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Deregulation, Tax Reform, and the Use of Consumer Credit

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Abstract

This article analyzes the probable effects of recent deregulation of consumer credit markets and tax reform on household credit-use decisions. The results of the analysis suggest that deregulation of rates of charge for consumer credit contracts accounts for a substantial portion of the increase in consumer credit outstanding relative to household income since 1982. The effect would not originate from the extention of credit in newly deregulated markets to households that had not been able to get credit before (widening of credit use). Rather, it would come from the provision of greater amounts of credit to borrowers in general (deepening of credit use). With regard to tax reform, the probability of debt use is significantly higher for those households most likely to itemize deductions for federal income tax purposes. Holding the level of interest rates constant, tax reform that removes the deductibility of consumer interest is not expected to affect the amount of credit used relative to income but is expected to have a significant effect on the type of debt used by such households. They will likely be early adopters of home equity lines of credit. Their shift from consumer to mortgage credit is expected to have a long-term negative effect on the credit quality of consumer credit portfolios.

The market for consumer credit in the United States has historically been highly regulated in terms of allowed prices for contracts and licensed providers—conditions that limited potential competition and credit availability. At the same time, the use of consumer credit was encouraged by federal income tax policy that allowed the deduction of interest paid for consumer credit in the calculation of taxable income for those households that itemized deductions.

Interest rate ceilings and the tax treatment of consumer interest represent public policies that potentially influence the availability and cost of credit and, therefore, consumers' incentive to use credit for consumption purposes. In the last decade, many of the legal restrictions on the maximum allowable rate of interest charged for consumer credit contracts were either totally eliminated or raised to such a level that they were not binding. This deregulation—widespread by the end of 1982—was initiated by the combined forces of the deregulation of deposit markets and the high inflation of the late 1970s and early 1980s. More recently, the Tax Reform Act (TRA) of 1986 initiated a schedule for phasing out the deductibility of consumer interest in the calculation of federal income taxes. By 1991, none of the interest paid in association with traditional forms of consumer credit (e.g., auto loans, credit cards, etc.) will be deductible.

It is likely that the effects of these changes in public policies supporting or discouraging borrowing will not be immediately evident. As was pointed out by Christelow (1988), "When a new policy supportive of borrowing is introduced, households in their early high-borrowing years are likely to borrow substantially more relative to income than their predecessors. The upward adjustment will continue for a number of years as new adults borrow at similarly high rates." The goal of this analysis is to assess the impact of these recent changes in public policies on future consumer credit use decisions—both whether and how much credit is used. In the first section of this article, the components of a reduced form model of consumer credit use are identified. In the second section, the model is estimated, using survey data collected from a national sample of households. The conclusions and implications are presented in the third and final section.

1. The credit use decision

The utility-maximizing household decides whether to use consumer credit and how much credit to use. The ultimate outcome of those decisions is hypothesized to be a function of lenders' willingness to provide credit at a price that does not exceed the borrower's marginal utility of consumption.

1.1. Credit use without policy effects

1.1.1. Credit supply. Profit-maximizing lenders will extend the amount of credit demanded given that they may charge a rate sufficient to cover their direct costs of lending plus a risk-adjusted return to capital. As presented in Barth and associates (1983), the interest rate charged on a contract by a supplier of personal loans increases with the uncertainty of the contract repayment stream and with the transactions costs associated with administering and collecting payments. In the personal loan market, information pertaining to the level and stability of household income and real property holdings (homeownership) are frequently used as indicators of the credit quality of an applicant. Thus, the offered price of credit would be higher for those credit applicants who have low income, are renters, work in industries with highly uncertain earnings, or who represent households with less diversified cash inflows.

1.1.2. Credit demand. Household demand for consumer credit is derived from current consumption decisions. A household will use credit to finance current consumption when the marginal utility of consumption exceeds the marginal cost of credit and in turn, the marginal cost of credit is lower than the opportunity cost associated with liquidation of available financial assets. The cost of credit includes the after-tax cost of interest paid, the transactions cost associated with credit search and debt repayment, and the psychological costs, such as fear of default and financial failure, associated with credit use. Holding demand for consumption constant, we expect the probability of credit use and the amount of credit used to increase as the marginal cost of credit decreases, but to decline as liquid

asset holdings increase. The psychological costs of credit use would likely be reflected in attitudes toward the use of credit. We hypothesize that households that do not believe that credit use is a good idea will be less likely to use credit relative to those who have more positive views concerning the use of credit.

Household demand for current consumption is a function of household life cycle. Thus, basic demand for consumer credit is expected to be not only a function of price but also of life cycle. The results of previous analyses of credit use provide support for the life cycle theory of credit use. Enthoven (1957) was the first of many to find that young married householders with children were more likely to have consumer debt than those without children or than households composed of a single person. As the household head aged, and children left home, the probability of consumer credit use declined.

Given these conditions for supply and demand in the personal loan market, we empirically test the effects of rate restrictions and tax policy changes on credit use decisions. This is accomplished through an analysis of household credit use data, holding constant demographic and portfolio characteristics that differentiate households in terms of their creditworthiness or their demand for consumer credit.

1.2. The role of public policies

Interest rate regulation and tax policy influence the price that may be charged for credit and the after-tax cost of credit; therefore, they are expected to be instrumental in the household credit use decision. In this section we describe the theory and evidence regarding these influences.

1.2.1. Rate regulations.
Regulations that restrict the rate charged for consumer credit forces lenders to construct credit contracts in such a way as to limit the risk taken to the level that can be compensated for—given the rate ceiling. Theory suggests that when constrained by a rate ceiling, lenders would make portfolio adjustments and divert funds to investments where expected rates of return were commensurate with the risk incurred. In the absence of significant transactions costs associated with assessing individual credit worthiness, lenders would ration credit to high-risk borrowers. Thus, interest rate ceilings would be expected to have the effect of reducing the availability of consumer credit in general or to high-risk borrowers in particular.

Several researchers have studied the effects of rate regulation by analyzing the high-risk segment of the cash credit market or local markets with extremely restrictive rate ceilings. Barth and associates (1983) presented evidence that between January 1975 and August 1977 the average dollar value of personal loans from consumer finance companies (high-risk specialists in personal loan markets) was significantly lower in situations where interest rate ceilings restricted the rate of charge for such contracts, holding other things constant. Peterson (1979) found that the minimum size of personal loan offered by commercial banks in 1978 (low-risk specialists in personal loan markets) was significantly higher in a state with a severely restrictive rate ceiling (Arkansas) relative to those in states without such limits.

The results from the analyses of lenders' adjustments suggest that the probability and the amount of consumer credit used would be systematically influenced by restrictive rate ceilings. In cross-sectional analyses, one would expect to find that high-risk borrowers had less credit but that low-risk borrowers might have at least as much credit as their risk equivalent counterparts in less restricted markets. On average, the amount of credit used would be lower in the restricted markets. Dunkelberg and DeMagistris (1979) analyzed household portfolio data and concluded that consumer installment credit (excluding revolving credit) was rationed in Arkansas and Wisconsin—states with restrictive rate ceilings. Holding credit worthiness constant, borrowers in those states had significantly less consumer installment credit when compared to borrowers in other states without such restrictions.

But, Peterson (1983) found that borrowers in Arkansas had as much total consumer credit as their counterparts in less restrictive states. Borrowers in Arkansas had substituted retail or point-of-sale credit when they had been unable to obtain cash credit. Peterson (1979) presented evidence that the restrictive rate ceiling in Arkansas caused creditors to prefer indirectly obtained credit to direct credit (credit contracts purchased from retailers as opposed to contracts originated by the financial institution). Since retailers could adjust the price of merchandise to cover the cost of providing credit, they were able to provide point-of-sale credit to households when cash lenders could not profitably serve their credit needs directly. Peterson stated that previous investigations had yielded misleading evidence on the effects of usury ceilings because they had considered only a portion of consumers' total debt portfolios. Further, he concluded that "while usury ceilings may have a major impact on the structure of credit markets, they are not likely to have a substantial effect on the total amount of credit used by consumers."

It is unlikely that the evidence from Arkansas is representative of the effects of usury ceilings in states where interest rate ceilings become restrictive only periodically. The 10 percent rate ceiling in Arkansas analyzed in the Peterson study applied to all types of consumer credit and had been in effect since 1934. In most time periods since interest rates for consumer loans have been recorded, the rate ceiling in Arkansas was restrictive, even for secured new auto loans.[1] The entire structure of the consumer credit market had adjusted to the rate ceiling—for example, there were no consumer finance companies in Arkansas in 1978 when the data analyzed by Peterson were collected. There were many pawn shops, and lease-to-own arrangements were a popular means of acquiring consumer durables. By analyzing markets with less severe and less broad-based restrictions, we are able to provide further evidence of the process by which lenders adjust and the impact of those adjustments on household credit-use decisions.

1.2.2. Tax policy.
Another public policy acting on the consumer credit use decision is that dictating the tax treatment of interest. Since the introduction of the income tax in 1916, nearly all interest expense has been deductible. The tax deductibility of interest became an incentive to household borrowing when the Revenue Act of 1942 brought low and middle income households into the tax base. However, the tax incentive associated with the use of consumer credit was available only to those borrowers who itemized deductions.[2] TRA contained a provision for phasing out the deductibility of interest paid for consumer credit

while leaving intact, with some limitations, the deductibility of interest paid on mortgage credit.

There is little empirical evidence to indicate the importance of the tax deductibility of interest in consumers' credit use decision. Lansing, Maynes, and Kreinin (1957) found that homeowners with a mortgage (not *all* homeowners) were significantly more likely to use consumer credit than homeowners without a mortgage or those not owning a home. Their finding may be evidence of a tax-related incentive to use consumer credit. Homeowners with a mortgage are the most likely group of taxpayers to itemize deductions and benefit from the deductibility of consumer interst. Avery and associates (1987) provide evidence to suggest that a portion of the growth in credit outstanding between 1983 and 1986 is due to the increased probability of credit use among upper-income households. Perhaps this phenomenon is associated with "bracket-creep" that reduced the after-tax cost of consumer credit for those households.

2. The effects of public policies on credit use

We hypothesize that household demand for consumer credit reflects the position of the household in the life cycle and the after-tax cost of credit relative to the utility of current consumption. Further, lenders' ability and willingness to serve the credit needs of the household are expected to be a function of the risk characteristics of the household and market conditions limiting their ability to take credit risk. To test the effects of rate deregulation and tax reform on consumer credit use, we estimated a reduced form model of the probability of household credit use and the amount of credit used relative to income. The specific demographic and economic variables included in the model were those discussed in the previous section of the article and are described in table 1. Squared terms for household income and liquid assets were included in the regression equations to allow for possible nonlinear effects of these variables.

Additional variables were included to capture the effects of regional variation in consumer credit rates, a phenomenon that has been documented in earlier studies. All but two of the variables listed in table 1 were included as regressors in both the analyses of the probability of credit use and the amount of credit used. The exceptions were variables that capture debtors' actual experience in credit markets (whether they had been turned down) and their debt management skills (whether they had ever missed a payment or been late on a payment), which were only included in the analysis of the amount of debt outstanding relative to income. Given that the household reported difficulty obtaining the amount of credit desired, it was expected that the "prior rejection" variable would be negatively associated with the debt-to-income ratio. Having trouble making debt payments was expected to be associated with higher debt-to-income ratios.

Variables included in the model to capture the effects of the legal restrictions on interest rates and the tax incentive associated with the use of credit were both 0-1 dummy variables. The legal restriction variable was equal to 1 for those states that restricted the interest rate charged for cash credit by financial institutions to 18 percent or less in 1982 and 0 otherwise. The data set did not contain information revealing whether the household itemized

Table 1. Definitions of variables in analyses.

Life cycle stage of household head
Young single	1 = <45, single, no children
Single parent	1 = any age, single, children
Older/working	1 = >45, in labor force and married with or without children or single, no children
Older/retired	1 = >45, retired, disabled, not in labor force, and married with or without children or single, no children
Family formation	0 = <45, married, with or without children
Home ownership	1 = owns or is buying a home; 0 otherwise

Income-related measures
Income	xx.xxx = 1982 before-tax household income ($1,000s)
Income squared	income squared ($1,000,000s)
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 unemployed or employed in less stable industries, including agriculture, forestry, fishing, mining, construction, retail trade, business and repair services, personal services and entertainment, and recreational services
Two-income	1 = second wage-earner in household; 0 otherwise
Tax incentive	1 = have mortgage and were in >25 percent tax bracket in 1982
	0 = all others
Liquid assets	xx.xxx = checking, savings, money market accounts, U.S. Savings Bonds, other federal securities held by household ($1,000s)
Liquid assets squared	value of liquid assets squared ($1,000,000s)

Geographic market conditions
Rate ceiling	1 = state had ceiling on interest rates of 18 percent or less for consumer credit from financial institutions. 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)

Region of residence
West	1 = resides in the West; 0 otherwise
South	1 = resides in the South; 0 otherwise

Attitude toward credit
Good idea	1 = considers purchase on installment plan good; 0 otherwise
Bad idea	1 = considers purchase on installment plan bad; 0 othewise
Prior rejection	1 = turned down for amount requested on loan in previous years; 0 otherwise
Late pay	1 = unable to make all loan payments during the last year according to schedule; 0 otherwise

deductions for tax purposes nor did it provide reliable information on the marginal tax rate. To test the effect of the tax incentive on the use of consumer credit, we assumed that homeowners with a mortgage who were in at least the 25 percent marginal tax bracket (based on the 1983 Tax Rate Schedule) would have adequate incentive to adjust their household balance sheet to take advantage of the tax deductibility of consumer interest. The tax effect

variable was equal to 1 for those households and 0 otherwise. In the analyses of whether and how much consumer credit was used by a household, the coefficient of the legal restriction variable was expected to be negative and that for the tax effect variable was expected to be positive.

2.1. The data

The data analyzed were derived from a national sample of 3,824 households surveyed during the first half of 1983. The composition of each household's portfolio of assets and liabilities was measured as were sociodemographic characteristics of the household, information on attitudes, experience with creditors, and state of residence. See Avery and associates (1984a, 1984b) for a complete description of the data set. Table 2 presents the mean values of all variables used in the analysis.

Table 2. Mean values of variables in analyses.

Independent Variable	Mean Value	
	All Consumers	Consumers with Debt > 0
Life cycle stage of household head		
Young single	0.12	0.12
Single parent	0.09	0.09
Older/working	0.22	0.22
Older/retired	0.24	0.09
Home ownership	0.64	0.65
Income-related measures		
Income (000)	$25.33	$28.30
Income squared (000,000)	1,388.30	1,419.60
Stable income	0.50	0.67
Two-income	0.37	0.51
Tax incentive	0.23	0.33
Liquid assets (000)	$6.11	$3.81
Liquid assets squared (000,000)	379.66	103.91
Geographic market conditions		
Rate ceiling	0.46	0.46
Region of residence		
West	0.16	0.16
South	0.35	0.37
Attitude toward credit		
Good idea	0.45	0.52
Bad idea	0.24	0.16
Prior rejection	not in equation	0.14
Late pay	not in equation	0.21

Dependent Variables		

Proportion of households in sample using consumer debt = .51
Mean ratio of outstanding debt to income for households with debt > 0 = 16.98 percent.

Number of observations	3,271	1,657

The estimates of the effects of rate ceilings and tax policy on the use of consumer credit were obtained through the estimation of a sample selection model. Two equations are estimated—the first predicts the probability that a household used consumer credit at the time the data were collected. The second equation predicts the level of credit relative to income (debt burden) for that subjset of the sample that had consumer credit.

2.2. The method of analysis

At any point in time, a large percentage of households may have no consumer credit outstanding although most households use some credit during their life cycle. Further, some households may not have credit or have as much as would be optimal because of the effects of legal restrictions on the availability of credit. Thus, in estimating the determinants of household use of consumer credit, the problem of truncated data, or sample selection bias, must be addressed. The procedure employed in this analysis involves the use of a sample selection procedure similar to that presented by Heckman (1976).

For each household, the variable z is defined as the difference between the price that the household is willing to pay for consumer credit and the market price of credit. Socioeconomic, financial, and attitudinal factors affect the price a household is willing to pay, while the market price offered by creditors is a function of local credit market conditions, regulations, and the default risk in the lenders' portfolio of credit contracts. That is,

$$z = X_1\beta_1 + u_1 \tag{1}$$

where $X_1\beta_1$ is the matrix of variables and parameters determining these prices and u_1 is the random component—attributes of the credit market or household which are not observed or cannot be measured.

The sample selection procedure employed in this analysis first estimates the factors that determine z.[3] Because the data are observed as a binary variable d, where $d = 1$ if $z \geq 0$, and 0 otherwise, a probit model is specified and the probability that the household uses consumer credit is predicted. The maximum likelihood estimates of β_1 are given in table 3.

The amount of consumer credit observed in a household's financial portfolio is a function of its demand for credit as well as the supply of credit. The household's debt burden, measured as the amount of consumer credit outstanding relative to annual pre-tax income, is expressed as a linear function of these supply and demand factors. That is,

$$y = X_2\beta_2 + u_2, \tag{2}$$

where $X_2\beta_2$ is the matrix of variables and parameters determining y, and u_2 denotes the random component. But, y is observed only if $z \geq 0$. Thus the regression function of equation (2) may be written as,

$$E(y \,|\, X_2, \text{ sample selection rule}) = E(y \,|\, X_2, z \geq 0). \tag{3}$$

Table 3. Probability of consumer debt use profit estimates.

Independent Variable	Estimated Coefficient	t-Statistic
Life cycle stage		
Young single	−0.31*	−3.37
Single parent	−0.25*	−2.55
Older/working	−0.41*	−5.77
Older/retired	−0.90*	−10.92
Home Ownership	0.002	0.40
Income-related measures		
Income (000)	0.004*	2.03
Income squared (000,000)	−0.000001	−0.11
Stable income	0.39*	6.78
Two-income	0.22*	3.22
Tax incentive	0.31*	4.12
Liquid assets (000)	−0.026*	−7.92
Liquid assets squared (000,000)	0.00006*	5.12
Geographic market conditions		
Rate ceiling	0.04	0.83
Region of residence		
West	0.13*	1.85
South	0.12*	2.18
Attitude toward credit		
Good idea	0.11*	1.90
Bad idea	−0.39*	−5.94
Constant	0.006	0.07

Notes: N = 3,271.
Log-Likelihood = −1837.3.
Restricted Log-Likelihood ($\beta_2 = 0$) = −2267.0.
Chi-squared = 859.33.
*Significant at the 95 percent level of confidence (one-tailed test).

The sample selection procedure accounts for the inter-equation correlation. That is, it estimates equation (2) given information on the determinants of z—captured by the parameter, lambda. This procedure selects those observations where d = 1 and estimates equation (2) for that selected sample. Ordinary least squares estimates of β_2 are presented in table 5.

2.3. The results

2.3.1. Probability of credit use.
In the sample data analyzed, 51 percent of respondents used some consumer installment credit at the time of the survey.[4] The results of the analysis, shown in figure 1, do not support the hypothesis that the probability of consumer credit use in general is a significant function of rate restrictions. The probability of credit use was not

Table 4. Mean probability of having unsecured debt from a financial institution (as a percent of all debtors).

Rate Ceiling	Income Quantile				
	Lowest	Second	Third	Fourth	Highest
None or >18%	38.9	36.6	50.7	57.0	64.7
18% or less	25.0	37.3	35.3	44.2	60.0
t-statistic	2.27*	0.14	3.12*	2.75*	1.05

*Significantly less at the 95 percent level of confidence.

significantly lower in states with low rate ceilings relative to states that were not similarly restricted in 1982, holding other things constant. This result is consistent with those of Peterson—that households wanting credit for consumption purposes are able to get it, even in states with severely restrictive rate ceilings.

In contrast, an analysis of the probability that credit users had unsecured credit from financial institutions supported the hypothesis that the rate ceilings limited the availability of that type of credit (table 4).[5] Only 42 percent of households with consumer credit in the low-rate states had any unsecured credit from financial institutions. In contrast, more than 52 percent of borrowers in the unrestricted states had such credit. The percentages were significantly different at the 95 percent confidence level. Further, the analysis indicates that the general availability of unsecured credit from financial institutions was restricted—it was not simply restricted for high-risk (low-income) borrowers. The probability of having unsecured credit from financial institutions was significantly lower in the restricted states for three of five income quintiles analyzed.

The tax incentive variable had a positive and significant coefficient. That is, those households with a mortgage that were in marginal federal income tax brackets of 25 percent or more were significantly more likely to use consumer credit relative to other households in the sample, holding income, creditworthiness, life cycle, and attitudinal variables constant.

The coefficients of the demographic and economic variables supported our hypotheses regarding lenders' pricing decisions and households' demand for credit. The probability of credit use was significantly associated with life cycle, just as was found in earlier studies. Every life cycle group was significantly less likely to use consumer credit than the omitted group—young married couples with or without children. Consistent with the hypothesis that lenders judge creditworthiness on the basis of the characteristics of future earnings streams, the level of household income was positively associated with the probability of credit use. Two measures of income stability—the stable income and the two-income household variables—were also positively and significantly associated with the probability of credit use. This result supports the hypothesis that credit applicants with more stable income are perceived as less risky by creditors and are therefore more likely to qualify for credit or are able to get credit at a lower cost, holding other things constant. The coefficient of the homeownership variable was not significant although homeownership could be interpreted

as an indicator of income stability and credit worthiness. The homeownership variable may not have been significant, although it had the expected positive sign, because the length of time in the home rather than the fact of homeownership itself might be a more robust indicator of income stability.

We hypothesized that, holding creditworthiness constant, households with sufficient liquid asset balances or with a negative view toward the use of credit would be less likely to use consumer credit. The results support these hypotheses—the probability of credit use was a significant negative function of the level of liquid asset holdings. However, the relationship is not linear. At high levels of liquid assets, the probability of credit use increased. This result may be unique to the time period in which the data were collected. Prior to the survey, interest rates for short-term, low-risk financial assets were very high while rates for some credit products were artificially low, due to rate ceilings or special financing arrangements offered by auto manufacturers. So individuals may have found it economically rewarding to simultaneously hold large liquid assets balances and borrow to fund current consumptions. Credit use varied logically with borrowers' attitudes toward the use of credit—those who had a negative view were significantly less likely to use it.

The probability of credit use was significantly higher in the Western and Southern regions of the country relative to other geographic regions. These results are consistent with differences in supply conditions from region to region. Differences in the level of interest rates from one region to another could produce differences in the probability of credit use, holding other things constant. We did not have actual data on interest rates charged in different geographic areas included in the survey. But, several empirical studies of the level of interest rates for consumer loans have documented that those rates have been generally higher in the West and South. For example, Shay (1963) found that finance rates in the Western and Southern regions were higher than those in the Midwest and Northeast. Stafford and Dunkelberg (1969) reported that the Northeast had the lowest regional auto loan rates while the South had the highest rates. Peterson and Ginsberg (1981) found that the Western and Southern regions had the highest regional auto loan rates from commercial banks.

2.3.2. Amount of credit used.

While the probability of credit use in general was not significantly influenced by rate restrictions, the amount of consumer installment credit used relative to household income was significantly lower in states with low rate ceilings relative to states without such restrictions, holding other things constant (table 5). In a separate analysis of the amount of unsecured cash credit relative to income, the rate ceiling variable was *not* significant. In other words, in states with restrictive rate ceilings for unsecured cash credit from financial institutions, borrowers in general were less likely to have that type of credit (table 4). But those who were able to qualify for such credit had as much of it relative to income as their counterparts in less restrictive environments. The restrictions on interest rates reduced the probability that a household obtained unsecured cash credit and consequently produced a significant reduction in the average total consumer debt burdens of households in restricted markets—in the short run. But Peterson's (1983) results suggest that in the long run, those households would shift to retail credit, thus circumventing the effect of the rate ceilings on the amount of consumer credit used.

Table 5. Ratio of consumer debt outstanding to annual income odinary least squares estimates (sample selection model).

Independent Variable	Estimated Coefficient	t-Statistic
Life cycle stage		
Young single	3.10	1.08
Single parent	1.70	0.64
Older/working	2.41	0.79
Older/retired	−0.31	−0.04
Home ownership	3.10*	2.26
Income-related measures		
Income (000)	−0.30*	−4.86
Income squared (000,000)	0.0009*	4.33
Stable income	−1.68	−0.52
Two-income	2.04	0.94
Tax incentive	2.04	0.81
Liquid assets (000)	0.02	0.10
Liquid assets squared (000,000)	−0.0005	−0.53
Geographic market conditions		
Rate ceiling	−2.57*	−2.18
Region of residence		
West	−0.14	−0.08
South	3.34*	2.33
Attitude toward credit		
Good idea	1.63	1.16
Bad idea	0.82	0.24
Prior rejection	−2.33	−1.45
Late pay	2.70*	1.98
Constant	20.50	1.88
Lambda	−1.85	−0.14
Inter-equation correlation	0.09	

Notes: N = 1,657.
R^2 (adjusted) = 0.03.
*Significant at the 95 percent level of confidence (one-tailed test).

The coefficient of the tax incentive variable was not significant in the analysis of the amount of consumer debt used relative to income. While the tax deductibility of interest is associated with a higher probability of debt use among households itemizing deductions, it is not so compelling as to cause those households to become significantly more indebted for consumption purposes, holding other things constant.

The coefficients of the demographic and economic variables were reasonable. The amount of credit used relative to income did not differ significantly across life cycle groups. While the probability of credit use was expected to vary significantly across life cycle groups, the amount of credit used relative to income was not, holding income and other demographic characteristics of the household constant. Homeowners had significantly more credit relative to income than nonhomeowners. Those credit users who reported that they had had trouble making debt payments on time had significantly higher debt burdens,

holding other things constant. However, those who had previously been rejected did not have significantly lower debt burdens relative to those who had not had that experience.

The results of this estimation procedure indicate that there was little sample selection bias present in the modelling of the consumer debt-use decision. The coefficients estimated with ordinary least squares, with the sample selection process unaccounted for, differed little from the estimates reported here. This is evident in the insignificance of the estimated parameter, lambda, and a low inter-equation correlation computed in the sample selection model (table 5).

3. Conclusions and implications

Public policies affecting the cost of consumer credit and its availability and thus consumers' incentive and willingness to use credit for consumption purposes have undergone significant changes in the last decade. This analysis of the determinants of whether and how much households use consumer credit suggest that the relaxation of interest rate restrictions will not be associated with an increase in the probability of consumer credit use in the population. Households that wanted credit in regulated markets were able to at least partially satisfy their needs. The effect of rate ceilings limiting the rate of charge for unsecured credit offered by financial institutions was to reduce the probability of use of that type of credit. Those credit users who were able to qualify for unsecured cash credit from financial institutions did not have less of that type of credit than their counterparts in less restricted credit markets. But the ratio of total consumer installment debt to income was significantly lower for households residing in states with low rate ceilings relative to those in states without such restrictions, holding other things constant.

The evidence suggests that the long-term manifestation of the deregulation of consumer credit markets would be an increase in the overall ratio of consumer debt to income and an increase in the probability of use of unsecured credit from financial institutions. Since the deregulation of credit markets in 1982, the ratio of consumer credit relative to disposable income has increased. Many factors have been suggested to account for the increase (Luckett and August, 1985), but our results indicate that deregulation was an important one. Further, one of the fastest growing segments of the consumer credit market since 1982 has been that for unsecured revolving credit from financial institutions. Just as it follows from Peterson's results that rate regulations expanded the role for merchandisers of goods and services in the consumer credit market, we expect the removal of those artificial barriers to decrease the importance of merchandisers in the credit origination process, holding other things constant.

The removal of the deductibility of consumer interest will likely be associated, in the long term, with changes in the demographic profile of consumer credit users as well as the credit origination process. Households that were in the best position to take advantage of the tax deductibility of consumer interest, i.e., upper income households with a mortgage, were more likely to use consumer credit, holding other things constant, but they did not use significantly more of it relative to their income. The implication is that the overall risk of consumer credit portfolios in the past may have been reduced by the effect of tax policy.

Holding its effect on the level of interest rates constant, the change in tax policy will likely be associated with a significant reduction in the probability of consumer credit use among upper income households and an increase in the risk of portfolios of consumer credit contracts.

Evidence on the demographic characteristics of borrowers who have switched from consumer credit to home equity secured lines of credit since the passage of TRA indicates that those households have significantly higher income than credit-using households in general, and are those that were most likely to be getting a significant tax break with their use of consumer credit before tax reform (Cannet et al., 1988). With regard to the effect of tax reform on the credit origination process, just as merchandisers were able to offer credit in markets where interest rate ceilings were restrictive, merchandisers will also be able to offer "cheap credit" when consumer interest is no longer deductible. Therefore, the combined effect of the removal of rate ceilings and the elimination of the consumer interest deduction will have an indeterminate effect on the role of merchandisers in the credit origination process.

Notes

1. Interest rates charged by commercial banks for new auto loans were above 10 percent (the maximum rate that was allowed in Arkansas) in every year from 1971 through 1982 (Sullivan and Fain, 1984).

2. In 1983, only 28 percent of individual household income tax returns contained itemized deductions, according to the Internal Revenue Service.

3. The program LIMDEP, developed by William Greene of New York University, was employed.

4. Consumer installment credit included all loans with regular payments which had been used to finance consumption goods and credit card debts outstanding for those respondents who claimed to revolve balances on their cards. Real-estate secured loans were not included in the definition of consumer installment credit.

5. Unsecured credit from financial institutions included bank card credit and credit for purposes other than to buy an automobile or make additions or repair to the home for which the papers had been signed at the financial institution.

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