billion consumed in revolving credit alone. Consumer credit outstanding, and not seasonally adjusted, rose to $2.1 trillion in February 2005. The scale and magnitude of the factors of consumer credit outstanding is worthy of much study.

As mentioned above bankcards and revolving credit comprise merely one facet of consumer credit by definition. Garner (1996) defined the consumer debt burden as the level of consumer debt relative to a consumer's ability to repay. For the purpose of this work, consumer credit and or debt is defined as the presence of consumer credit balances in conjunction with the eight reference categories from the 2001 CEX survey. Garner states that recent changes in the financial system have made it more difficult to accurately interpret the rise in consumer debt over the last few years. Garner also states the presence of several distortions in the ability to accurately represent and define consumer debt measures.

Grieb, Hegji, and Jones (2001) find, through a close examination of the relationship between bankcard delinquencies and key macroeconomic variables from 1981-1999, that consumers will selectively default on consumer credit before alternative forms of credit when a scarcity of funds is prevalent. The different approach to the literature used by Grieb, Hegji, and Jones examines bank credit card payments directly, and uses credit delinquencies as opposed to charge-offs as the variable of interest. Wood (1998) writes that the hypothesized middle-class delay of gratification may need revisiting. Wood finds that higher levels of impulse buying are associated with individuals having "some" college or other post high school education. Family income however, was not found to be related to impulse buying.

The state of credit card borrowing on the whole based on results from the 1998 Survey of Consumer Finances indicated a small drop within individuals with a credit card balance. The small, 3.2 point drop was shared among all cohorts with exception families headed by those aged 55 to 64 (1998). Increases in total balances for the 1995-1998 periods increased across demographic groups. Durkin (2002) shows that 72 percent of all families have a general-purpose credit card with a revolving feature. Durkin's 2001 survey of consumers from the Federal Reserve Board also showed that 41 percent of Americans have three or more bank credit card accounts. Of the survey respondents, 30 percent had paid a late fee in the past year. When asked for their opinion on whether credit use makes managing finances easier, 73 percent showed positive.

As American attitudes have embraced credit as a means of consumption, several economic, demographic, and credit management variables have changed along with them. With economic factors contributing to the general income rise, an aging baby-boomer population nearing retirement and a plethora of credit management tools at consumer disposal, the ground has been paved with opportunity and access to credit. Not all Americans utilize credit in the most financially healthful way. Individuals may spend beyond their means to levels that may lead the consumer to default. Several questions need to be answered. Among those questions in the credit debacle resides the principle issue of who is more likely to have credit indebtedness? Is it the rich, the meek, or the poor? What economic, demographic, and credit management factors point to credit indebtedness? This paper explores this central question and theme in detail, starting with 2001 CEX data.

DATA AND METHODOLOGY

The sample used in this study was drawn from the 2001 Consumer Expenditure Survey (CEX). This particular year was chosen as a baseline for comparisons of future research. The CEX is a quarterly survey of about 5000 households conducted since 1980. The survey provides information about American non-institutionalized population buying habits which include data on detailed expenditures, income, and the demographic information associated with the

respondents both at family member levels and consumer unit levels. Each household is interviewed for five consecutive quarters before being replaced by a new household (U.S. Bureau of Labor Statistics, 2003).

In the second quarter interview, households are asked a few questions about consumer credit balances relating to several credit sources. The sample of this study is limited to the second quarter data of the 2001 CEX survey which consisted of 7579 households; of these, 3021 households had non-zero consumer credit balances outstanding at the beginning of the interview month. Using the weight variable provided in the survey, an interpolation was made to adjust the sample so that the analysis will reflect the U.S. population. When exploring factors affecting the presence of consumer credit balances in the first stage analysis, included is entire 7579 households in the analysis. The second stage was aimed to study the characteristics of households with high consumer credit balances, so only the weighted 2068 households reporting non-zero credit balances were included in the analysis.

The dependent variable for the entire sample, presence of consumer credit balances, was developed by dummy coding the response to the question: On the 1st of (the current month), how much was owed to credit sources not including mortgage, home equity loans, vehicle loans, or business related loans? In the model presented in this study, the operational definition of consumer credit balance includes the total credit balances in the following eight credit source categories provided by the CEX survey: (1) revolving credit accounts, including store, gasoline, and general purpose credit cards, such as Sears, Amoco, Visa, MasterCard, etc, (2) Stores for installment credit accounts, (3) Banks and savings and loan accounts, (4) Credit unions, (5) Finance companies, (6) Insurance companies, (7) Doctors, dentists, hospitals, or other medical practitioners for expenses not covered by insurance and (8) Other credit sources. The dependent variable for the sub-sample for those who reported non-zero consumer credit balances was the total amount the household owed at the beginning of the interviewed month except any mortgage, home equity loans, vehicle loans, or business related loans.

Demographic variables and economic variables were employed as independent variables in both stage analyses. Credit management variables were added to the second stage analysis for the sub-sample of households with non-zero consumer credit balances. Demographic factors included age, race, employment status, and education level of the reference person. Household region, family type, and urban or rural proximity were also included in the demographic factors. Economic variables included income, annualized retirement deduction amount, four different types of retirement deduction accounts, and housing tenure. For the purposes of this study, measuring credit balance at the entire consumer unit level was of utmost importance therefore gender of the respondents was not included as one of the demographic variables.

The employment status of the reference person was measured by “number of weeks worked by reference personal full or part time in last 12 months, including paid vacation and paid sick leave.” If the response was more than 45 weeks, it was coded as full-time working, 0 weeks was coded as not working, part-time was coded as any weeks in between. Income was measured as the amount of consumer unit income before taxes in the past 12 months. Four types of consumer unit annualized retirement and pension deductions reported were railroad retirement, government retirement, private pensions, and individual retirement plans such as an IRA or Keogh. Positive deductions were coded 1, otherwise 0. The sum total of these four types of contributions was used as the measure of total retirement deduction. Both income and retirement deduction variables were divided by 1000 to facilitate the interpretation of statistical analysis.

Credit management variables were only used in stage two to analyze the non-zero consumer credit balance of the sub-sample. Responses to the eight credit sources mentioned earlier in the dependent variable were used to dummy code whether the consumer unit has a certain type of credit balance. The number of credit sources having outstanding balances, not including mortgage, home equity loans, vehicle loans, or business related loans, was calculated and categorized as: one or two credit sources in possession, and have three or more credit sources in possession.

The dependent variable for the full sample analysis was dichotomous, and as such, the first stage analysis employed a logistic regression model to examine the probability of a consumer unit falling into a non-zero consumer credit balance category as a function of demographic and economic variables. The dependent variable for the non-zero consumer credit balance sub-sample was a continuous variable, thus, the second stage analysis utilized an OLS multiple regression model to further examine the effects of demographic, economic, and credit management variables on the magnitude of the consumer credit balances amount. All analysis used the weighted sample to improve the representativeness of the data.

RESULTS

The descriptive statistics for the total sample and sub-sample are presented in Table 1 (Appendix). The mean age of the full sample was 48.2, 45.8 for the sub-sample. Three fourths (76%) of respondents in the full sample were white, followed by black (12%), Hispanic (9%) and Asian (3%). For the sub-sample, the corresponding percentages were 78% white, 10% black, 8% Hispanic and 3% Asian. More than one third of the full sample respondents were located in the South region of the United States (36%), 22% in the West region, 23% in the Midwest and 19% in the Northeast versus 34%, 23%, 24% and 19% respectively for the sub-sample. Single person family types have more proportion than family types of husband/wife with children each reporting 30% and 26% respectively. The remainder are 21% of husband and wife only, 13% other types, 6% of single parent and 4% of other husband and wife types. Husband/wife with children family types has the highest percentage (32%) in the sub-sample, followed by single person 23%, husband and wife only 21%, other types 13%, 5% of single parent and 5% other husband and wife types. Over half (59%) of the full sample reference persons were working full-time, 29% were not working, followed by 13% of part-time workers. The corresponding percentage in the sub-sample was 69%, 18% and 13% respectively. 26% of the full sample reference persons were college graduates or above, 29% reported some college education and 45% were high school educated or below versus 29%, 33% and 38% for sub-sample respectively. The majority of both the full sample (87%) and sub-sample (87%) consumer units interviewed were located in urban areas.

The sub-sample has a higher mean income of $48,700 versus $38,487 for the full sample, and also a higher mean retirement deduction $1,256 versus $867 for full sample. Forty percent of the consumer units in the full sample reported owning a house with a mortgage, 26% owned without a mortgage, 33% reported renting and 1% reported student housing and other types. The housing figures for the sub-sample were 53%, 19%, 27% and less than 1%. A very small percentage of people contributed to railroad retirement accounts, 3% and 4% of full and sub-sample consumer units contributed to government retirement accounts. 9% of the full sample and 15% of the sub-sample consumer units contributed to private pensions. Finally 10% and 14% of full and sub-sample consumer units contributed to individual retirement accounts.

Seventy two percent of consumer units in the sub-sample have only one credit source and have a balance outstanding, 22% have two and 6% have three or more credit sources. 89% of consumer units in the sub-sample have a balance on revolving credit accounts, 15% have a balance on store credit for installment credit accounts, 7% have a balance with banks and savings and loan companies, 5% have a balance with credit unions, 4% with finance companies, less than 1% with insurance companies, 10% of consumer units have a balance with doctors, dentists, hospitals, or other medical practitioners for expenses not covered by insurance, and 5% of consumer units have balances with other credit sources.

Results of Preliminary Tests for Stage I Independent Variables

T-tests (Table 2-A) and Chi-square tests (Table2-B) (Appendix) were conducted on continuous and categorical variables, respectively, to examine whether there were significant differences between consumer units who reported zero consumer credit balances outstanding and those who reported positive in the affirmative. The t-tests indicated that there were significant differences: consumer units who reported no outstanding consumer credit balances were older. Chi-square tests also showed that there were significant differences in race, family type, employment status, education level, housing tenure and different types of retirement deductions between consumer units with zero credit balance and those with positive credit balance.

Results of Stage I Logistic Regression Analysis

The results of logistic regression are presented in Table 3 (Appendix). A logistic regression model incorporating only the demographic variables was first estimated (Model I). This produced a -2log likelihood ratio of 9700 and a model chi-square of 442.75 ($P<0.001$). Model II included only economic variables of the consumer units and produced a -2log likelihood of 9480 and a chi-square of 667.23 ($p<0.001$). The full model (Model III), included both demographic and economic variables, resulted in -2log likelihood of 9350 with a model chi-square of 797.98 ($p<0.001$). The pseudo R square also indicates the improvement in the predictive efficiency of the models. The complete results of the estimation of Model III are shown in column five to seven in Table 3 (Appendix). The following analysis focuses on Model III.

Stage I Demographic Variables.

In the final model, consumer units headed by Asians compared to Whites are less likely to have consumer credit balances. The effect of minority status compared to white was initially significant when the effects of the economic variables were not controlled. However, controlling for several economic variables, only the Asian status was shown significantly. Compared to consumer units located in the South region, those who live in the Northeast are more likely to report non-zero consumer credit balances. Families consisting of husband and wife only are less likely to have consumer credit balances than families consisting of other husband and wife types. Controlling for other variables, single persons showed to be less likely to have consumer credit balance than family consisting of husband and wife only.

Compared to consumer units whose reference person works full-time, those who are not working were less likely to incur consumer credit balances. A consumer unit whose reference

person showed some college education or with associate degrees were more likely than their college graduate and above counterparts to have consumer credit balances. Consumer units living in urban areas are less likely to report non-zero consumer credit balances.

Stage I Economic Variables

Consumer units with high incomes, having government, private, or individual retirement contributions were significantly more likely to report non-zero consumer credit balances. Compared to consumer units who own their house with a mortgage, those who own their house without a mortgage, rented a home, or live in student housing and other types were less likely to have a positive consumer credit balance. On the other hand, those who have higher retirement contributions were also less likely to fall into the non-zero credit balance category.

Results of Stage II Multiple Regression Analysis

Table 4 (Appendix) shows the multiple regression results of factors related to consumer units' credit balances amount with an adjusted R-square of 0.22 using the weighted sub-sample of those who reported a positive consumer credit balance.

Stage II demographic variables. The only significant demographic factors of this stage are the education level of the consumer unit reference person and the age of the reference person. Compared to college graduates and above education levels, consumer units headed by persons who are less educated reported a lower consumer credit balance.

Stage II economic variables. Consumer units who reported a high income were more likely to have a high amount of consumer credit balance versus those with low income. Housing tenure and having different types of retirement deductions were not factors affecting the level of consumer credit balance at the consumer unit level.

Stage II credit management variables. The number of total credit sources is positively related to the amount of consumer credit balances. Consumer units with one or two credit sources reported a significantly lower amount of credit balances than those with three or more credit sources. Of the eight credit sources listed in the CEX Survey, having a balance on revolving accounts, having a balance with banks and savings and loan companies, having a balance with finance companies, having a balance with doctors, dentists, hospitals, or other medical practitioners and having a balance with other credit sources were positively related to the amount of consumer credit. Having balances on store credit installment credit accounts and having balances with insurance companies were not significantly related to the dependent variables.

CONCLUSION AND FURTHER RESEARCH

Keynes hypothesis of Absolute Income works, ceteris paribus, however, in reality one's consumption may actually spike above income due to availability of credit. Quick access to credit in the American culture has somewhat loosened liquidity constraints among individual's consumption patterns, at least from the sampling of different consumer units of the 2001 CEX. The middle class may not be as quick to forgo and delay consumption for big ticket items, choosing instead to revolve the purchase from month to month. Americans are not strangers to conspicuous consumption and credit terms as our paper concludes certain demographic and

economic variables can be utilized as predictive factors for consumer credit balance indebtedness.

From the Model I statistics in Table 3 (Appendix), based on demographics, the reference groups of Asians, Blacks, and Hispanics showed less indebtedness tendency compared to Whites when looking at the large sample size. When combining both demographic and economic variables in Model III of the statistics only Asians remained significant at the low consumer credit debt level. This finding may imply that cultural dimensions of consumption may be at work. Hispanics have traditionally been on a cash basis in America just as Asians typically save aggressively. Comparing the sub-sample, Table 4 (Appendix), of those consumers with debt, the Hispanic and Black races remained significant; however, the Asian demographic did not. A longitudinal study using our models and the CEX Survey data could find applicable growth or narrowing trends of the cultural implications of consumption.

When analyzing factors for consumer debt propensity, region of the country became an important statistic. In the large sample of consumers from Table 3 (Appendix), compared to the South, the Northeast showed significance for individuals having consumer debt. This data held true for the sub sample of those individuals with consumer debt reporting as well. The research implies the Northeast shows a greater propensity for consumer debt compared to other regions of the United States, particularly the Midwest region showing the least tendency for consumer debt given the information in the sub sample.

Other noteworthy demographic findings include the inference from the large sample that some college or associate degree level of education is a contributing factor to consumer debt. However, when analyzed in the sub sample of debtors, this same demographic paled in comparison to college graduates and above. Seemingly those with higher levels of education may have better access to credit. Research focusing on other, and more recent CEX surveys in an effort to examine how educational attainment relates to credit awareness and usage are encouraged to further explore the topic.

When employing the economic variables in the respective models, many interesting factors contributing to consumer debt surfaced. Compared to debtors in the sub sample who own their homes and have a mortgage; those individuals who owned without a mortgage had less indication of consumer debt. Considering credit management variables it is interesting to note that of the sub sample figures, those individuals having a balance with banks and savings and loan companies, showed a positive factor implication of consumer debt. It is apparent that as individuals become more liquidity constrained and seek alternative credit and debt servicing debt levels increase proportionately as well, consistent with the literature.

The retirement deduction measurements used in this analysis were the annualized retirement deduction from the respondents' last paycheck. The analysis was aimed to measure only the retirement deduction but not savings. This measurement poses the potential distortion of retirement saving by omitting the money individuals contribute to retirement saving not through paycheck deduction. Further research should use more precise measurements regarding retirement savings. As mentioned earlier, our consumer credit balances outstanding do not include mortgages, home equity loans, vehicle loans, or business related loans. The CEX survey does not exclude another major loan category which is student loan in the consumer credit balance question. Future research using a more clearly defined consumer credit balance variables may provide more insight information on consumer behavior.

It is difficult at best to capture the true definitional essence of consumer debt. This paper has shown that even in definitional distress, certain factors of consumption from the 2001

Consumer Expenditure Survey can be predictors to those individuals showing consumer indebtedness. Future research would include as mentioned above, longitudinal data analysis. Multiple CEX Survey data would be helpful in analyzing varying degrees of statistical inferences and possible trending.

REFERENCES

Durkin, T.A. (2000). Credit Cards: Use and Consumer Attitudes, 1970-2000. *Federal Reserve Bulletin*. September, 2000. 623-34.

Durkin, T.A. (2002). Consumers and Credit Disclosures: Credit Cards and Credit Insurance. *Federal Reserve Bulletin*. April, 2002. 201-13

Dusenberry, J.S. (1959). Income, saving and the theory of consumer behavior. Cambridge: Harvard University Press.

Federal Reserve Statistical Release: Consumer Credit. (February 2005). Board of Governors of the Federal Reserve System.

Garner, A.C. (1996). Can Measures of the Consumer Debt Burden Reliably Predict An Economic Slowdown? *Federal Reserve Bank of Kansas City Economic Review*. Fourth Quarter. 63-76.

Grieb, T., Hegji, C., & Jones, S. T. (2001). Macroeconomic Factors, Consumer Behavior, and Bankcard Default Rates. *Journal of Economics and Finance*, 25(3), 316-26.

Gross, D. B., Souleles, N.S. (2002). Do liquidity constraints and interest rates matter for consumer behavior? Evidence from credit card data. *The Quarterly Journal of Economics*, February 2002.

Jappelli, T., Pischke, J.S., & Souleles, N.S. (1998). Testing for Liquidity Constraints in Euler Equations with Complementary Data Sources. *The Review of Economics and Statistics*, 80(2), 251-62.

Kennickell, A.B., Starr-McCluer, M., & Surette, B.J., (2000). Recent Changes in U.S. Family Finances: Results from the 1998 Survey of Consumer Finances. *Federal Reserve Bulletin.* January 2000. 1-29.

Keynes, J.M. (1936). The General Theory of Employment, Interest and Money. Macmillan Cambridge University Press, for Royal Economic Society in 1936.

U.S. Department of Labor. 2003. Consumer Expenditures in 2001. Bureaus of Labor Statistics. Retrieved May 12, 2005,from http://www.bls.gov/cex/csxanno1.pdf.

Wood, M. (1998). Socio-economic status, delay of gratification, and impulse buying. *Journal of Economic Psychology*, 19, 295-320.

APPENDIX

Table 1
Descriptive Statistics: Mean (Standard Error)

Variables	Full sample (n=7579)	Consumer units with consumer credit balance only (n=2068)
Demographic Variables		
Age	48.22(17.44)	45.81 (14.80)
Race:		
White	75.56%	78.0%
Hispanic	8.52%	7.85%
Asian	3.40%	3.03%
Black	11.61%	10.11%
Other race	0.88%	0.98%
Region:		
South	35.65%	34.01%
Northeast	18.95%	19.25%
Midwest	23.42%	23.76%
West	21.98%	22.99%
Family Type:		
Husband and Wife only	21.07%	21.10%
Husband/Wife with children	25.95%	31.88%
Other Husband and Wife types	4.17%	5.46%
Single parent with children	5.98%	5.46%
Single person	29.65%	23.09%
Other Cus	13.17%	13.01%
Employment status of reference person		
Full-time working	58.56%	68.66%
Part-time working	12.94%	12.94%
Not working	28.50%	18.40%
Education level:		
High school and Below	45.05%	38.14%
Some college or Associate degree	29.17%	32.78%
College graduate and above	25.79%	29.08%
Urban/Rural:		
Rural	12.76%	13.34%
Urban	87.24%	86.66%
Economic Variables		
Total CU income before taxes in the past 12 months/1000	37.20(44.42)	548.70 (45.66)
Annualized amount of retirement contribution (include railroad retirement, government retirement, private pensions and individual retirement plan) / 1000	0.8670(3.18)	1.2568 (3.67)

Housing Tenure:		
Owned with mortgage	39.72%	52.56%
Owned w/o mortgage	26.23%	18.90%
Rented	32.72%	27.73%
Student Housing and other types	1.35%	0.81%
Have Railroad Retirement contribution	0.07%	0.10%
Have government retirement contribution	2.63%	4.14%
Have private pensions contribution	9.18%	14.82%
Have individual retirement contribution	9.57%	14.22%
Credit Management Variables		
Number of credit sources have balance outstanding not include mortgage, home equity loans, vehicle loans, or business related loans:		
Have only one credit source	28.13%	71.83%
Have two credit sources	8.67%	22.14%
Have three or more sources	2.37%	6.03%
Have balance on revolving credit accounts	34.94%	89.22%
Have balance on store credit for installment credit accounts	5.82%	14.86%
Have balance with banks and savings and loan companies	2.76%	7.04%
Have balance with credit union	1.90%	4.85%
Have balance with finance companies	1.58%	4.04%
Have balance with insurance companies	0.12%	0.30%
Have balance with doctors, dentists, hospitals, or other medical practitioners for expenses not covered by insurance	3.81%	9.74%
Have balance with other credit sources	2.10%	5.36%

Table 2-A
Weighted Sample T-tests of differences in characteristics of consumer units between Non-Consumer credit balance and consumer credit balance

	No outstanding consumer credit balance (n=4611)	Have outstanding consumer credit balance (n=2968)	Sig.
Age of reference person in years	49.76	45.81	***
Total CU income before taxes in the past 12 months/1000	29.80	48.70	***
Annualized amount of current retirement deduction (include railroad retirement, government retirement, private pensions and individual retirement plan) / 1000	0.6161	1.2568	***

*P<0.05, **P<0.01, ***P<0.001

Table 2-B

Weighted Sample Chi-Square tests for differences in characteristics of consumer units between Non-Consumer credit balance and Consumer credit balance

	No outstanding consumer credit balance (n=4611) %	Have outstanding consumer credit balance (n=2968) %	Sig.
Demographic Variables			
Race:			
White	73.98%	78.0%	
Hispanic	8.96%	7.85%	**
Asian	3.64%	3.03%	
Black	12.58%	10.11%	
Other race	0.82%	0.98%	
Region:			
South	36.70%	34.01%	
Northeast	18.74%	19.25%	
Midwest	23.21%	23.76%	
West	21.34%	22.99%	
Family Type:			
Husband and Wife only	21.04%	21.10%	
Husband/Wife with children	22.16%	31.88%	
Other Husband and Wife types	3.34%	5.46%	***
Single parent with children	6.31%	5.46%	
Single person	33.88%	23.09%	
Other Cus	13.27%	13.01%	
Employment status of reference person			
Full-time working	52.07%	68.66%	***
Part-time working	12.95%	12.94%	
Not working	34.98%	18.40%	
Education level:			
High school and Below	49.47%	38.14%	
Some college or Associate degree	26.85%	32.78%	***
College graduate and above	23.68%	29.08%	
Urban/Rural:			
Rural	12.38%	13.34%	
Urban	87.62%	86.66%	
Economic Variables			
Housing Tenure:			
Owned with mortgage	31.44%	52.56%	
Owned w/o mortgage	30.94%	18.90%	***
Rented	35.93%	27.73%	
Student Housing and other types	1.69%	0.81%	
Have Railroad Retirement	0.04%	0.10%	

Otherwise	99.96%	99.90%	
Have government retirement	1.65%	4.14%	***
Otherwise	98.35%	95.86%	
Have private pensions	5.55%	14.82%	***
Otherwise	94.45%	85.18%	
Have individual retirement	6.55%	14.22%	***
Otherwise	93.45%	85.78%	

*P<0.05, **P<0.01, ***P<0.001

Table 3

Weighted Sample Logistic Regressions Models for presence of consumer credit balance (n=7579)

Independent variables	Model I		Model II		Model III		Standard Error	Wald Chi-square	Odds ratio
Demographic Variables									
Age of reference person	-0.002				-0.004		0.002	3.164	
Race: White (ref)	-------				-------				
Hispanic	-0.244	**			-0.118		0.093	1.531	
Asian	-0.432	***			-0.367	*	0.144	6.468	0.693
Black	-0.209				-0.114		0.084	1.872	
Other race	0.167				0.212		0.259	0.671	
Region: South (ref)	-------				-------				
Northeast	0.116				0.155	*	0.072	4.645	1.168
Midwest	0.060				0.022		0.067	0.110	
West	0.101				0.085		0.070	1.485	
Family Type: Husband and Wife only (ref)	-------				-------				
Husband/Wife with children	0.186	**			0.023		0.077	0.090	
Other Husband and Wife types	0.516	***			0.387	**	0.132	8.564	1.472
Single parent with children	-0.232				-0.084		0.122	0.472	
Single person	-0.401	***			-0.170	*	0.076	5.027	
Other Cus	-0.045				0.014		0.091	0.024	
Employment status: Full-time work (ref)	-------				-------				
Part-time working	-0.228	**			-0.038		0.076	0.255	

Not working	-0.707	***			-0.400	***	0.072	31.042	0.670
Education level:									
College graduate and above (ref)	-------				-------				
High school and Below	-0.290	***			-0.013		0.068	0.037	
Some college or Associate degree	0.067				0.267	***	0.069	15.079	1.306
Urban/Rural:									
Rural (ref)	-------				-------				
Urban	-0.101				-0.174	*	0.078	4.995	0.841
Economic Variables									
Consumer Unit income /1000			0.007	***	0.006	***	0.001	62.438	1.006
Housing Tenure:									
Owned with mortgage (ref)			-------		-------				
Owned w/o mortgage			-0.800	***	-0.614	***	0.070	75.795	0.541
Rented			-0.540	***	-0.489	***	0.066	55.308	0.613
Student Housing and other types			-0.922	***	-0.997	***	0.248	16.169	0.369
Total retirement contribution /1000			-0.058	***	-0.050	***	0.011	22.598	0.951
Have Railroad Retirement contribution			0.425		0.315		0.921	0.117	
Have government retirement contribution			0.584	***	0.506	**	0.156	10.492	1.659
Have private pensions contribution			0.855	***	0.794	***	0.100	63.594	2.213
Have individual retirement contribution			0.604	***	0.548	***	0.094	33.910	1.730
Intercept	0.416		-0.426		-0.066				
-2 Log likelihood function	9700.71		9480.690		9349.95				
Chi-square	442.75	***	667.23	***	797.98	***			
Pseudo R-square	0.08		0.12		0.14				
*P<0.05,*P<0.01,	***P<0.001								

Table 4
Weighted Sample Multiply Regression model for Consumer Credit Balance (n=2967)

Independent variables	b		Beta	t
Demographic Variables				
Age of referent person	33.753	***	0.045	2.137
Race: White (ref)				
Hispanic	-885.170		-0.021	-1.233
Asian	882.152		0.014	0.810
Black	-98.633		-0.003	0.876
Other race	863.007		0.008	0.463
Region: South (ref)				
Northeast	656.889		0.023	1.230
Midwest	-349.751		-0.013	-0.709
West	411.68		0.015	0.803
Family Type: Husband and Wife only (ref)				
Husband/Wife with children	378.309		0.016	0.695
Other Husband and Wife types	39.695		0.001	0.044
Single parent with children	685.871		0.014	0.750
Single person	270.586		0.010	0.467
Other Cus	712.481		0.021	1.070
Employment status: Full-time work (ref)				
Part-time working	555.708		0.017	0.988
Not working	122.832		0.004	0.215
Education level: College graduate and above (ref)				
High school and Below	-1770.460	***	-0.077	-3.601
Some college or Associate degree	-868.300	***	-0.036	-1.796
Urban/Rural: Rural (ref)				
Urban	904.545		0.028	1.597
Economic Variables				
Consumer Unit income /1000	41.015	***	0.168	8.637
Housing Tenure: Owned with mortgage (ref)				
Owned w/o mortgage	-1039.212		-0.036	-1.938
Rented	-446.866		-0.018	-0.921
Student Housing and other types	1457.221		0.012	0.701
Total retirement contribution /1000	-85.141		-0.028	-1.328

Have Railroad Retirement contribution	-9212.476		-0.025	-1.534
Have government retirement contribution	-743.547		-0.013	-0.796
Have private pensions contribution	278.411		0.009	0.469
Have individual retirement contribution	-610.300		-0.019	-1.046
Credit Management Variables				
Number of credit sources have balance outstanding not include mortgage, home equity loans, vehicle loans, or business related loans: two and less (ref)				
Have three and more credit sources	5612.376	***	0.120	4.868
Have balance on revolving credit accounts	4416.235	***	0.123	6.113
Have balance on store credit for installment credit accounts	253.306		0.008	0.437
Have balance with banks and saving sand loan companies	9857.535	***	0.226	12.297
Have balance with credit union	5579.419	***	0.107	5.954
Have balance with finance companies	3496.355	**	0.062	3.404
Have balance with insurance companies	2148.109		0.011	0.653
Have balance with doctors, dentists, hospitals, or other medical practitioners for expenses not covered by insurance	1743.422	*	0.046	2.417
Have balance with other credit sources	13224.237	***	0.266	14.503
Intercept				

*P<0.05, **P<0.01, ***P<0.001

Note: F=24.277*** Adjusted R^2= 0.22 DW=1.89