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Economic and Demographic Factors Associated With Consumer Debt Use

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ECONOMIC AND DEMOGRAPHIC FACTORS ASSOCIATED WITH CONSUMER DEBT USE

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Abstract

This paper analyzes factors associated with consumer debt use to identify the probable effects of market deregulation, tax reform and demographic shifts on household leverage. The results suggest that deregulation of credit markets can account for a significant portion of the increase in credit outstanding relative to disposable income since 1983. The growth of the incidence of two income families has also had a positive effect on the household debt burden measure. Finally, debt-use and the amount of debt used relative to income is significantly higher for households that itemize deductions for tax purposes. Tax reform that alters the tax incentives for using debt can be expected to have a significant negative effect on the amount of consumer credit held by high-income families.

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A. Charlene Sullivan and Debra Drecnik Worden

The market for consumer credit has undergone dramatic changes in the recent past, the most important being extensive deregulation and the development of a national market for consumer credit products. These developments have been accompanied by an increase in the supply of credit. As credit outstandings have grown, many have expressed concern about consumers' ability to judge their own credit worthiness and the amount of credit they can manage. This paper analyzes the economic, demographic and policy variables related to (1) whether a household unit uses consumer credit and (2) the amount of credit used relative to household income. The purpose of the analysis is to identify the effects of deregulation, tax reform and demographic trends on consumer credit decisions.

The first section of the paper describes the data analyzed in the study while the second section deals with consumer credit market conditions as they existed in 1983 when the household survey data analyzed in the study were collected. The latter discussion provides the reader with an environmental framework within which to interpret the results of the analysis. In the third section, the multivariate analyses of the factors related to household use of consumer credit are presented. In the final section of the paper, we discuss the implications of the results of the cross-sectional analysis especially with regard to the effects of tax reform and deregulation.

I. The Data

In 1983, a national sample of 3,824 households participated in a survey in which a complete inventory of assets and liabilities was taken. Further, information about attitudes, risk preferences, savings intentions and experience with creditors was collected. This study uses those data to identify factors related to the household debt-use decision. There have been dramatic changes in the consumer credit market in the last six years so an important part of this study is the documentation of credit market conditions as they existed at the time the data were collected.

II. Conditions in the Consumer Credit Market

The consumer credit market was in a state of transition in 1983. Interest rates had peaked in 1982. In response to inflation-driven rate pressures, many states totally deregulated consumer loan rates between 1980 and 1983. The official bottom of the last business cycle was recorded in November 1982 and, relatively speaking, households had a low amount of consumer debt obligations relative to disposable income and liquid asset balances.

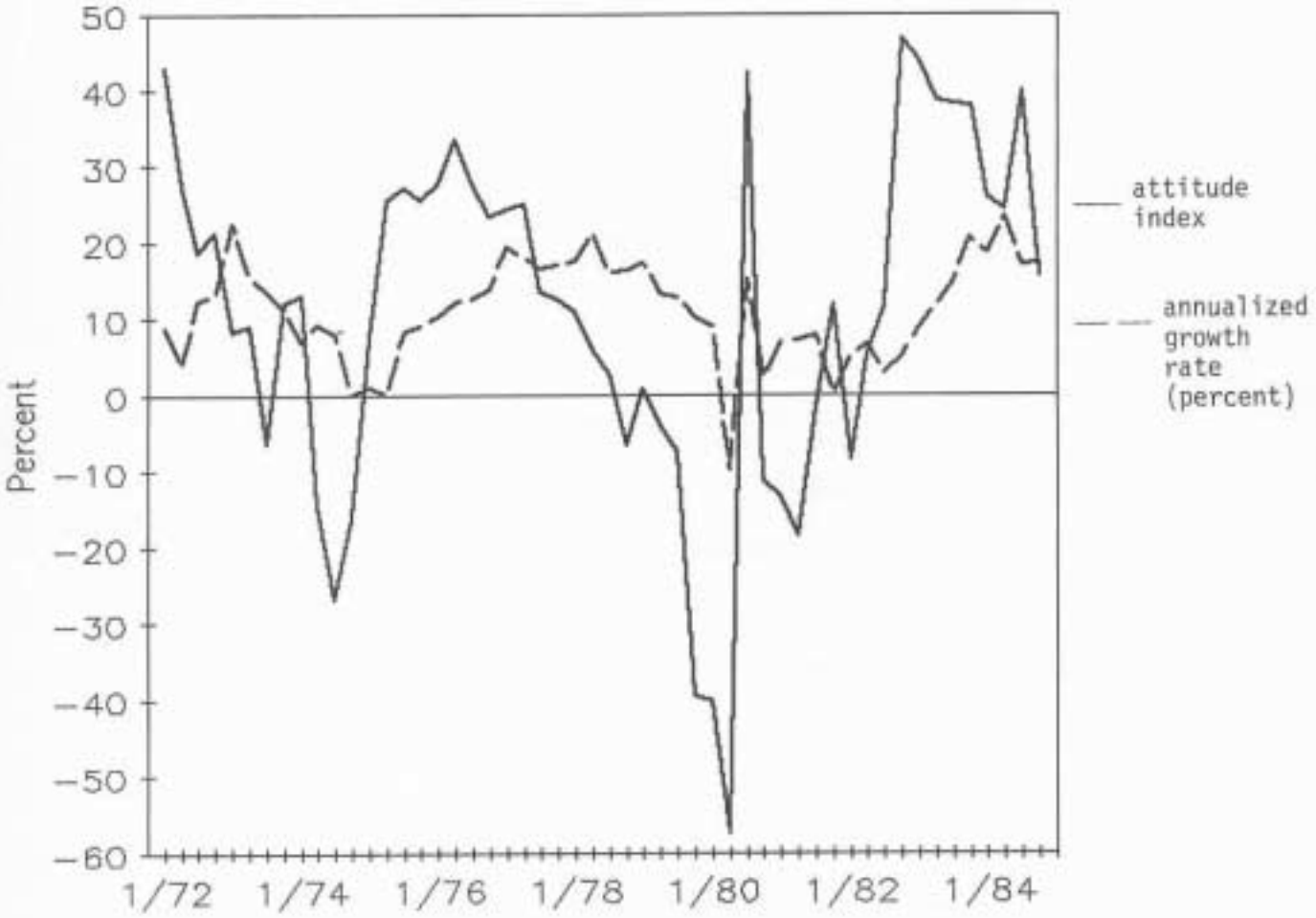
A. Deregulation

After the high inflation of the late 1970s, many state legislatures passed laws that raised or totally removed the rate ceilings that applied to prices for various types of consumer credit. In 1983, 20 states limited the rate that could be charged to 18 percent or below, but in most cases these ceilings were above the market rate of interest and so were not binding. The remaining states were either totally deregulated or had ceilings above 18 percent.

The effect of interest rate ceilings on the supply of credit in the last 14 years can be seen in Exhibit 1--a chart of an index of bankers' willingness to extend consumer installment credit overlaid with a chart of the annualized growth rate of total consumer credit outstanding from quarter to quarter. The index of willingness is

Exhibit 1

Lender Attitudes and Credit Growth Rates



January 1972 to December 1984

SOURCE: Credit Research Center, Purdue University

the net difference between the percentage of banks that responded in quarterly "Bank Lending Practices" surveys (collected and reported by the Federal Reserve Board) that were "more" rather than "less" willing to make consumer installment loans than they were three months previously. Over time, increases in the index of bankers' willingness to extend consumer installment credit have been associated with the extent to which existing rate ceilings were binding. When lenders' opportunity cost moved close to or exceeded consumer credit ceilings, bankers became less aggressive in marketing consumer credit.

In 1974 and 1980 the general level of interest rates was high relative to rates allowed under existing rate ceilings. In both periods, there was a sharp decline in the bankers' willingness index. The annualized quarterly growth rate of consumer credit fell in 1974-75 and from 1980 to mid-1982.

In the second half of 1982 and early 1983, the index of bankers' willingness to extend consumer credit increased sharply and credit outstanding grew steadily during 1983. We conclude from the data presented in Exhibit 1 that, during the period of our study, consumers did not have great difficulty finding lenders interested in making consumer loans. However, tight conditions just prior to the data-collection period could have had an effect on the results of our analysis, especially among consumers who had been turned down for credit between 1980 and 1982.

B. The State of Revolving Credit

Tremendous change characterized the revolving credit market in the late 1970s and early 1980s. The most noteworthy development was the Marquette National Bank decision by the Supreme Court (1978) which enabled national banks to issue credit cards to consumers and charge rates determined by the rate structure of the state in which the bank was domiciled rather than that of the state in which the consumer resided. In 1979, South Dakota removed its rate ceiling, attracting national banks to set up credit card operations there. Citicorp moved its credit card operation to South Dakota and initiated its first nationwide solicitation campaign for bank credit cards to five million customers in 35 states in 1981.

Although much of the deregulation for credit cards occurred between 1980 and 1982, there was little change in aggregate credit card statistics during that time period (Table 1). Credit card activity changed dramatically between 1982 and 1983.Since 1982, there has been a rapid increase in the number of cardholders, the average size of account, and in the importance of credit cards as a transactions medium.

Table 1

Growth of Bank Card Credit

	Credit Card Purchasing As Percentage of Non-housing expenditures (all cards)	Number of Active Visa and Master Card Accounts (millions)	Average Outstanding Balance per Active Account (Visa & MasterCard)
1980	12.6%	48.8	$509
1981	12.5	46.5	532
1982	12.1	49.9	537
1983	13.6	54.2	585
1984	15.5	64.5	650
1985 (2^{nd} qtr)	15.0	68.9	653

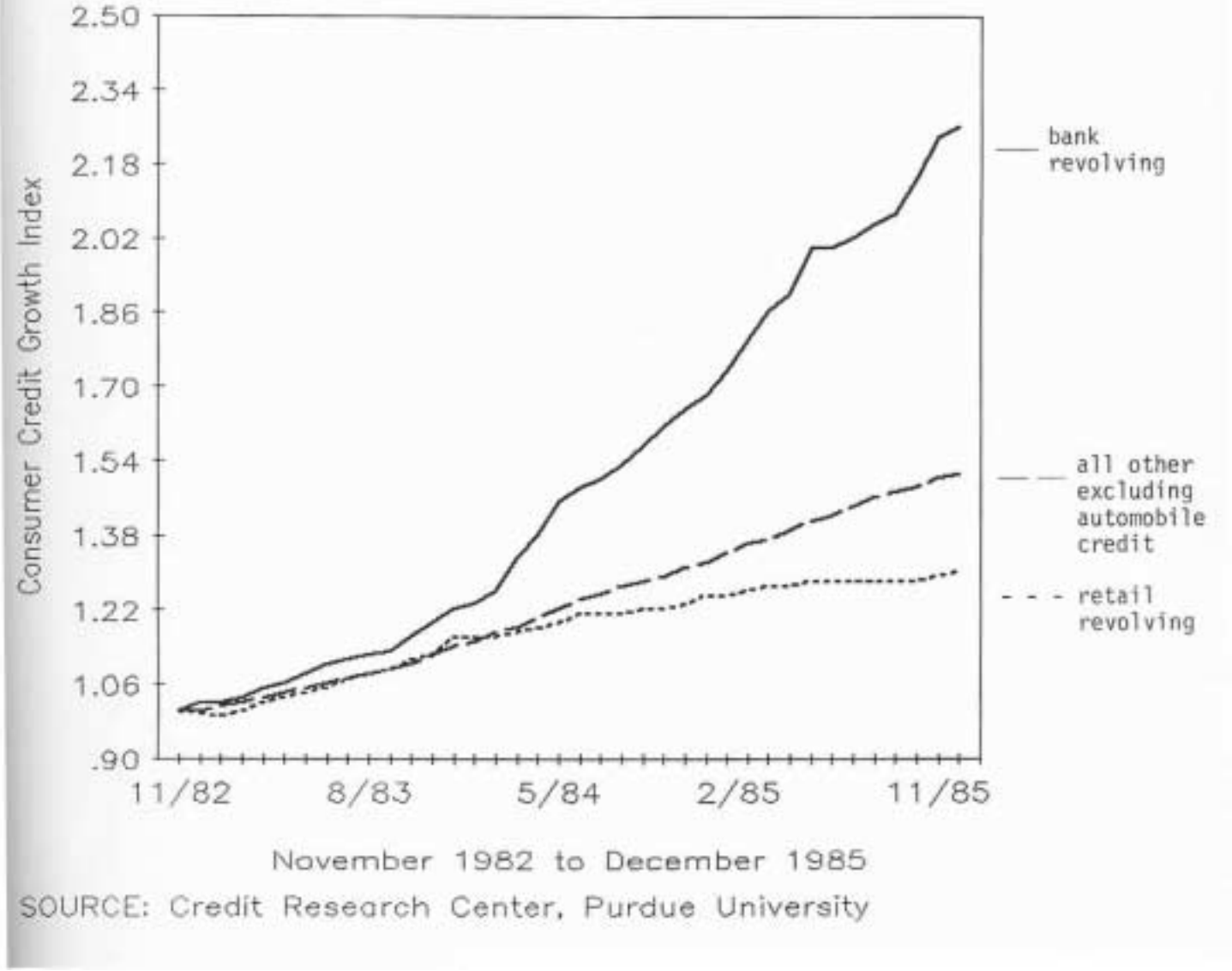
SOURCE: Demuth "The Case Against Credit Card Interest Rate Regulation," Yale Journal on Regulation, 3 (Spring 1986)

During 1983, revolving credit from commercial banks was increasing faster than retail credit and nonautomotive consumer credit by a slight margin (Exhibit 2). Late in 1983, revolving credit outstanding held by banks surged and continued to climb at a dramatically faster pace than other forms of nonautomotive credit until the end of 1985.

The implication of this market condition is that the effects of credit cards on consumers' general willingness to use consumer debt will not be as pronounced in the analysis of data collected in 1983 as would be the case if the analysis were based on data collected in later years. However, many consumers in the sample had credit cards and used them regularly. And, although enabling legislation had not been around for long,

Exhibit 2

Consumer Credit Growth Index



November 1982 to December 1985

SOURCE: Credit Research Center, Purdue University

some of the policies of lenders operating in deregulated markets can be identified by examining the differences in the characteristics of the cardholding base in 1977 and 1983.

Canner and Cyrnak found that general patterns in card ownership and card usage changed very little between 1977 and 1983. Ownership of bank cards, in particular, had changed little, but there were interesting changes in bank card usage patterns. Between 1970 and 1977 there were large changes in the percent of high-income households that used bank cards. As high-income households' demand for credit cards was satisfied in the early stages of the market expansion, there were relatively small changes in the percentage of high income families using cards between 1977 and 1983 (Table 2). Instead, the use of bank cards by the

lowest-income households increased dramatically during the later period as card issuers loosened credit standards in their conquest for new cardholders in new markets.

Table 2
Changes in Percentage of Households Using
Bank Cards by Card Holder Income

Family Income (current dollars)	1970-1977	1977-1983
$5,000-7,499	+33%	+200%
7,500-9,999	250	170
10,000-14,999	114	60
15,000-19,999	200	38
20,000-24,999	107	29
25,000-29,999	95	19
30,000-39,999	72	19
40,000-49,999	65	20
> 50,000	92	9

SOURCE: Calculated from data presented in Canner and Cyrnak, 1985

C. The Marketing of Auto Loans

In 1977 the average new auto loan contract written by an auto finance company had a maturity of 40 months. The most likely maturity increased steadily until 1983 (Exhibit 3). The effect of lengthening maturities is to allow a borrower to purchase a larger, more expensive car or to accept a contract with a higher annual percentage rate, while keeping the size of the monthly payment low. With the lengthening of maturities, monthly auto payments relative to monthly disposable income declined from 2.0 percent in 1979 to 1.6 percent in 1983.[1]

The marketing strategy to lengthen maturities of auto loans may have had a significant influence on the probability of credit use measured in 1983. This is evidenced by the fact that the size of the monthly payment was considered the most important term in an auto credit contract by almost 31 percent of households surveyed in 1983 (Table 3).

Financial affiliates of manufacturers offered special incentive rates on auto loans for the first time, but on a limited scale, in the summer of 1981 and in early 1982. These early programs were not based on deep discount rates. The first program with a significant discount in the loan rate was introduced in late 1982. Therefore, some of the borrowers in the sample probably had taken out auto loans with the discounted rates. However, the effect of the discount loan rate programs will not be as pervasive as would be the case had the analyses been based on data collected more recently.

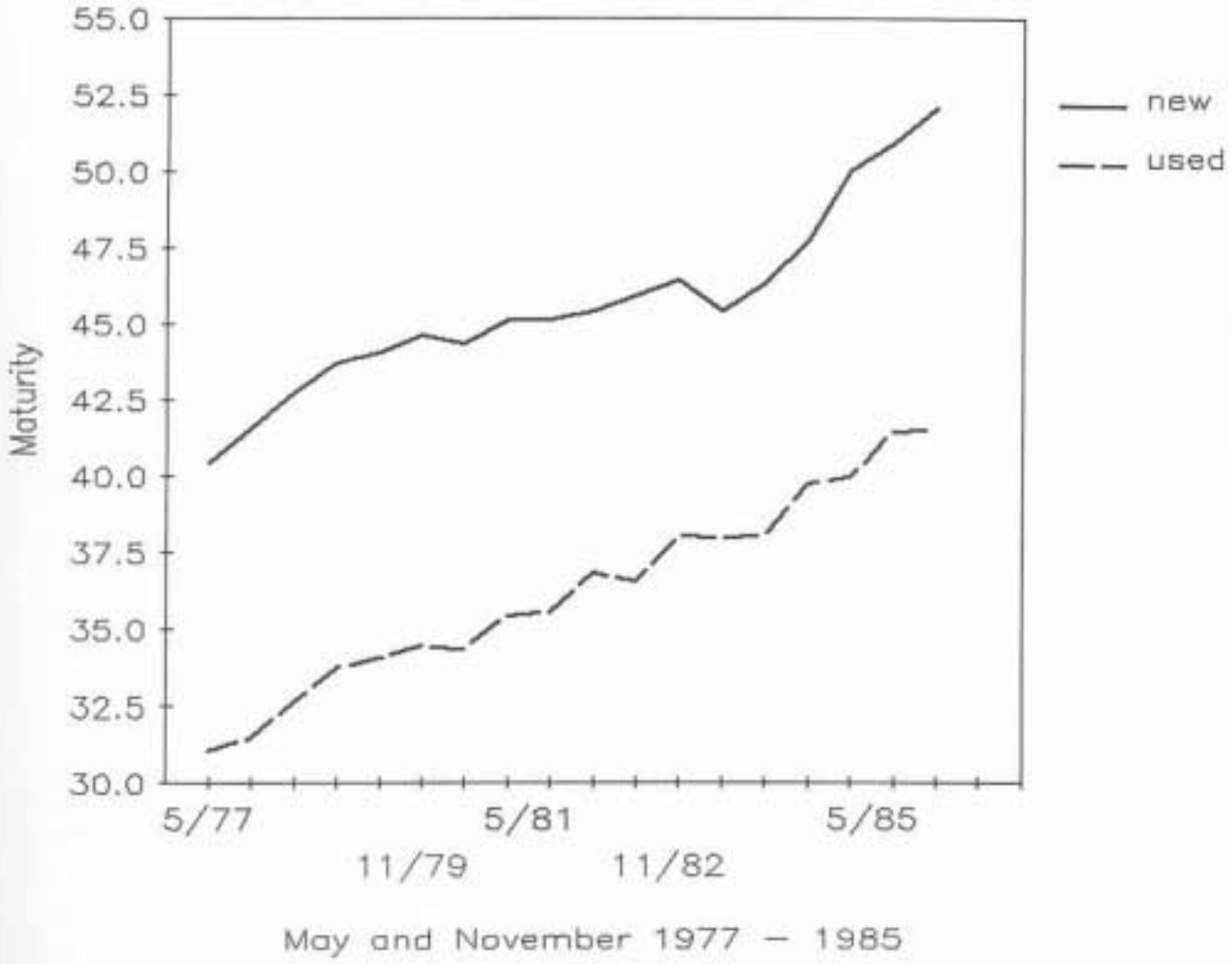
[1] Business Week, October 21, 1985, p.24.

Exhibit 3

Average Maturity for Auto Loans

From Finance Companies

(months)



May and November 1977 – 1985

SOURCE: Federal Reserve Board

Table 3
Relative Importance of Credit Terms: Automobile Loans

Loan Characteristic	Percent Ranking First	Percent Ranking Not in Top 3
Loan size	19.4	48.0
Dollar amount of finance charge	16.1	50.2
Monthly payment size	31.6	22.4
Annual percent interest rate	19.2	44.7
Late payment charge	0.2	92.0
Rebate for early payoff	1.8	79.4
Loan collateral	1.0	86.4
Down payment	6.6	57.9

SOURCE: 1983 Survey of Consumer Finances, Federal Reserve Board of Governors.

D. The After-Tax Real Cost of Credit

An economic variable that could be an important factor in consumers' decision to use credit is the expected after-tax real cost of credit. During the years prior to the collection of the survey data, the rate of inflation had been very high, pushing down the real cost of credit. And, many middle-income consumers had been pushed into higher marginal tax brackets by inflationary increases in income, further reducing their after-tax cost of using credit. To get an idea of the real cost of credit during the year when the survey data were collected, we estimated the annual after-tax real rate for a new auto loan from a commercial bank for each year from 1972 to 1984. In 1983 the anticipated real after tax cost of credit was relatively low (Exhibit 4), given the assumption that consumers estimate future inflation by extrapolating from the past.

In the chart, the after-tax cost of credit for the average consumer is a weighted average based on the fact that about 62 percent of the tax returns do not list itemized deductions. The lower line represents the cost of credit for the taxpayer who itemizes deductions and pays taxes at a marginal rate equal to the average tax rate paid by all taxpayers. This low level of the expected real cost of credit may have had an especially important influence on the debt use decisions of middle to high income consumers.

Table 4
Percent of Households in Debt and Share of
Total Debt, by Income Quintile 1970, 1977, 1983

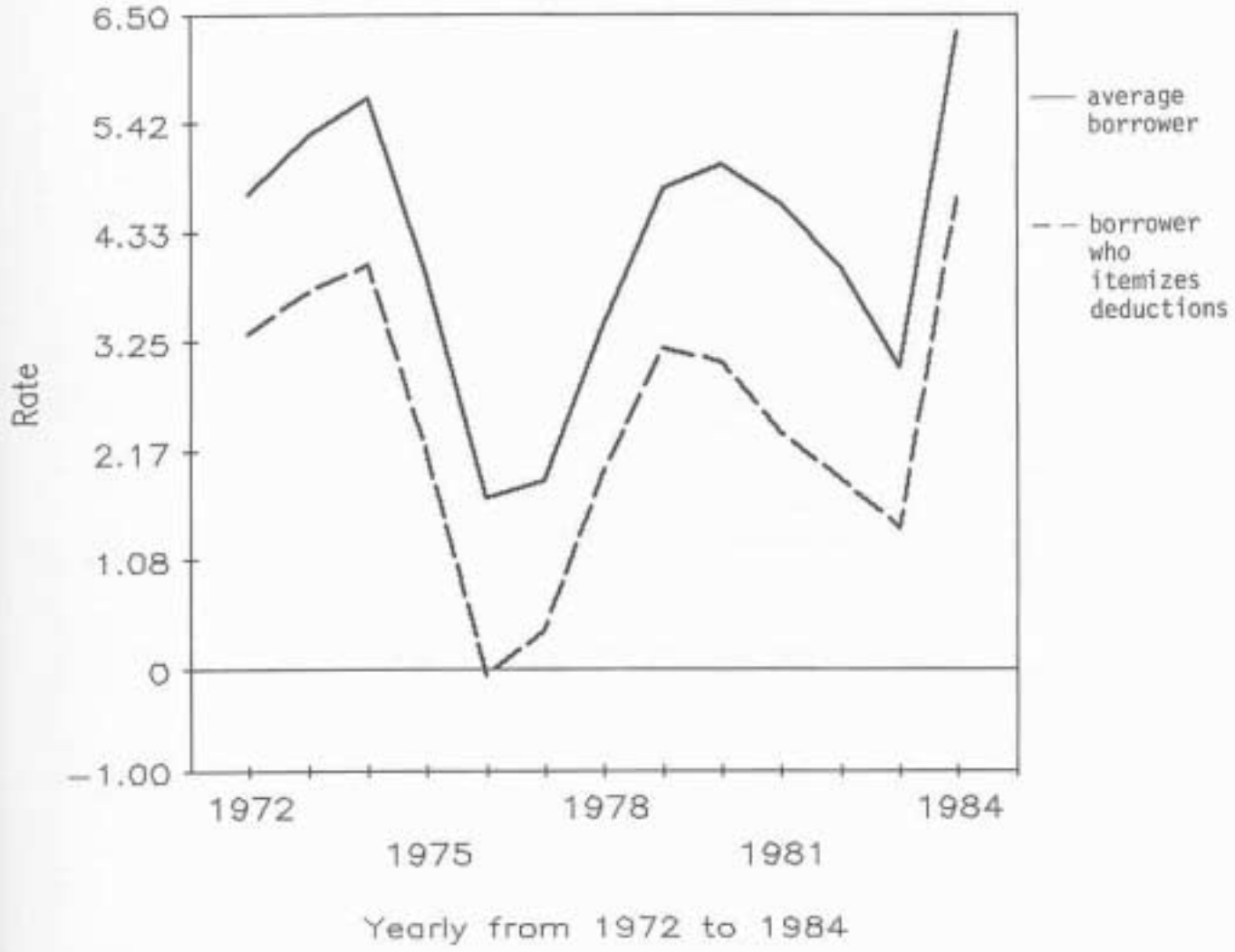
			Income	Quintiles		
Year	Lowest	Second	Third	Fourth	Highest	
	Proportion	Of	Households	In	Debt	
1970	23%	47%	61%	67%	47%	
1977	20	51	63	65	58	
1983*	29	49	53	60	61	
	Share	Of	Total	Debt in	Survey	Totals
1970	4%	15%	31%	28%	22%	100%
1977	4	12	20	28	37	100
1983*	4	11	17	26	42	100

*includes revolving credit card debt only; the convenience use of credit cards is not included.
SOURCES: 1977 Consumer Credit Survey and 1970 and 1983 Survey of Consumer Finances.

Exhibit 4

After-Tax Real Cost of New Auto Loan

(from commercial banks)



SOURCE: Credit Research Center, Purdue University

Households in the highest income quintile experienced the greatest increase in the probability of debt use between 1970 and 1983 (Table 4). Additionally, the percentage of the total debt in the sample increased noticeably for the highest income quintile between 1970 and 1983.

Based on the evidence that debt use increased rapidly among consumers who were in a position to realize the tax shield advantage of debt, the tax incentives associated with debt may significantly influenced credit use decisions. This question is investigated further in the cross-sectional analysis.

From this analysis of the consumer credit market conditions that existed in 1983, we conclude that at the time the data for this study were collected, markets were relatively unconstrained by regulation. Consumer credit outstanding relative to income was growing from the low reached at the bottom of the business cycle in November 1982. The anticipated real cost of credit was at a historically low level, especially for those borrowers who itemized their deductions. Revolving credit was being made increasingly available to lower-income, higher-risk consumers. And the financial affiliates of auto manufacturers had adjusted both the maturity and rate terms of auto credit contracts to increase the affordability of auto credit.

III. Cross-Sectional Analysis on Household Debt Use

Households use consumer credit to fund current consumption. Thus, demand for credit is a derived demand, based on the household's demand for consumption. We hypothesized that the probability of debt use and the amount of debt used by the household is a function of the socio-demographic and financial attributes of the household which are related to its consumption demand. Further, demand for credit may be influenced by individual attitudes toward credit use and tax-related incentives. Finally, local market conditions such as legislation (rate ceilings) may alter households' willingness or ability to use consumer credit.

A. The Probability of Debt Use

In this section we examine those factors which systematically impact the decision of the household to finance consumption through debt. The estimated regression model allows us to identify the effect of specific independent variables on the probability that a household will have consumer installment debt in its financial portfolio. The dependent variable takes the value of one if the household had consumer debt outstanding at the time of the survey, and zero otherwise. The debt measure includes consumer installment and revolving credit card debt. Mortgage and rent payments, irregular payment debt, amounts owed on lines of credit (other than credit cards), and balances on credit cards which were paid off every month were excluded.[2]

[2] Of those consumers who reported holding credit cards, 48 percent said they paid all balances in full each month. Most nonrevolvers reported zero credit card balances, further confirming that they did not consider the credit balance as debt. Including nonrevolving credit card debt in our analyses did not alter the results significantly.

Table 5

Factors Associated With The Probability of Consumer Debt Use in The Household Balance Sheet

Independent Variable	Estimated Coefficients	t-statistics
Life cycle stage		
Young single	-0.1*	-3.22
Single parent	-0.1*	-3.04
Older/working	-0.1*	-3.60
Older/retired	-0.2*	-6.45
Mortgage	0.1*	8.11
Number in household	$2E^{-2}$*	3.26
Two-incomes	0.1*	3.09
Region of residence		
West	0.1*	2.29
South	$4E^{-2}$*	2.36
Income related measures		
Income	$6E^{-7}$	0.72
Income squared	$5E^{-13}$	0.26
Stable income	0.1*	6.39
Relative income		
Yng single-Hi	0.1*	3.25
Sing parent-Hi	0.1*	2.04
Old/Wrk-Hi	$2E^{-2}$	0.67
Old/Ret-Hi	$-3E^{-2}$	-0.89
FamForm-Hi	$2E^{-2}$	0.55
Liquid assets	$-6E^{-6}$*	-7.51
Liquid squared	$2E^{-11}$*	5.00
Attitude towards credit		
Good idea	$4E^{-2}$*	2.27
Bad idea	-0.1*	-5.58
Interest rate regulation		
Low ceiling	$2E^{-2}$	0.77
Prior rejection	0.1*	3.09
Constant	0.4	10.23
adjusted R2	0.24	
number of observations	3359	

*significant at the 95 percent level of confidence

The results of the analysis of the probability of household debt use are presented in Table 5.[3] A significant negative sign on an estimated coefficient indicates an inverse relationship between the probability that the household uses consumer credit and the magnitude of the explanatory variable, whereas a positive sign means that a greater likelihood of using debt is associated with higher values of the variable. In the case of a 0-1 binary variable, a significant negative (positive) coefficient indicates that the likelihood that the household uses consumer credit is less (greater) when the variable takes the value of one than when it takes the value of zero.

Socio-Demographic Variables. A household's demand for consumer credit is hypothesized to be a significant function of its life cycle stage. Young households in their family formation years (couples under 45 years of age) have high consumption demand relative to their stream of earnings. They are highly likely to use credit to smooth out the differences in the time pattern of consumption needs and income. The results of the analysis shows that these households were significantly more likely to use consumer credit than young single people or young single parents. Older households typically have lower consumption needs and were significantly less likely, relative to young couples, to use consumer credit. (In the analysis, couples under 45 years of age were included in the constant term. The coefficient on the life cycle variable measured differences between households in other stages of life and this group.)

Because of the growing number of households consisting of single parents with children present and young single persons, measures of the relative incomes for these life cycle stages were included in the analysis. Although significantly less likely to use installment debt than young families, the probability of debt use by those householders was a function of their relative income. Consumers in these two stages, whose income was above the medians for their peer groups, were significantly more likely to use consumer credit. These results may have captured the heterogeneity of individuals within these groups, as those with higher incomes are likely to have a significantly greater amount of human capital (higher education and upward mobility) to rely on for the repayment of debt. These individuals may be considered more creditworthy by lenders than their peers with lower relative income and less human capital.

The number of persons living in the household was included in the analysis to capture an additional aspect of consumption demand. As expected, holding all else constant, the number of persons living in the household had a significant positive influence on the probability that a household used installment debt.

Financial Variables. The level of its annual income was not related to the probability that the household used consumer credit in 1983. In contrast to these results, similar analysis of data collected in 1956 showed that the probability of credit use increased significantly with the level of household income, but at a decreasing rate.[4]

The absence of a relationship between the level of household income and the probability of debt use in the later data may be a reflection of the effects of deregulation and innovation on the supply of credit. Deregulation of interest rates and the increased availability of credit cards have increased the return and reduced the cost from providing small amounts of credit for low-income consumers, and the supply of credit products available to them has increased. The cost of consumer credit by high-income households has also changed since 1956 with tax incentives for using credit, the proliferation of credit cards, and special financing programs by auto manufacturers.

Although the level of income did not influence the probability of household debt use, the stability of earnings did. A household was more likely to use consumer instalment debt if at least one income earner in the household was employed in a stable industry, where stable implied that employment is relatively invariant to

[3] Table A.1 in the appendix defines the explanatory measures, and able A.2 presents the mean values of all variables in the analyses.
[4] See Lansing, Maynes and Kreinin, 1956.

changes in the business cycle. The study based on data collected in 1956 found that households with stable income were less likely to use instalment credit than those with fluctuating income. In 1983 households with stable income may have been more likely to use consumer credit because of supply conditions. With the ready availability of bankruptcy relief, lenders may have viewed applicants employed in industries with highly volatile earnings as high risk. Since the economy was just emerging from the bottom of the business cycle at the time of the survey, those households may in fact have been very uncreditworthy. Given that scenario, it is not surprising to find that those households with less stable earnings had been rationed out of the credit market.

To capture the influence of having two incomes on the probability of household debt use, we included a measure for the presence of a second wage earner. Holding income constant, those households with two wage earners were significantly more likely to use installment debt. In an analysis of data from 1982-1983, the Bureau of Labor Statistics found that two-earner households, with higher opportunity costs of time, spent more to improve the quality of their leisure than single-earner households.[5] Our results imply that differences extend to their borrowing behavior as well.

Households that had an outstanding mortgage balance were significantly more likely to use consumer debt than renters or households that had completely paid off their mortgage. The relationship between having an outstanding mortgage balance and the probability of consumer credit use is likely a reflection of tax-motivated credit use. Those households with a mortgage interest deduction are more likely to itemize deductions in calculating their federal income tax and can therefore effectively use the consumer credit interest deduction to reduce their taxes and their cost of borrowing. Those households with no mortgage deduction are more likely to use the standard deduction and lose the benefit of tax deductibility of interest paid on consumer loans.

Another financial variable affecting the probability of installment credit use is the amount of liquid assets held by the household. The probability of debt use decreased as the level of liquid assets, and the ability to pay for expenditures with cash, increased. However, at some level of liquid assets, a marginal increase yielded a greater likelihood of using consumer credit. (The coefficient of liquid assets squared was positive and significant.)

An explanation for these results may rest in the tax laws regarding interest income and payments. With the tax shield afforded by the payment of consumer interest, one can shield interest earned on liquid asset investments from taxes. High-income households, who generally have a high marginal income tax rate, may use consumer credit interest to shield interest earned. An alternative explanation is the availability of incentive financing for auto purchases. Buyers with sufficient liquid assets to pay for the purchase may have used credit instead because the Cost of credit was lower than their opportunity cost of capital.

Attitudinal Variables. The individuals in this sample were asked if hey considered making purchases on the installment plan a good or bad idea. n the 1983 survey, 44 percent of respondents thought installment buying was a good idea while 24 percent thought it was a bad idea. In the analysis of probability of debt use, those consumers who believed credit to be a good ea were significantly more likely to use it, relative to those who believe it is both a good and bad idea. Those who thought it was a bad idea were relatively less likely to use installment debt.

Local Credit Market Conditions. At the time of this study some states had interest rate ceilings in effect. In general, these limits were above the market rate of interest from mid-1982 through early 1983. A measure to control for the more restrictive ceilings was included in the analysis. Since banks' willingness to make consumer loans was low in the year prior to the survey, the effect of rate ceilings on the probability of credit use could

[5] Consumer Expenditure Surveys, 1982-83. U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2234 and 2246, March 1986.

also be captured by a measure of consumers' turndown experience (Table 3). Both variables were included in the analysis.

The interest rate ceilings in effect at the time of the survey did not influence the probability that households had installment debt. But, contrary to expectations, those consumers who had had trouble obtaining credit in the past were significantly more likely to have installment debt. This is not a surprising result if those who had been turned down were rejected because of having too much credit. That appeared to be the case in that about one-third of those who gave a reason for their rejection indicated that there had been adverse information in their credit report or that they had insufficient income or collateral for the debt they had applied for.

Consumers residing in the South and West were significantly more likely to use installment debt than those from other regions. Since the multivariate analysis holds other socioeconomic characteristics, and thus the demand for credit, constant, these regional differences were a function of the supply of credit to households. Historically, lenders in the West have been the most aggressive in the financial services industry. And rapid population growth in the West and the South also implies an increasing volume of deposits to be invested by lenders in those regions. Their aggressive marketing of consumer loans may explain the greater likelihood of debt found in the analysis.

To further understand these regional differences in debt use, separate analyses were made of those consumers whose income was in the top 20 percent of the sample, and of those whose income was in the lowest 20 percent. Differences across regions in the probability of debt use were not evident for high income households. For the low-income households, those residing in the South were more likely to use consumer debt. Further analysis of regional debt use is necessary to identify the sources of the differences, possibly considering the type of credit being used by these consumers.

B. The Amount of Installment Debt Incurred

The determinants of the amount of leverage-related risk incurred by households yield more insight into their philosophy of debt-use than the examination of whether they use debt. In this analysis, the dependent variables are consumer credit outstandings as a proportion of annual household income, and the repayment rate (monthly payments as a proportion of monthly income). The results of regression analysis for outstandings are presented in Table A.3 in the appendix, while the results for monthly repayments are presented in Table A.4.

In each estimation, the major explanatory variable was household income. The amount of leverage decreased with income, at a decreasing rate. In other words, debt burden did not strictly decrease with income but increased after some high level of income had been achieved. The extent to which a household used leverage, measured by outstandings to income, was not a function of life cycle. Rather, the ratio of outstandings to income was invariant across life-cycle groups. These results suggest that simply having more families in the family-formation stage will not cause the ratio of credit outstanding to income to increase in the aggregate.

The probability of debt-use was higher for young single householders with relatively high income. However, their debt burden measures were not systematically higher than those of their peer group. These households may have had high human capital which made them look like good credit risks. However, that condition was not associated with the amount of leverage they used.

Those households with a mortgage were not only more likely to use credit but owed significantly more credit, relative to income, than those households who had paid off their mortgage or who were renters. This

result is consistent with our earlier argument that homeowners with a mortgage deduction have a tax-related incentive to use more consumer credit, holding other things constant.

If households were sensitive to the determinants of their credit capacity and attempted to maximize the benefits of debt use (basically, the tax shield), we would expect to find a positive relationship between their debt burden and liquid assets. And also, we would expect their debt burden to increase with the stability of household earnings. However, neither the coefficient for liquid asset balances or income stability were significant in the analyses of household leverage ratios.

Although attitudes toward credit were a significant determinant of whether a household used credit, the amount of credit repayment or outstandings relative to income was not influenced by attitude. These results imply that having a positive attitude toward credit is not necessarily associated with a tendency to overuse it.

Although the regulation (rate ceiling) variable did not have an influence on whether a household used credit, it was significantly associated with the total amount of credit used relative to income. In those states with low rate ceilings, the ratio of credit outstanding to income was significantly lower than was the case for debt users in nonregulated states. This is consistent with the theory that consumers cannot get all the borrowed funds they need in states with restrictive regulations. And, although the ceilings were not restrictive at the time of the survey, they had been in the years prior to the survey. The historical restrictiveness of rate ceilings resulted in significantly lower debt burdens in those states with restrictive legislation. According to the above result, the removal of rate ceilings would be expected to be associated with an increase in the amount of debt outstanding relative to income for those households using credit.

Our findings that restrictive rate ceilings did not keep households that wanted credit from using it are consistent with those of Peterson. He showed that in Arkansas, where a 10 percent rate ceiling was in effect during the period of his analysis, borrowers were able to get credit from retailers when cash credit was not available.

One of the questions being asked by social scientists and policy makers is whether credit cards cause consumers to spend more or to borrow more. Does the relative ease with which large amounts of credit can be obtained with a credit card endanger the financial stability of households? Or, is household demand for credit invariant to transactions costs associated with obtaining credit? Our results show that the amount of consumer credit used relative to household income is significantly lower, holding other things constant, for families who revolve balances on their credit cards (nonrevolving balances were not included in this analysis.) The implication is that the reduction in transactions costs associated with getting credit had not increased household leverage (in 1983).

This result could be attributed to the fact that the high cost of administering small loans forces lenders to raise the minimum size for closed-end unsecured loans they will provide. Before credit cards were available, or for those not using credit cards, consumers may have had to borrow more unsecured credit than they wanted. With a revolving line, they can borrow a smaller amount and therefore, their use of leverage is reduced. Alternatively, the high interest cost of revolving credit has a negative effect on household demand for credit among households that use credit cards for credit purposes.

C. Special Topics in Debt Use

Two-Income Households. In our analysis of debt use, two-income households were significantly different from households with only one income earner. Not only were these consumers more likely to use installment debt, but had a larger amount of outstanding debt relative to income and had higher repayment rates. Given these results, we conclude that one of the demographic trends significantly influencing the amount of consumer credit outstanding relative to income is the increase in the incidence of two-income families.

Interest Deductibility and Debt Use. For consumers who itemize deductions when filing their income tax returns, the tax deductibility of interest expense reduces the cost of installment debt. Some believe this tax break induces persons to borrow when they otherwise would not and, to discourage excess household leverage, it should be eliminated. We found some evidence that households most likely to itemize deductions (homeowners with a mortgage) were significantly more likely to use debt and used significantly more debt relative to income than renters or homeowners who did not have a mortgage.

The data base provided further information about the relationship between debt use and tax incentives for using debt. Each respondent was asked to indicate what percent of an extra dollar earned would be paid in federal taxes. There were many missing values for the marginal tax rate variable and perhaps little faith should be placed in the accuracy of households perception of their marginal tax rate. This "perceived" marginal tax rate had little affect on the debt choice for the overall sample, a result possibly attributable to the low quality of the data. But, when the relationship between the marginal tax rate and leverage was examined for those households whose income was in the highest 20 percent of the sample, and those whose income was in the lowest 20 percent, some interesting results emerged.

The marginal tax rate perceived by low-income households had no effect on whether they used consumer credit, or on the amount of debt incurred. The tax break would be minimal for these households even if they were to itemize. But, the perceived marginal tax rate of the high-income households did affect their debt use. Holding other factors constant, the higher the perceived tax rate, the lower the probability that the household used. installment debt. For both measures of the degree of household leverage, the coefficient of the perceived tax rate was positive but only marginally significant. As the marginal tax rate increased among those households in the highest income quintile, the amount of leverage increased.

In general, the results of these analyses do not allow us to unequivocally accept the hypothesis that consumer credit use is influenced by the tax deductibility of interest expense. However, there is evidence that, among those who itemize deductions, the probability of debt use and the amount of consumer credit used is significantly higher, holding other things constant, than is the case for borrowers who do not itemize.

IV. Conclusions

This analysis of factors influencing the probability that a household used installment debt and the amount used is based on cross-sectional data collected at a time when consumer credit markets were in transition. The transition involved progressing from a regulated local market structure to a deregulated national market. Credit cards and low-rate auto credit were readily available and the supply of credit was high relative to conditions in the early 1980s. The household debt burden was low by historical standards, and the real after-tax cost of credit was very low, especially for those households that itemized deductions.

The cross-sectional analysis shows that the probability of household debt use was highly correlated with socio-demographic variables related to consumption demand but was not significantly associated with the level

of household income. Households with the ability to pay cash (positive liquid asset balances) or a negative attitude toward using credit were significantly less likely to use credit. Those with stable incomes and two wage earners were significantly more likely to use credit. And households with a mortgage were more likely to use consumer credit than renters or households that owned their home, suggesting a higher probability of debt use among those taxpayers who itemize deductions.

Households located in states which had relatively tight rate ceilings were not less likely to use consumer credit, holding other variable constant, than their counterparts in states with liberal or no rate regulations.

Holding income constant, the amount of credit used relative to income by debt-using households was not a function of life cycle, attitude toward credit, stability of income, liquid asset balances, or number of dependents. Household debt burden was positively influenced by the existence of a mortgage obligation and having two wage earners in the household. The amount of household leverage was significantly negatively affected by restrictive rate ceilings and was significantly lower for households that used revolving credit.

Based on this analysis, one would expect that deregulation would be accompanied by an increase in the amount of debt used by households using debt, but would not expect to find an increase in the probability of household debt use. Thus, some of the growth in credit outstanding relative to income since 1983 can be attributed to the increased availability of credit in deregulated markets.

Demographic trends such as the increase in the number of families in the early formation years have had a significant positive effect on the incidence of credit use in the population. However, borrowers in that stage of the life cycle do not use a significantly higher amount of credit relative to income, suggesting the baby boomers have not pushed up the leverage measure for households in general.

Households with two wage earners are highly likely to use consumer credit and to have a significantly higher ratio of credit relative to income than families with only one wage earner. The increase in incidence of two-income families has therefore increased the leverage measure for households in general.

Households who carry revolving balances on credit cards use significantly less credit relative to income than other credit using households, holding other things constant. Thus, one might conclude that the ready availability of credit cards has not caused an untoward Increase in credit outstanding. However, the use of revolving credit has changed dramatically since 1983. Therefore, our results may not be valid for that changing credit product today.

Consumer credit use is not invariant to tax incentives for using credit. Households that are in a position to take advantage of the tax-deductibility of interest paid on consumer loans are more likely to use consumer credit and use a larger amount of credit relative to income, holding other things constant. These borrowers are, by our definition, homeowners with a mortgage. Under proposed tax reform, they can still get tax deductibility of interest expense if they have sufficient equity in their home. Our results suggest there will be a significant shift to mortgage credit from consumer credit with the passage of the proposed tax reform. The highest income quintile of households owe about 40 percent of total consumer credit outstanding and nearly 90 percent own homes. Their shifting from short-term debt to long-term debt could have a significant effect on total debt used by households. However, a more detailed analysis of the effects of tax reform must be reserved for another forum.

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APPENDIX
ECONOMIC AND DEMOGRAPHIC FACTORS ASSOCIATED
WITH CONSUMER DEBT USE

Table A.1
Definitions of Variables in Analyses

Independent Variable	Range of Values
Life cycle stage of household head	
Young single	1 = < 45, single, no children
Single parent	1 = any age, single, children
Older/working	I = > 45, in labor force
Older/retired	1 = > 45, retired, disabled, not in labor force
Family form	0 = < 45, married
Mortgage	1 = owns home with mortgage; 0 otherwise
Number in household	xx = number of persons living in household
Two-incomes	1 = second wage-earner in household; 0 otherwise
Region of residence	
West	1 = resides in the West; 0 otherwise
South	1 = resides in the South; 0 otherwise
Income related measures	
Income	xxxxx = 1982 before-tax household income
Income squared	xxxxx = income squared
Stable income	1 = at least 1 wage earner is employed in a stable industry, including manufacturing, transportation, communication, utilities, sanitary and professional services, wholesale trade, financial, real estate, insurance and public administration (industry classifications from U.S. Population Census)
	0 = all wage earners employed in less stable industries, including agriculture, forestry, fishing, mining, construction, retail trade, business and repair services, personal services and entertainment and recreational services
Relative income	
Yng single-Hi	1 = young, single, income > median of group; 0 otherwise
Sing parent-Hi	1 = single parent, income > median of group; 0 otherwise
Old/Wrk-Hi	1 = older, working, income > median of group; 0 otherwise
Old/Ret-Hi	1 = older, retired, income > median of group; 0 otherwise
FamForm-Hi	1 = young family, income > median of group; 0 otherwise
Liquid assets	xxxxx = checking, savings, money market accounts, U.S. Savings Bonds, other federal securities held by household
Liquid squared	xxxxx = value of liquid assets squared
Attitude towards credit	

Good idea	1 = considers purchase on installment plan good; 0 otherwise
Bad idea	1 = considers purchase on installment plan bad; 0 otherwise
Local market conditions	
Low ceiling	1 = state had ceiling on consumer credit interest rates of 18 percent or less; 0 otherwise. These states are: AR, CT, FL, IA, KY, LA, MA, ME, MI, MN, MO, NC, PA, TX, WA, WV (4 other states with low rate ceilings were not included in the sample data)
Prior rejection	1 = turned down for amount requested on loan in previous few years; 0 otherwise
Card	1 = household has at least one credit card, and uses credit cards as a source of revolving credit; 0 otherwise

Table A.2
Mean Values of Variables in Analyses

	Mean Value	
Independent Variable	All Consumers	Consumers with Debt > 0
Life cycle stage		
Young single	0.12	0.12
Single parent	0.09	0.10
Older/working	0.22	0.23
Older/retired	0.24	0.09
Mortgage	0.37	0.51
Number in household	2.7	3.1
Two-incomes	0.38	0.51
Region of residence		
West	0.35	0.37
South	0.17	0.17
Income related measures		
Income	$25,310	$28,130
Income squared	$1{,}374E^{+6}$	$1{,}399E^{+6}$
Stable income	0.50	0.66
Relative income		
Yng single-Hi	0.06	0.06
Sing parent-Hit	0.04	0.05
Old/Wrk-Hi	0.11	0.11
Old/Ret-Hi	0.12	0.05
FamForm-Hi	0.17	0.24
Liquid assets	$6,104	$3,814
Liquid squared	$3{,}730E^{+5}$	$1{,}024E^{+5}$
Attitude towards credit		
Good idea	0.44	0.51
Bad idea	0.24	0.17
Local market conditions		
Low ceiling	0.46	0.46
Prior rejection	0.11	0.14
Card	Not in equation	0.58
Dependent Variable		

Proportion of households in	sample using consumer	debt = .51
Mean values of debt burden	measures for households	with debt > 0:
Ratio of repayments to	income = 11.04%	
Ratio of outstandings to	income = 16.98%	

Table A.3
Factors Determining the Ratio of Consumer Debt Outstanding to Income
Regression Results on Households with Debt > 0

Independent Variable	Estimated Coefficients	t-statistic
Life cycle stage		
Young single	3.0	1.12
Single parent	3.0	1.08
Older/working	2.4	1.24
Older/retired	2.5	0.82
Mortgage	3.5*	3.04
Number in household	0.1	0.24
Two-incomes	2.7*	1.88
Region of residence		
West	-0.1	-0.08
South	3.5*	2.98
Income related measures		
Income	$-3E^{-4}$*	-4.07
Income squared	$7E^{-10}$*	3.31
Stable income	-1.1	-0.88
Relative income		
Yng single-Hi	$-1E^{-2}$	-0.00
Sing parent-Hit	-2.2	-0.62
Old/Wrk-Hi	-0.5	-0.19
Old/Ret-Hi	-6.2*	-1.72
FamForm-Hi	0.2	0.13
Liquid assets	$-1E^{-5}$	-0.11
Liquid squared	$-3E^{-10}$	-0.37
Attitude towards credit		
Good idea	1.9	1.64
Bad idea	0.5	0.34
Local market conditions		
Low ceiling	-2.4*	-2.16
Prior rejection	-2.3	-1.50
Card	-2.4*	-2.20
Constant	19.9	7.44

Adjusted R^2 0.03
Number of observations 1704
*significant at the 95 percent level of confidence, one-tailed test

Table A.4

Factors Determining the Ratio of Consumer Debt Repayments to Income
Regression Results on Households with Debt > 0

Independent Variable	Estimated Coefficients	t-statistic
Life cycle stage		
Young single	3.7*	1.93
Single parent	5.2*	2.64
Older/working	0.8	0.61
Older/retired	4.5*	2.12
Mortgage	1.1	1.33
Number in household	0.5*	1.82
Two-incomes	1.4	1.43
Region of residence		
West	0.8	0.71
2.6*	3.14	2.98
Income related measures		
Income	$-3E^{-4}$*	-6.55
Income squared	$8E^{-10}$*	5.33
Stable income	-0.5	-0.57
Relative income		
Yng single-Hi	-2.3	-1.04
Sing parent-Hit	-5.5*	-2.25
Old/Wrk-Hi	1.2	0.69
Old/Ret-Hi	-5.3*	-2.09
FamForm-Hi	0.6	0.45
Liquid assets	$-1E^{-5}$	0.12
Liquid squared	$-3E^{-10}$	-0.47
Attitude towards credit		
Good idea	1.4*	1.67
Bad idea	0.2	0.18
Local market conditions		
Low ceiling	-0.8	-1.08
Prior rejection	0.9	0.82
Card	$-2E^{-2}$	-0.03
Constant	12.7	6.70

Adjusted R^2 0.08
Number of observations 1681
*significant at the 95 percent level of confidence, one-tailed test