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# ***The Determinants of Consumer Installment Credit***

**C**ONSUMERS CONSIDER VARIOUS economic factors in making their borrowing decisions. Thus, to interpret the movement of consumer credit accurately, one needs to identify the economic factors that influence consumer borrowing and understand the ways those variables affect consumers' decisions. This article studies consumers' borrowing behavior by investigating both long-term trends and short-term fluctuations of consumer credit in relation to economic and institutional factors, including the Tax Reform Act of 1986, which phased out tax deductions for interest expense on consumer debt. The focus is on consumer installment credit, which includes major categories of consumer loans such as automobile and credit card loans.

The behavior of consumer credit has attracted considerable attention during the last 10 years. Many analysts argue that consumers accumulated excessive debt in the 1980s and became reluctant to use credit in the early 1990s. In fact, after growing rapidly in the mid-1980s, consumer installment credit declined in many quarters during 1991 and 1992. The decline of consumer installment credit in the early 1990s is particularly interesting because it occurred despite low interest rates. The decline during

the early 1990s after a period of rapid growth may not be fully explained by changed consumption expenditures. Thus, it appears that consumers have changed the pattern of financing their purchases.

The change in consumer installment credit is the difference between the extension of new credit and the repayment of the principal of existing debt. This article examines the variables that may affect the proportion of consumption that is financed by debt and the rate at which consumers repay existing debt principal.

## **GROWTH OF CONSUMER INSTALLMENT CREDIT**

Consumer installment credit covers most short- and intermediate-term credit extended to individuals for which repayment is scheduled in two or more installments, excluding loans secured by real estate.<sup>1</sup> Consumer installment credit, which totaled about \$760 billion at the end of 1992, consists of three main categories: automobile credit, revolving credit and other credit.<sup>2</sup> Revolving credit is mainly credit card

<sup>1</sup>Data on consumer installment credit are collected and published by the Federal Reserve Board of Governors in their G19 release.

<sup>2</sup>There is also noninstallment consumer credit, which consists mostly of short-term credit such as charge card balances that need to be paid in full within the billing cycle. This credit category totaled \$52 billion at the end of

1992. Because it reflects more of delayed settlements than credit extension and accounts for a relatively small portion of consumer credit, noninstallment credit is not discussed here.

loans, and the category other credit includes loans to finance purchases of mobile homes, home appliances and furniture, and personal loans. Major lenders are commercial banks, finance companies, credit unions, savings institutions, retailers and gasoline companies.

The economic importance of consumer installment credit may be illustrated by examining it in relation to other components of the household balance sheet. Table 1 shows the balance sheet of the household sector for selected years between 1960 and 1992. Two main components of household liabilities are home mortgages and consumer installment credit. Consumer installment credit emerged as a main financing tool for households after World War II and has been a major component of the household balance sheet since the early 1950s. Between 1960 and 1992, consumer installment credit held fairly stable at about 20 percent of total liabilities.

Although its long-term trend can be described as a steady increase in line with other components of the household balance sheet, consumer installment credit grew at uneven rates over short time spans. Particularly notable are rapid growth in the mid-1980s and stagnation in the early 1990s. In most quarters of the years between 1984 and 1986, the annualized growth rate of consumer installment credit was substantially more than 10 percent. Between 1991 and 1992, however, the outstanding amount of consumer installment credit declined in many quarters. In particular, automobile credit decreased in all but one quarter of the two years.

To investigate the possibility that the financing pattern of consumers has changed over time, we need to examine the behavior of consumer installment credit in relation to consumption. The outstanding amounts of consumer credit and consumption expenditures are not

directly comparable because the former is a stock, a value at a point in time, whereas the latter is a flow, a rate per unit of time. For purposes of comparability, the change in consumer installment credit, which is a flow, is compared with consumption expenditures. Figure 1 shows the ratio of the change in each category of consumer installment credit to the consumption expenditures on the relevant category of goods, which is referred to as the credit ratio.<sup>3</sup> For total credit, consumption expenditures on durable goods are used as the denominator because consumers obtain credit mostly to finance the purchase of big-ticket items such as automobiles, furniture and home appliances. The denominator for the automobile credit ratio is consumption expenditures on automobiles. For the revolving credit ratio, consumption expenditures on all items but automobiles are used as the denominator because consumers use credit cards for a wide variety of purposes but generally not for the purchase of automobiles. For the other credit ratio, expenditures on durable goods other than automobiles serve as the denominator.

A high or low credit ratio may be interpreted as fast or slow credit growth relative to consumption. Thus, fluctuations of the credit ratio reflect changes in the financing pattern of consumers, that is, changes in the proportion of debt-financed consumption, in the rate of repayment of existing debt, or in both. In other words, substantial changes in the credit ratio suggest that factors other than consumption have affected consumer borrowing.<sup>4</sup>

In Figure 1, the total credit ratio shows no apparent long-term trend but exhibits wide short-term fluctuations. Excluding the early 1990s, the automobile credit ratio fluctuates around 0.13 and has no apparent long-term trend. For revolving credit, the credit ratio shows an upward trend, reflecting the increased use of credit cards during the last two decades.

<sup>3</sup>Data are quarterly and seasonally adjusted. The Federal Reserve Board's data on consumer installment credit show several breaks that may arise from modified classifications. For example, securitized consumer loans were added to the data in January 1989. To alleviate such problems, the quarterly changes are linearly interpolated when obvious breaks are found. The interpolated data points are 1971:1, 1977:1 and 1989:1.

<sup>4</sup>The correlation coefficients between credit ratios and relevant consumption expenditures confirm that credit ratios were unrelated to the cyclical behavior of consumption between 1970 and 1992. The correlation coefficients were -0.133 for total credit, -0.098 for automobile credit, 0.533

for revolving credit and -0.482 for other credit. Time trends in credit ratios, which were upward for revolving credit and downward for other credit, can explain the significant magnitudes of the coefficients for revolving and other credit. On the other hand, the correlation coefficients between credit ratios and changes in consumer installment credit were all greater than 0.8 for the four categories of credit.

**Table 1**  
**Balance Sheet of the Household Sector**  
**(in billions of 1982-84 dollars)<sup>1</sup>**

	1960	1970	1980	1985	1990	1992
<b>TOTAL ASSETS</b>	6,921.8	9,886.3	13,472.7	15,118.8	17,321.6	18,425.2
Tangible assets	2,466.3	3,515.1	5,707.5	6,136.8	6,685.8	6,790.7
	(35.6%)	(35.6%)	(42.4%)	(40.6%)	(38.6%)	(36.9%)
Owner-occupied real estate	1,649.4	2,235.6	3,992.0	4,321.6	4,574.6	4,752.0
	(23.8%)	(22.6%)	(29.6%)	(28.6%)	(26.4%)	(25.8%)
Nonprofit tangible assets	162.7	319.6	484.5	522.3	544.9	448.9
	(2.4%)	(3.2%)	(3.6%)	(3.5%)	(3.1%)	(2.4%)
Consumer durables	654.3	959.9	1,231.0	1,292.8	1,566.2	1,589.8
	(9.5%)	(9.7%)	(9.1%)	(8.6%)	(9.0%)	(8.6%)
Financial assets	4,455.4	6,371.2	7,765.2	8,982.0	10,635.9	11,634.5
	(64.4%)	(64.4%)	(57.6%)	(59.4%)	(61.4%)	(63.1%)
<b>TOTAL LIABILITIES</b>	743.0	1,216.2	1,760.8	2,161.3	2,835.7	2,930.2
Home mortgages	452.2	705.1	1,098.2	1,281.4	1,851.1	1,957.6
	(60.9%)	(58.0%)	(62.4%)	(59.3%)	(65.3%)	(66.8%)
Installment consumer credit	152.2	272.0	366.6	489.1	576.0	539.1
	(20.5%)	(22.4%)	(20.8%)	(22.6%)	(20.3%)	(18.4%)
Other liabilities	138.6	239.1	295.9	390.8	408.5	433.4
	(18.7%)	(19.7%)	(16.8%)	(18.1%)	(14.4%)	(14.8%)
<b>NET WORTH</b>	6,178.8	8,670.1	11,711.9	12,957.5	14,486.0	15,495.0

<sup>1</sup>Includes personal trusts and nonprofit organizations. Dollars are deflated by consumer price index. Numbers in parentheses are percent of total assets for asset items and percent of total liabilities for liability items.

SOURCE: Board of Governors.

In contrast, the other credit ratio appears to have declined over time.

Short-term fluctuations in the credit ratios are much more notable. Between 1970 and 1992, the total credit ratio ranged from -0.07 to 0.26. The movement of the total credit ratio generally confirms that consumers borrowed aggressively in the mid-1980s but became reluctant to borrow in early years of the 1990s. The changed borrowing behavior is particularly evident for automobile credit; the automobile credit ratio plunged in 1991 after peaking in the mid-1980s.<sup>5</sup> A reason for the wider fluctuation of automobile credit may be that consumers consider the economic environment more seriously when they obtain larger loans.

## ECONOMIC AND INSTITUTIONAL FACTORS

The main economic decisions of consumers are to allocate available resources to various types of consumption and to construct a desirable personal financial structure. The resources available to consumers include existing wealth, current income and future income. Consumers allocate these resources between current consumption and future consumption. By distributing resources prudently over time, consumers can avoid excessive consumption and prevent future financial hardships. Changes in the economic environment also require a restructuring in consumer balance sheets. A well-managed

<sup>5</sup>Eugeni (1993) suggests that an increase in auto leases partly explains the slow growth of consumer credit in recent periods. The credit ratio, however, is not seriously affected by auto leasing. The Bureau of Economic Analysis, which publishes the data on consumption expenditures, classifies rental and leasing expenses under expenditures on services as opposed to goods. The credit extension involving leasing is classified under business credit.

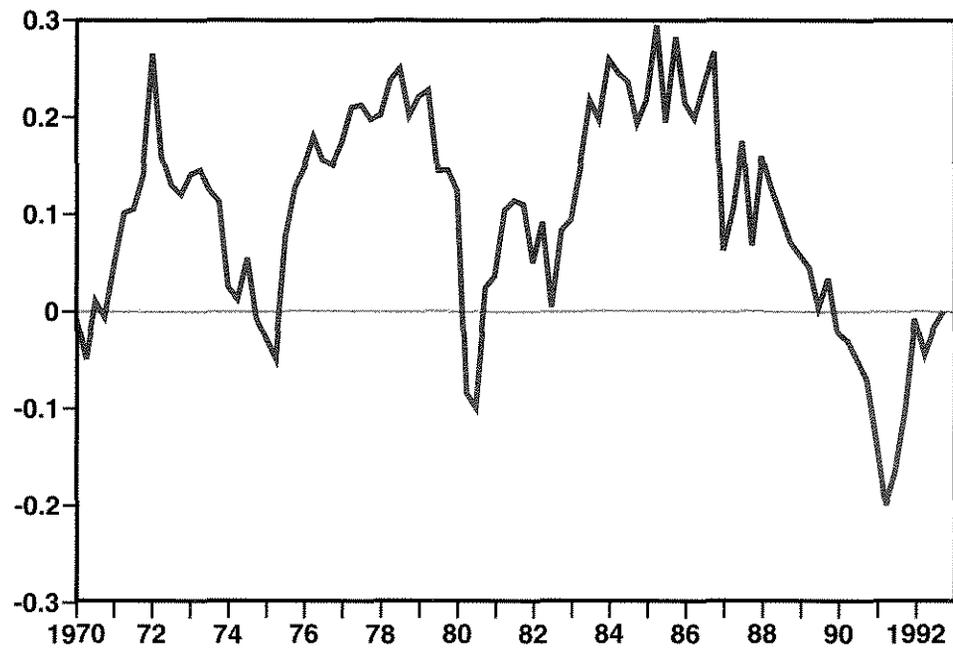
Accordingly, an increase in leasing reduces consumption expenditures on durable goods as well as consumer credit.

Figure 1a  
Total Credit Ratio<sup>1</sup>



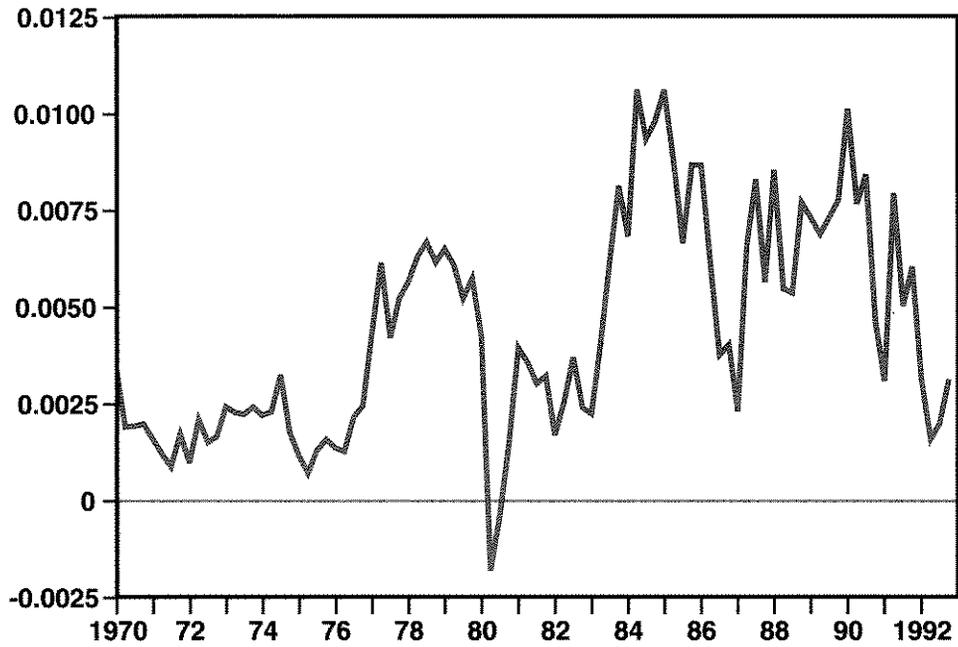
<sup>1</sup>Change in total consumer installment credit/consumption expenditures on durable goods

Figure 1b  
Automobile Credit Ratio<sup>1</sup>



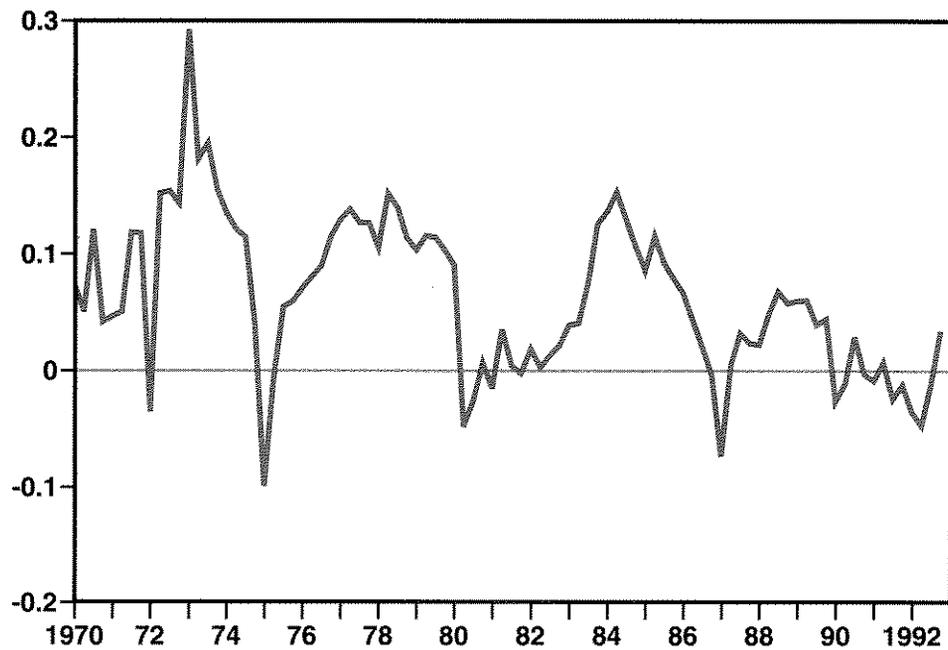
<sup>1</sup>Change in automobile credit/consumption expenditures on automobiles

Figure 1c  
**Revolving Credit Ratio<sup>1</sup>**



<sup>1</sup>Change in revolving credit/consumption expenditures other than automobiles

Figure 1d  
**Other Credit Ratio<sup>1</sup>**



<sup>1</sup>Change in other credit/consumption expenditures on durable goods other than automobiles

household balance sheet can increase the net worth and liquidity of the household.

The change in outstanding consumer credit in a given period is the difference between acquisition of new credit and repayment of existing credit. Acquisition of new credit, which is a decision to use future income for current purchases, reflects various factors such as the level and type of consumption, characteristics of consumers, the relative cost of resources, as well as macroeconomic conditions. The relative cost of resources along with macroeconomic conditions may also affect repayment of existing credit, which is an act of transferring current income to wealth. The variables affecting the acquisition and repayment of loans should explain changes in consumer credit.

Acquisition of new credit would tend to increase with consumption, especially with expenditures on durable goods. As shown in Figure 1, however, consumption alone is not enough to explain the growth of consumer credit. This section focuses on other factors that may influence the financing pattern of consumers and thereby affect credit growth. An examination of those factors helps clarify the relationship between credit growth and the economic environment and sheds light on the unusually fast growth of consumer credit in the mid-1980s and the particularly slow credit growth in the early 1990s.

Other factors considered here are the growth of home equity lines of credit, demographic characteristics, income distribution, interest expense on consumer installment credit, consumer confidence, the debt burden of households, and measures of banks' willingness to lend. Tax deductibility may play an important role as well. It is considered as a part of the discussion of home equity lines of credit and interest expense.

Consumers can select among various credit instruments to satisfy a given borrowing need. Because home equity lines of credit can serve

as close substitutes for consumer installment credit, any discussion of consumer credit must take into account the growth of home equity lines of credit. Demographic characteristics and income distribution may influence the long-term trend of consumer borrowing by affecting the income profile of typical consumers. Interest rates will influence the use of consumer installment credit. Consumer confidence may indicate the consumers' anticipation of future income, which is an important consideration in making borrowing decisions. The size of debt burden may also affect the borrowing decision. The supply of credit shall also be considered. If lenders are reluctant to lend, consumers cannot borrow as much as they want.

### ***Home Equity Lines of Credit***

Home equity lines of credit deserve particular attention because they can serve as close substitutes for consumer installment credit and are offered at a lower rate, especially on an after-tax basis. Home equity lines of credit, which became widely available in the mid-1980s, emerged as an important financing tool for households. Once they open a line of credit, households can conveniently obtain extra credit and flexibly repay the outstanding amount. The flexibility of home equity lines of credit allows households to easily substitute this credit for conventional consumer loans.<sup>6</sup> Home equity lines of credit, which are secured, are offered at comparatively low interest rates, generally at 1.5 percentage points above the prime rate.<sup>7</sup> Furthermore, home equity lines of credit are treated as home mortgages for tax purposes and, hence, the interest expense is fully tax deductible in most cases. Consequently, home equity lines of credit have been more attractive than conventional consumer credit since the Tax Reform Act of 1986 phased out tax deductions for interest expense on conventional consumer credit.<sup>8</sup>

Home equity lines of credit at commercial banks and S&Ls almost tripled between 1987

<sup>6</sup>Home equity lines of credit are generally classified under home mortgages.

<sup>7</sup>See Canner and Lueckert (1989).

<sup>8</sup>Interest expense on consumer loans was 100 percent tax deductible before 1987. The deductibility decreased to 65 percent in 1987, 40 percent in 1988, 20 percent in 1989, 10 percent in 1990 and 0 percent thereafter.

and 1991, from \$32 billion to \$86 billion.<sup>9</sup> The surge of home equity lines of credit, however, may have occurred at the expense of conventional consumer loans. The 1988 Survey of Consumer Attitudes shows that the major reasons for drawing on home equity lines of credit include the repayment of other debts and the purchase of automobiles.<sup>10</sup> In addition, the surge of home equity lines of credit coincided with the phase-out of tax deductions for interest expense on consumer installment credit.

After the initial surge, home equity lines of credit stagnated in 1992. The stagnation might be explained by active refinancing of home mortgages in recent years, another way of extracting home equity. Canner and Lockett report that nearly 60 percent of those who refinanced their residential mortgages increased their mortgage debt.<sup>11</sup> It is obvious that some consumers have substituted home equity for consumer installment credit by using home equity lines of credit in the late 1980s and early 1990s, and also mortgage refinancing in the early 1990s. This finding suggests a significant effect of the phase-out of tax deductions for interest expense on conventional consumer debt. The phase-out of tax deductions certainly appears to have contributed to the slowing in the growth of consumer credit in the late 1980s and the early 1990s by accelerating the substitution of consumer installment credit with loans secured by residential properties.

### *Demographic Characteristics*

Borrowing decisions differ across consumers. Therefore, the aggregate outcome depends on the demographic composition of consumers. The age of consumers may be important. According to the permanent income hypothesis, consumers maximize lifetime utility by using credit to create a pattern of consumption over their lifetimes that is smoother than the pattern of

income. Because younger individuals in general have accumulated little wealth and have low current incomes relative to their future incomes, they are more likely to finance current consumption with future income.

Table 2 shows the percentage distribution of U.S. population by age between 1960 and 1990. The population may roughly be classified into the following three groups: (1) those who do not make independent financial decisions— younger than 20 years of age; (2) those who make independent financial decisions and rely heavily on future income—between 20 and 34 years of age; and (3) those who make independent financial decisions and primarily rely on current income and existing wealth—35 years of age and older.<sup>12</sup> During the 30-year period, both the percentages of the 20-34 group and the 35 and older group generally increased, but the increase was larger for the 20-34 group. Thus, the net long-run effect is likely to be increased consumer borrowing. The increase in the 20-34 group was particularly marked from 1970 to 1980, which seems to be consistent with heavy borrowing in the mid-1980s. Furthermore, the stabilizing of the 20-34 group, along with continued growth in the 35 and older group, suggest that age distribution may have contributed to a slowing in consumer credit during the late 1980s and early 1990s.

### *Income Distribution*

The distribution of income also influences the aggregate borrowing behavior of consumers. Middle-income individuals, who do not have large current income but may expect stable future income, may on average actively borrow to finance current consumption. On the other hand, high-income individuals generally have less need to borrow, and low-income individuals without stable employment may be afraid to borrow, unable to borrow, or both. Hendricks

<sup>9</sup>In 1988 about 85 percent of home equity lines of credit was held by commercial banks and savings institutions (Canner and Lockett, 1989). The Call Report data (Consolidated Reports of Condition and Income) of the Federal Reserve Board have included home equity lines of credit since 1987:4 for commercial banks and since 1988:4 for S&Ls. For the period between 1987:4 and 1988:3, home equity lines of credit at S&Ls were estimated. The credit at S&Ls was assumed to have grown at the same rate as that at commercial banks.

<sup>10</sup>See Canner and Lockett (1989).

<sup>11</sup>See Canner and Lockett (1990). They study mortgage refinancing based on consumer surveys conducted in 1988 and 1989.

<sup>12</sup>Hendricks and others (1973) report that the ratio of installment debt to income decreases sharply between the 30-34 age group and the 35-40 age group. The study looks at the relationship between consumer characteristics and borrowing behavior using survey data.

**Table 2**  
**Percentage of U.S. Population by Age**

Age	1960	1970	1980	1985	1990
Under 20	38.5%	37.7%	31.8%	29.5%	28.8%
20-24	6.2	8.4	9.5	8.9	7.7
25-29	6.1	6.7	8.7	9.1	8.5
30-34	6.6	5.7	7.8	8.5	8.8
35-39	6.9	5.4	6.2	7.4	8.0
40-44	6.5	5.8	5.2	5.9	7.1
45-54	11.4	11.4	10.0	9.4	10.1
55-64	8.6	9.1	9.6	9.3	8.4
65 and over	9.2	9.8	11.3	11.9	12.5
Under 20	38.5	37.7	31.8	29.5	28.8
20-34	18.8	20.7	26.0	26.5	25.1
35 and over	42.7	41.6	42.2	44.0	46.2

SOURCE: U.S. Bureau of Census.

and others report the highest ratios of installment debt to income for middle-income families.<sup>13</sup> Kennickell and Shack-Marquez also show that the proportion of families carrying credit cards and other consumer debt is the largest for middle-income families.<sup>14</sup> Consequently, a shift in the distribution of income toward middle-income families might be associated with more consumer borrowing for a given amount of consumption.

Table 3 shows that the proportion of middle-income households (annual income between \$25,000 and \$49,999 in 1989 dollars) gradually decreased from 38.8 percent to 33.2 percent between 1970 and 1989. Median income increased slightly during the period, but the slight increase does not appear to be enough to explain the changed income distribution. With other things constant, the decreased proportion of middle-income households should have reduced consumer borrowing. Figure 1 does not show either an upward or downward long-term trend in consumers' borrowing behavior. It is possible that the long-term effects of age distribution and income distribution have roughly offset each other.

### ***Interest Rates***

The price of credit is expected to have an effect on consumers' borrowing decisions. Higher interest rates on consumer credit mean larger sacrifice of future income for a given level of current consumption financed by future income. Thus, higher interest rates on consumer credit will discourage current consumption in general and have an even larger effect on the use of consumer credit for current purchases. Consumers with heavy borrowing needs are more likely to defer purchases. Therefore, the proportion of debt-financed consumption should be lower. A high cost of carrying debt will also induce households to repay existing debt faster. Hence, in addition to slowing consumption, increases in interest rates reduce the proportion of consumption financed with debt and increase the repayment rate, causing growth of consumer credit to slow relative to consumption.

To illustrate the effect of interest rates on consumer installment credit, this study compares interest rates on 48-month new car loans and the automobile credit ratio, instead of the total credit ratio, because it is difficult to obtain an interest rate applicable to consumer install-

<sup>13</sup>See Hendricks and others (1973).

<sup>14</sup>See Kennickell and Shack-Marquez (1992).

**Table 3**  
**Percent Distribution of Household Income**  
**(in thousands of 1989 dollars)**

Annual Income	1970	1975	1980	1985	1989
Less than 10.0	16.8%	16.8%	17.4%	17.2%	15.6%
10.0-14.9	8.9	10.4	10.1	10.2	9.7
15.0-24.9	18.7	19.1	19.8	19.0	17.9
25.0-34.9	19.2	17.7	17.0	16.3	15.9
35.0-49.9	19.6	18.7	18.2	17.2	17.3
50.0-74.9	12.0	12.5	12.2	13.3	14.5
75.0 or more	4.8	4.8	5.4	6.8	9.0
Less than 25	44.4	46.3	47.3	46.4	43.2
25-49.9	38.8	36.4	35.2	33.5	33.2
50 or more	16.8	17.3	17.6	20.1	23.5
Median Income	\$27.9	\$27.2	\$26.7	\$27.2	\$28.9

SOURCE: U.S. Bureau of Census.

ment credit in general.<sup>15</sup> Figure 2 shows the real after-tax interest rate on automobile credit along with the automobile credit ratio.<sup>16</sup> The real after-tax rate is more relevant than the nominal interest rate. Because future income tends to rise with the rate of inflation, the interest rate net of inflation more accurately reflects the price of present consumption in terms of future income. Despite lower nominal interest rates, the real after-tax interest rate on automobile credit stayed high in the early 1990s because of low rates of inflation and the phase-out of tax deductions for interest expense on consumer loans.

In Figure 2, the automobile credit ratio generally exhibits a negative relationship with the interest rate except for years between 1983 and 1986, when both the credit ratio and the in-

terest rate were high. One possibility is that consumers, who had experienced high inflation in the early 1980s, mistakenly expected high inflation and, hence, underestimated the real interest rate in those years. The figure shows very high real after-tax interest rates in the early 1990s, when the credit ratio was very low. Thus, when the effects of tax deductibility and inflation are incorporated, the movement of interest rates is consistent with the slow credit growth of the early 1990s.

### *Relative Interest Rates*

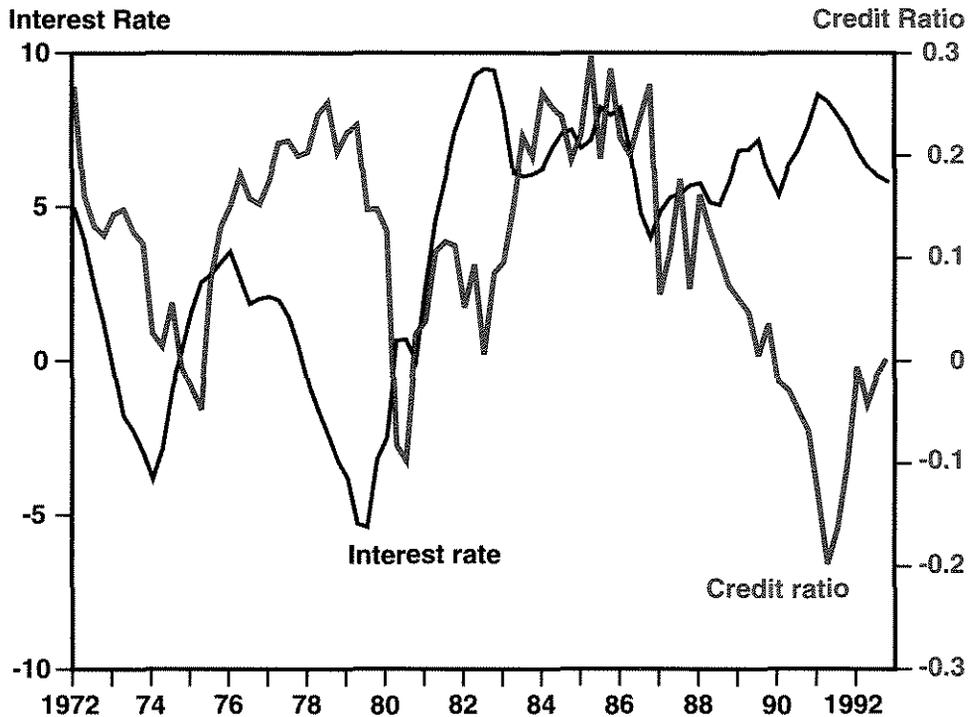
When consumers have more than one financing alternative, they will choose the least costly method. A financing alternative available to

<sup>15</sup>Data on the interest rate on automobile credit are available from the first quarter of 1972. No appropriate measure of the interest rate is available for other credit, which consists of various types of loans. The interest rate on credit card loans is available, but the demand for credit card loans is known to have been unusually insensitive to the interest rate. Thus, revolving credit is not a good candidate for this analysis.

<sup>16</sup>Real after-tax interest rate = nominal interest rate - expected rate of inflation - tax deduction. The four-quarter average (the current and next three quarters) of the annualized rate of change in the consumer price index is used as the measure of expected inflation. The assumption here is that consumers on average forecast the rate of inflation accurately. Tax deduction is the nominal interest rate mul-

tiplied by the proportion of tax-deductible interest expense multiplied by the marginal federal income tax rate for four-person, median-income families. The data source of the marginal federal income tax rate is the Department of the Treasury (1991); the tax rate for 1992 is assumed to be the same as in 1991. State income taxes, which vary, are not considered. The incorporation of state income taxes would make the tax deduction more significant and, hence, raise the real after-tax interest rate of recent periods.

Figure 2  
Real After-Tax Interest Rate on Automobile Credit



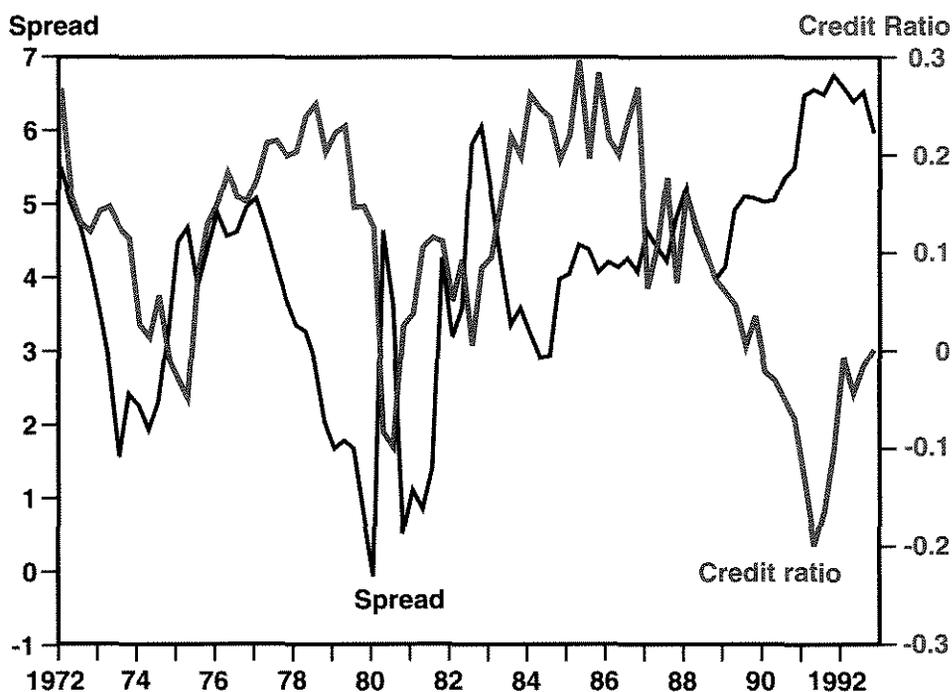
households is to draw down their wealth. Because bank deposits offer financial flexibility, many households with large bank accounts may still want to finance their automobile purchases with loans even though the interest rate on automobile loans is higher than the return on deposits. When there is a large gap between the interest rate on household liabilities and the return on household financial assets, however, households may use their assets to finance consumption instead of incurring more debt. Furthermore, the high cost of carrying liabilities relative to the return on assets prompts the repayment of existing debt. Thus, the relative interest rates on assets and liabilities can have an effect on the growth of consumer installment credit.

Assuming that the returns on major household assets, such as certificates of deposits and money market shares, are closely tied to the

Treasury bill rate, we can estimate the spread between the interest rate on consumer credit and the return on household financial assets using the Treasury bill rate as a proxy for the return on household assets. Figure 3 shows the relationship between the spread of after-tax interest rates on automobile loans over three-month Treasury bills on an after-tax basis and the automobile credit ratio.<sup>17</sup> The phase-out of tax deductions widens this spread as much as it raises after-tax interest rates on automobile loans because the Tax Reform Act of 1986 had little effect on the after-tax return on household assets. The spread and credit ratio tended to move in opposite directions for the most part. The spread can partly explain the rapid credit growth in the mid-1980s, unlike the real after-tax interest rate, and well explains the slow-down of credit growth in the early 1990s. This analysis suggests that the interest rate spread

<sup>17</sup>Spread = [interest rate on automobile loans - (interest rate on automobile loans × marginal tax rate × tax deductibility)] - [three-month Treasury bill rate - (three-month Treasury bill rate × marginal tax rate)]. In this calculation, all interest income of households is assumed to have been subjected to income tax throughout the period.

Figure 3  
**Spread of Interest Rates on Automobile Credit  
 Over Three-Month Treasuries**



significantly affects consumer borrowing behavior and also confirms the importance of the Tax Reform Act of 1986.

### *Confidence in the Economy*

The purchase of goods on credit is an act of financing current consumption with anticipated future income. Because future income is uncertain, consumers' borrowing decisions depend on their confidence in the future. In particular, confidence about future income may significantly affect the financing decisions of the consumers who rely heavily on future income. When confidence is low, those consumers are discouraged from purchasing goods in the current period.<sup>18</sup> If those heavy credit users defer consumption, consumer borrowing in aggregate will be smaller per unit of consumption. In addition, consumers in general may wish to

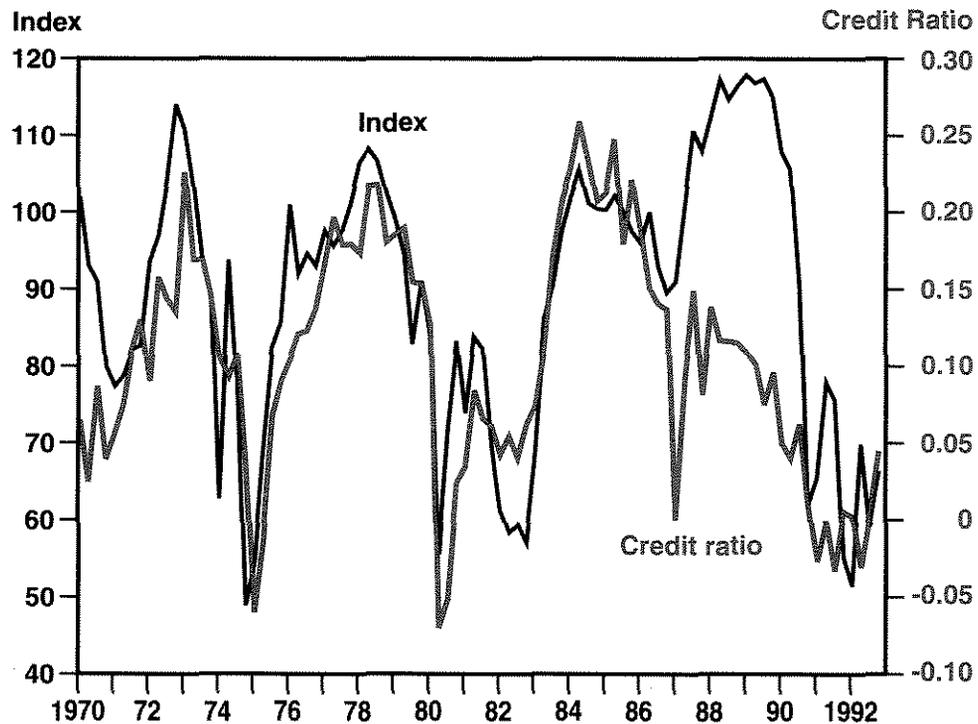
consume less and reduce the level of debt to prepare for an uncertain future. Therefore, the repayment rate of existing debt tends to be higher.

Measures of consumers' confidence are designed to capture consumers' subjective feelings about economic conditions that might influence their spending decisions. Those feelings can have an impact on consumer borrowing, regardless of their accuracy.<sup>19</sup> What is more relevant for consumers making their decisions might be the perception about future income rather than the actual future income. Figure 4 compares the Conference Board's index of consumer confidence and the total credit ratio. The two variables show a strong tendency to move together. The only exception is the period between 1987 and 1989, when the credit ratio declined despite

<sup>18</sup>According to the panel study of Hendricks and others (1973), families that are more optimistic about financial progress borrow more. In addition, the index of past and future financial progress is more highly correlated with borrowing than it is with consumption expenditures. These results suggest that households borrow more per unit of consumption when they are optimistic about the future.

<sup>19</sup>Weinberg (1993) discusses the validity of consumer confidence indices and concludes that their usefulness as a forecasting tool is limited.

Figure 4  
Consumer Confidence Index



very high levels of consumer confidence. This measure of consumer confidence is consistent with high credit ratios between 1984 and 1986 and low ratios between 1990 and 1992. Overall, it appears that consumers' perception about the economy significantly influences their borrowing behavior.

### *Debt Burden of Households*

Many analysts have cited the large debt burden of households as a factor contributing to the slowdown of consumer installment credit in the early 1990s. A heavy debt burden means that consumers have already used a large portion of future income and, hence, have less future income available for consumption. Then they are likely to consume less in the current period and repay debt faster in an effort to smooth out consumption.

Figure 5 shows that the stock of consumer installment credit as a percentage of disposable personal income increased rapidly through most

of the 1980s. That the debt/income ratio peaked toward the end of the 1980s might appear to be consistent with the slowdown of credit growth in the early 1990s. A careful comparison of the debt/income ratio with the total credit ratio, however, does not convincingly support the economic relationship between the two variables. Since 1970, the debt/income ratio generally lagged behind the credit ratio, indicating that changes in the debt/income ratio may have been a result rather than a cause of movements of the credit ratio. Thus, Figure 5 shows more of an accounting relationship than economic causality; the debt burden increased as a result of heavy borrowing in previous periods.

An alternative measure of the debt burden is debt service payments, which are principal and interest payments on household debt. A possible advantage of this measure over the debt/income ratio is the incorporation of the effects of interest rate changes. Figure 5 also shows the estimated debt service payments of households as a share of disposable personal income.<sup>20</sup> The

<sup>20</sup>Debt service payments have been estimated by the Board of Governors based on the methodology suggested by Paquette (1986).

Figure 5a  
**Ratio of Consumer Installment Credit to  
 Annual Disposable Personal Income**

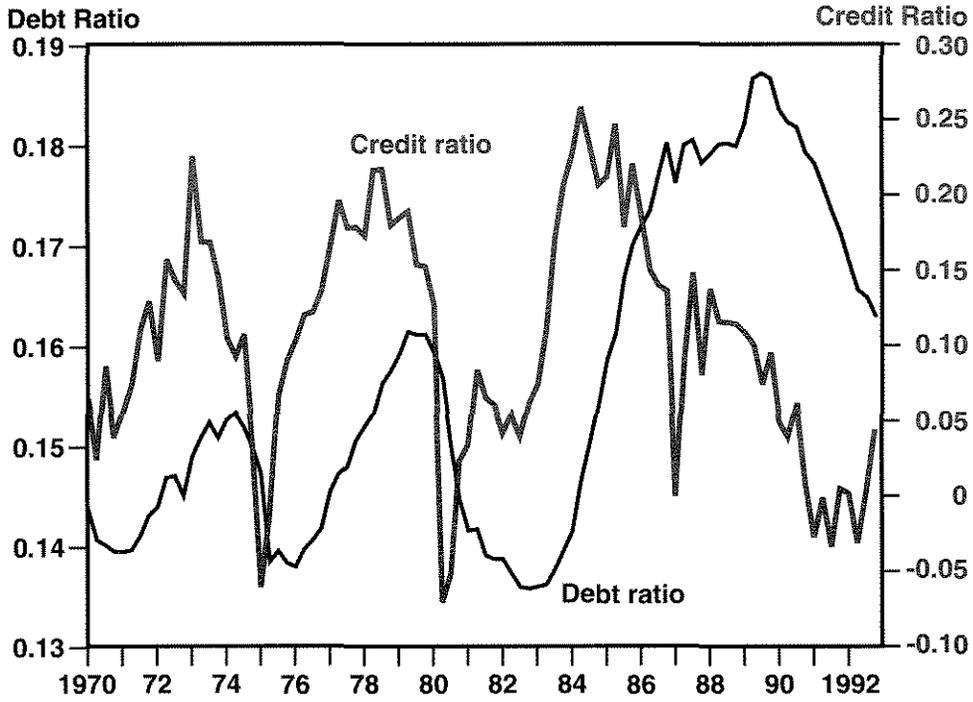


Figure 5b  
**Ratio of Debt Service Payments to  
 Annual Disposable Personal Income**

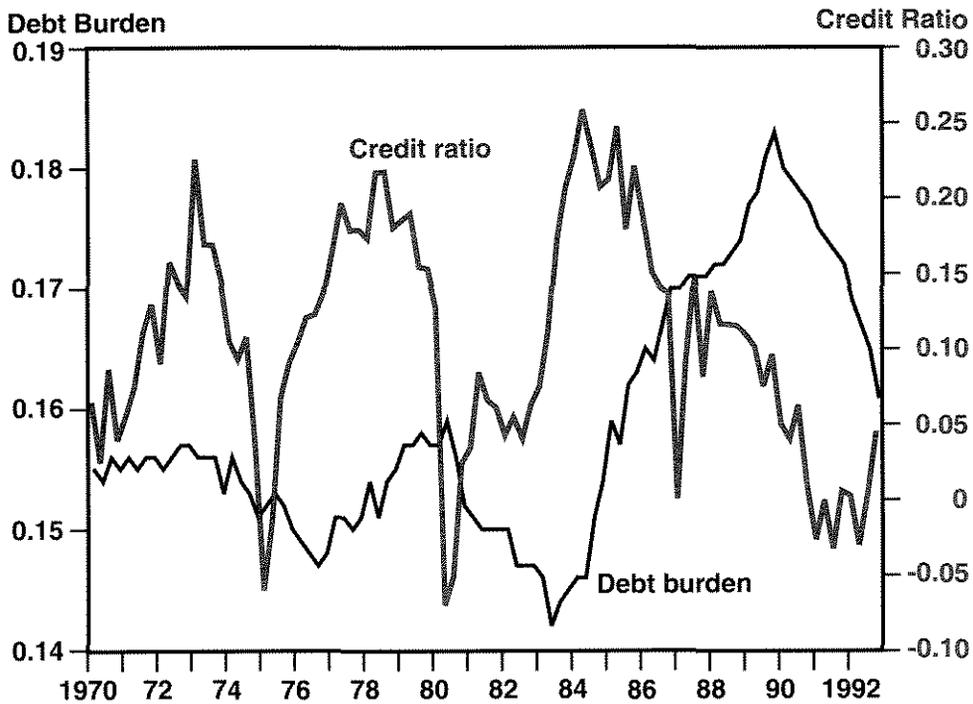
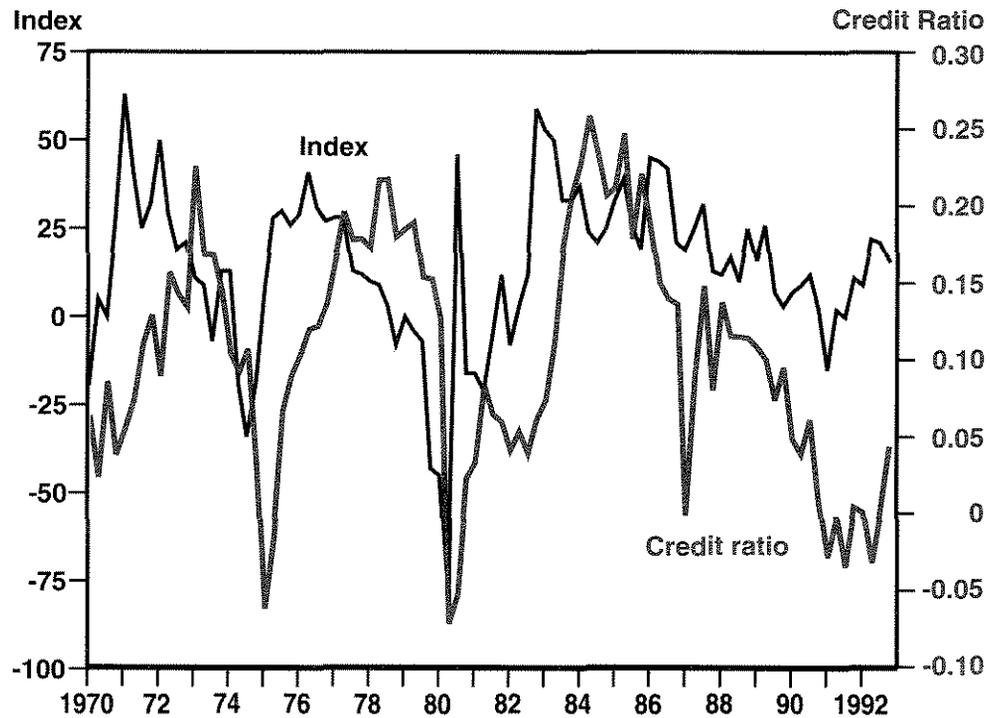


Figure 6  
**Index of Banks' Willingness to Lend**



estimate includes mortgage payments, as well as payments on consumer credit. The debt service burden shows a similar pattern of movements to the debt/income ratio, especially during the 1980s and 1990s. Consequently, it is difficult to draw any conclusions about the effect of debt burdens on financing patterns because the two measures are so closely intertwined.

### ***Willingness of Lenders to Lend***

The factors considered thus far have dealt mainly with the demand for consumer installment credit. Supply conditions may also affect the quantity of consumer installment credit. Tightening of lending standards by financial institutions may force many consumers with

heavy credit needs to defer consumption and many others to find other financing means. Hence, the reluctance of lenders to extend credit may result in slow growth of consumption and even slower growth of consumer credit.

Figure 6 plots an index based on a survey of banks' willingness to make consumer installment loans along with the total credit ratio.<sup>21</sup> Positive index values indicate that banks on average were more willing to lend during the period, whereas negative values mean that banks were less willing to lend. During the period examined, the credit ratio generally followed the index with a lag of a few quarters. In terms of the direction of changes, the relationship between the two variables appears to have been

<sup>21</sup>The index is derived from the Senior Loan Officer Opinion Survey of Bank Lending Practices. In the survey, the participating banks (60 major banks) indicate the change in their willingness to lend during the last three months by selecting one of the following five willingness categories: much more willing, somewhat more willing, basically unchanged, somewhat less willing and much less willing. In constructing the index, a number is assigned to each category (2, 1, 0, -1 and -2). The index is the weighted average of the assigned numbers multiplied by 100.

Table 4

**Is the Factor Consistent with the Financing Pattern of Consumers?**

	1970-1992	Mid-1980s	Early 1990s
Home equity lines of credit	NA	NA	Yes
Real after-tax interest rate	Somewhat	No	Yes
Interest rate spread	Yes	Somewhat	Yes
Consumer confidence index	Yes	Somewhat	Yes
Debt burden	No	No	Somewhat
Willingness to lend	Somewhat	Yes	No

systematic throughout the period examined. High values for the index were closely in line with the credit ratio during the mid-1980s. In the early 1990s, however, the relationship became questionable because of a large gap between the two variables, though the direction of changes remained consistent.

## SUMMARY

This article has examined consumers' borrowing behavior between 1970 and 1992, with particular emphasis on consumer installment credit. Consumption expenditures do not fully explain consumer borrowing because consumers vary their financing pattern (the proportion of debt-financed consumption and the repayment rate of existing debt) in response to economic and institutional changes.

Although showing no apparent long-term trend, the ratio of the change in consumer installment credit to consumption expenditures fluctuated widely since 1970, indicating that the financing pattern of consumers is volatile in the short run. In particular, consumer installment credit declined in the early 1990s after increasing rapidly during the second half of the 1980s. Short-term borrowing behavior can be affected by many economic and institutional factors, such as the emergence of a new borrowing instrument, the cost of consumer credit, the cost of consumer credit relative to the return on household financial assets, confidence in the economy, the debt burden of households and the supply condition of consumer credit. This article has examined the relationship between these factors and the ratio of the change in consumer installment credit to consumption expenditures.

Table 4 summarizes the qualitative results. The movements of most of the economic variables are found to have been fairly consistent with the behavior of consumer installment credit during the period examined. Overall, the growth of consumer installment credit relative to consumption expenditures is particularly well explained by the difference between the cost of consumer credit and the return on household financial assets (interest rate spread) and the consumer confidence index. In explaining the heavy borrowing of the mid-1980s, the high willingness of banks to lend appears significant. The small interest rate spread, high levels of the consumer confidence index and the high proportion of young adults also help explain the heavy borrowing. The slow growth of consumer installment credit in the early 1990s is fairly well explained by high real after-tax interest rates, large interest rate spreads, low levels of the consumer confidence index and the emergence of home equity lines of credit. The phase-out of the tax deductions for interest expense on consumer credit appears to have played a significant role in slowing the growth of consumer installment credit after 1986. The change in tax law induced households to substitute household financial assets and home equity lines of credit for consumer installment credit.

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