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Debt, Delinquencies, and Consumer Spending

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The sharp rise in household debt and delinquency rates over the last year has led to speculation that consumers will soon revert to more cautious spending behavior. Yet an analysis of the past relationship between household liabilities and expenditures provides little support for this view.

Analysts forecasting the course of the U.S. economy pay close attention to consumer spending. Because personal consumption expenditures make up about two-thirds of the country's gross domestic product, factors that could influence consumer spending can have significant effects on the economy's health. Among these factors, the sharp increase of household indebtedness and the rising share of income going to payments on credit cards, auto loans, mortgages, and other household loans have recently caused some concern. Could rising debt burdens precipitate a significant cutback in spending as apprehensive consumers take steps to stabilize their finances?

To determine whether such concerns are justified, this article investigates the historical relationship between household sector debt and consumer spending.[1] The article analyzes correlations between debt and spending in U.S. aggregate data for the past three decades and presents some statistical tests of this relationship. Overall, the evidence suggests that a rise in household debt is less likely to be a portent of reduced consumer spending than a sign of increased optimism about income prospects. The article also examines whether high delinquency rates—another striking development in household finances in the last year—are associated with lower consumer spending. The data do show a historical link between these two variables, but the relationship appears to be an indirect one, reflecting the fact that mounting delinquencies prompt lenders to tighten consumer credit.

Interpreting Household Debt and Expenditures

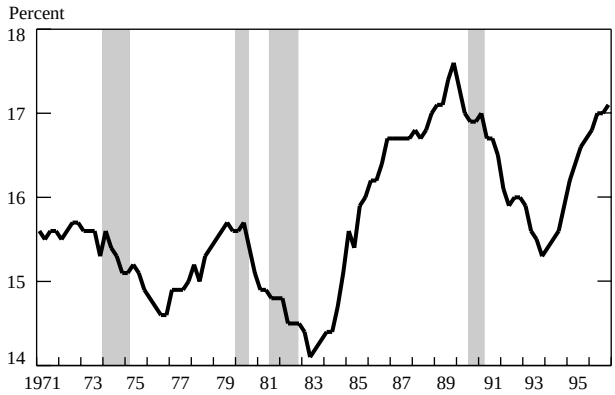
One can construct two very different hypotheses to explain the increased indebtedness of U.S. households and its effect on spending. The first hypothesis—which underlies current concerns about a retrenchment in spending—suggests that households have taken on too much debt in recent years, placing themselves in a precarious financial position. Over time, these households will recognize that their indebtedness has made them more susceptible to financial distress in the event of a serious illness, job loss, or other misfortune. As a result, they will seek to reduce their vulnerability by paying down debt and decreasing their expenditures.

According to an alternative hypothesis, however, households have willingly assumed greater debt in recent years because they expect their incomes to rise. They spend more in anticipation of increased earnings and they finance their higher spending through debt. Even if their incomes begin to fall, households may continue to increase their debt to maintain their spending—albeit at a reduced level—on the assumption that the income decline will be short lived. Only if the decline proves to be long lasting will households cut expenditures further and begin to pay down their debt.

To appreciate the difference between these two hypotheses, consider how they account for consumer behavior in the early 1990s. The first hypothesis would hold that consumer spending fell during the 1990-91 recession and could recover only sluggishly because households were reacting against their accumulation of excess debt in the late 1980s. The second hypothesis would hold that consumer spending and debt fell because the 1990-91 recession and the subsequent slow recovery lowered household expectations of future income.

Because both hypotheses offer plausible interpretations of consumer behavior, we turn to actual data on household liabilities and expenditures to determine which account is most consistent with the historical relationship between debt and spending.

Chart 1
Debt Service Payments Ratio



Source: Board of Governors of the Federal Reserve System.

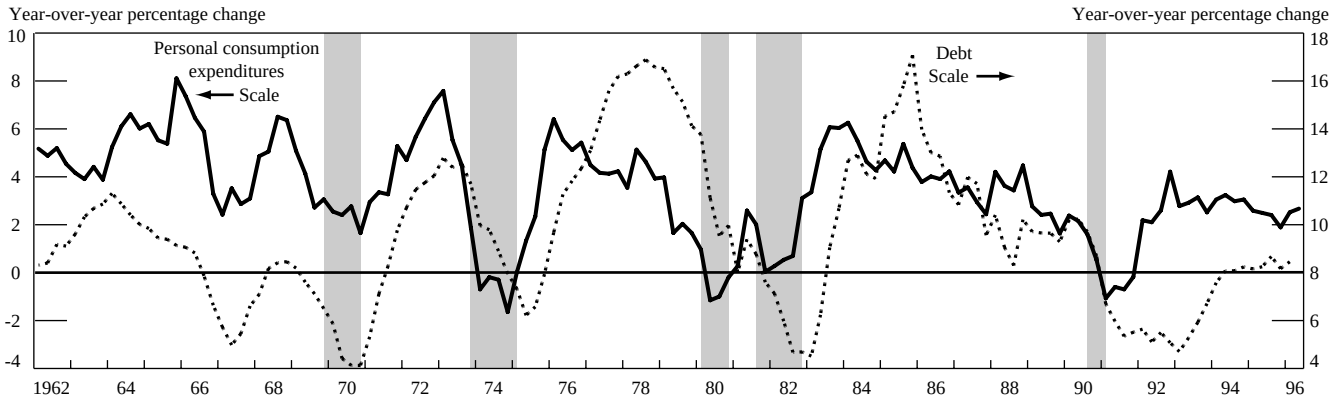
Notes: The debt service payments ratio refers to scheduled payments on mortgages, credit cards, auto loans, and other household loans as a percentage of disposable personal income. Shading denotes recession periods.

How Debt and Expenditures Are Related: 1962–96

First, what do the data reveal about the magnitude of the current household debt burden? Debt levels relative to income have reached record highs recently, surpassing their earlier peak in the late 1980s.[2] Nevertheless, interest rates are lower now than they were in this earlier period, effectively reducing the current debt burden relative to that experienced by households in the 1980s. A measure that adjusts for the effects of interest rate changes is the ratio of debt service payments to disposable income estimated by the staff of the Federal Reserve Board of Governors. This ratio consists of scheduled payments on mortgages, credit cards, auto loans, and other household loans as a percentage of income. By this measure, the current debt burden falls below its peak in the late 1980s, but it has been rising rapidly since 1994 and has now reached 17 percent, a relatively high level (Chart 1). Thus, even when interest rate effects are factored in, the debt burden may be large enough to validate the concerns of those who believe that it will lead to a cutback in consumer spending.

An initial analysis of the aggregate data[3] from the early 1960s through the first quarter of 1996, however, provides contrary evidence. If it is true that consumers respond to high levels of debt by reducing their liabilities and hence their consumption, then we would expect debt to slow before or at the same time as spending slowed. The trends depicted in Chart 2 show instead that spending slows before debt slows, most obviously in the years since 1974.[4] This pattern is consistent with

Chart 2
Debt Trails Consumption



Sources: Board of Governors of the Federal Reserve System, Flow of Funds Accounts; U.S. Bureau of Economic Analysis, National Income and Product Accounts.

Notes: Debt is total household financial liabilities. Shading denotes recession periods.

our second hypothesis, which predicts that households will begin to reduce spending when income falls, but will decrease debt only when the income decline proves to be long lasting.

A more rigorous test of the two hypotheses utilizes a statistical model relating expenditures and the financial status of households. Each equation in the model presented here relates one of four variables—assets, debt, spending on nondurables and services, and spending on durables—to past values of all four variables.[5]

Overall, the model simulations suggest that there is little reason to expect that current debt burdens will trigger a decline in consumer spending.

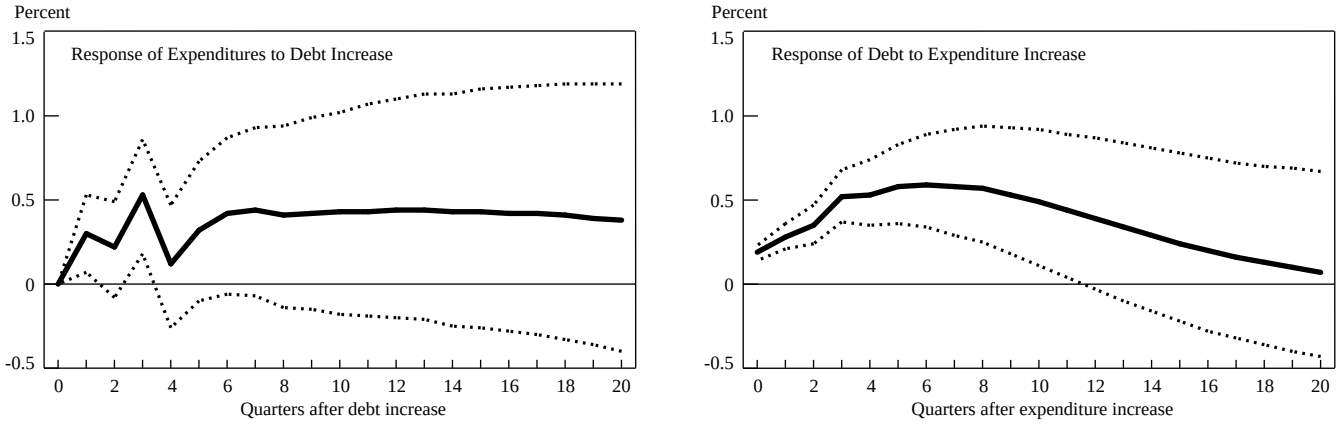
Consumer spending is divided into durables and nondurables because the financial condition of households is likely to affect spending for big-ticket durable goods such as automobiles and furniture more dramatically than spending for nondurables. The model is simulated to identify how a one-period unexpected increase in one variable affects all the variables of the model over time.[6]

Consider first the effect of an unexpected increase in debt on spending (Chart 3, left panel). If high debt burdens move households to reduce their expenditures as one way of strengthening their balance sheets—our first hypothesis—then an unexpected debt increase in one period should cause spending to decline in subsequent periods. In the estimated model, however, spending on durables appears to rise following an unexpected debt increase.[7] Now consider the effect of an unexpected increase in spending on debt (Chart 3, right panel). Such an increase could be construed as a sign of optimism about future income. If this optimism leads households to spend more and to take on more debt—our second hypothesis—then an unexpected spending increase in one period should cause debt to rise in subsequent periods. This is precisely the pattern observed in the model. Overall, the model simulations suggest that there is little reason to expect that current debt burdens will trigger a decline in consumer spending.

Nevertheless, while this analysis does not support the more alarmist view of debt, it does not necessarily preclude the "common sense" notion that higher household debt burdens will cause households to reduce their spending. First, debt may amplify the effects on spending of more fundamental economic forces such as monetary policy rather than drive consumer spending in its own right. If so, the sequence in which debt and spending changes occur may provide little information about the direction of causation between these two variables.[8] Second, debt burdens may have to reach some threshold before they have a negative effect on spending. Finally, common measures of the household sector's debt burden, such as the ratio of debt service payments to income reported in Chart 1, may not provide accurate information about the extent of household financial distress if the "average" household is not typical of households constrained by their financial condition.

This last possibility opens up another issue for investigation: namely, whether a relationship exists

Chart 3
Simulations of Durables Expenditures and Debt



Source: Author's calculations.

Note: Dotted lines are one-standard-error confidence bands.

between consumer spending and measures of the degree of household credit difficulties associated with excess debt. The next section explores the possible link between one such measure—delinquency rates on consumer loans—and household expenditures.

How Delinquencies and Expenditures Are Related: 1974–96

For those who believe that high debt burdens could lead to a cutback in consumer spending, the recent trend in delinquency rates is another reason for concern. After increasing rapidly during the last two years, the percentage of credit card accounts at least thirty days past due has reached a record level (Chart 4). The delinquency rate on other consumer loans remains below recent highs, but it has also risen significantly over the last two years.[9]

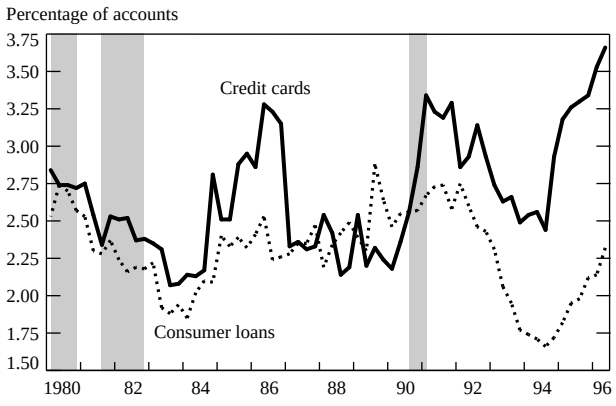
[The] relationship between delinquencies and credit tightening suggests that any effect that rising delinquency rates may have on consumer expenditures occurs because of restrictions to credit supply.

Although delinquency rates should provide a better sense of the degree of household credit difficulties than other debt burden measures, statistical tests yield little evidence of a robust direct relationship between these rates and expenditures. Delinquency rates have at most a modest negative direct effect on consumer spending in these tests, and even this largely dissipates once the effects of income and other important factors are taken into account.[10]

Delinquency rates have a more demonstrable effect, however, on consumer credit availability. Senior bank loan officers surveyed by the Board of Governors of the Federal Reserve System identify a rise in these rates as a major reason for tightening credit. Moreover, data for 1974-96 indicate that the actions of loan officers match their words: when delinquency rates rise during this period, credit becomes tighter (Chart 5, upper panel).[11] Specifically, when delinquency rates rise 0.1 percentage point, the credit easing measure declines (indicating tighter credit) by about 3.0 percentage points.[12]

This relationship between delinquencies and credit tightening suggests that any effect that rising delin-

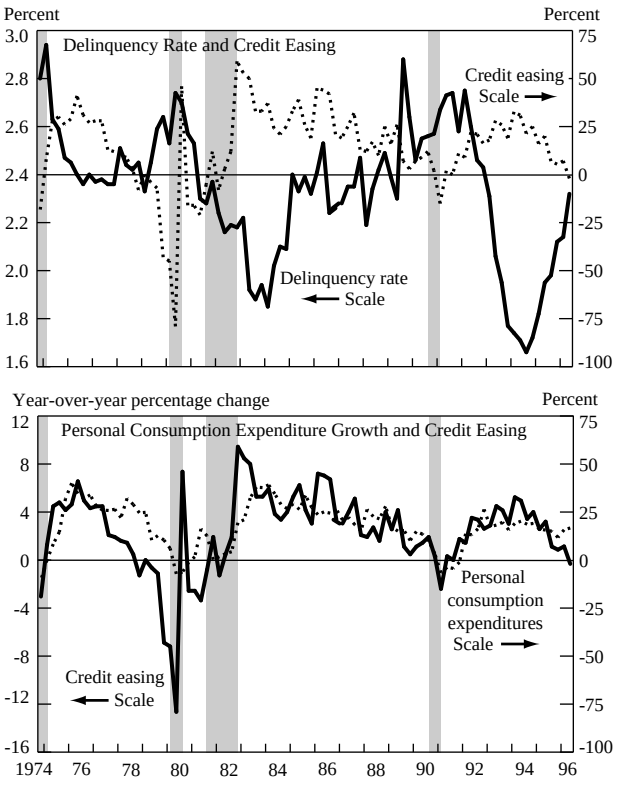
Chart 4
Delinquency Rates



Source: American Bankers Association.

Notes: Accounts are defined as delinquent if they are at least thirty days past due. Shading denotes recession periods.

Chart 5
Delinquencies, Consumer Credit Easing, and Expenditures



Sources: American Bankers Association; Board of Governors of the Federal Reserve System, *Senior Loan Officer Opinion Survey on Bank Lending Practices*; U.S. Bureau of Economic Analysis, National Income and Product Accounts.

Notes: The delinquency rate is the number of consumer loans delinquent as a percentage of all consumer loans. Credit easing is measured as the net percentage of senior loan officers who report a greater willingness to make consumer loans. Shading denotes recession periods.

quency rates may have on consumer expenditures occurs because of restrictions to credit supply: households are less able during these times to obtain more credit to support their desired spending levels. In fact, times when credit is tightening usually are times of slower consumption growth (Chart 5, lower panel). When the credit easing measure falls 3.0 percentage points, the consumption growth rate temporarily declines about 0.2 percent.[13] However, even though this credit supply channel provides a linkage between delinquency rates and expenditures, we cannot conclude that rising delinquency rates *cause* slower expenditure growth.[14]

Indeed, although credit rationing could account for the observed relationship between delinquency rates and expenditures, there is another explanation compatible with the view that household spending rises and falls with expectations about income. Since banks gather much information about their customers, they are privy to information concerning their customers' income prospects that may not be readily available to others. Therefore, if income prospects decline, banks will tighten credit at the same time that households reduce their expenditures. Thus, the relationship between lower expenditures and credit tightening (and hence delinquencies) would stem from a common response to a change in income prospects.

Conclusion

Are the current high levels of household debt a signal that consumers will soon revert to more cautious spending behavior? Surprisingly, this analysis suggests otherwise. Greater household debt generally has not led to reduced consumer spending in the past; rather, the observed relationship between debt and spending is more consistent with the hypothesis that households increase both expenditures and debt when their income prospects improve. The analysis does indicate that rising delinquency rates are associated with lower expenditure growth, but the linkage most likely occurs through the effect of delinquency rates on credit availability.

Although the complex relationship between consumer spending and household debt requires more study, the results presented here provide a clear message to analysts forecasting consumer spending: high levels of common measures of the household sector debt burden such as the debt-income ratio do not necessarily foretell slower expenditure growth. If spending slows down, the cause is more likely to be weak income growth than high household debt.

Notes

1. Remarkably little research has been done on the effects of debt burdens on expenditures. The most prominent papers are those by Mishkin (1976, 1977), which conclude that higher debt levels reduce durable goods expenditures. However, because Mishkin's results use data only through the end of 1972, they cannot provide insight into how recent financial innovations may have affected the relationship between debt and spending. In a more recent paper, Garner (1996), using methods that differ from those in this article, finds that measures of the consumer debt burden historically have not been highly reliable in predicting economic growth.

2. Lindsey (1996) offers several possible reasons for these developments.

3. The data sources are the Flow of Funds Accounts, compiled by the Board of Governors of the Federal Reserve System, and the National Income and Product Accounts, released by the U.S. Bureau of Economic Analysis.

4. The debt variable used is total household financial liabilities from the Flow of Funds Accounts; using consumer credit as the debt variable does not change any substantive conclusions. The spending variable is personal consumption expenditures from the National Income and Product Accounts. The chart displays four-quarter percentage changes for purposes of clarity; the correlations between one-quarter percentage changes of the variables confirm the impressions given by the chart.

5. This model, a vector autoregression (VAR) model, includes five lags, and all variables are in log levels. The period of estimation is fourth-quarter 1960 to first-quarter 1996.

6. These simulations are known as impulse response functions. Because the variables are in log levels, the impulse responses are cumulative percentage deviations from the baseline. In calculating these, I use a triangular decomposition of the residuals covariance matrix; the variables are in the order of nondurables plus services expenditures, durables expenditures, assets, and debt (the qualitative results are not sensitive to the order).

7. The estimated effect of an unexpected debt increase on spending for nondurables and services is negligible.

8. For example, see Kiyotaki and Moore (forthcoming) for a theoretical model in which higher debt leads to lower spending, but the path of debt trails that of spending. The basic problem is that debt is a choice made by households, and so responds to many supply and demand factors. Consequently, it is difficult to determine how debt choices affect spending choices and to establish the timing between these choices. A similar issue arises in using aggregate data to test the credit channel of monetary transmission; see Bernanke and Gertler's (1995) critique of such tests. These considerations suggest that a true test of whether higher debt causes lower consumer expenditures would have to use data on individual households over time. Unfortunately, because the ideal data set does not exist, such a test cannot be done at present.

9. Delinquency rates measured by the dollar volume of accounts past due (which are not seasonally adjusted) have not risen quite as much as those pictured in Chart 4, suggesting that many of the newly delinquent accounts are relatively small. Still, by any measure, delinquency rates have climbed quickly over the last year.

10. When consumption growth is regressed on the delinquency rate over the period from fourth-quarter 1974 to first-quarter 1996, the coefficient on the delinquency rate is -2.44 (standard error: 1.30), which is not statistically significant at the 5 percent level. (All regressions in this article also include seasonal dummies.) When lagged consumption growth together with four lags of disposable income growth and stock price growth is added to the regression, the coefficient on the delinquency rate is -1.40 (standard error: 1.11).

11. The measure of credit easing is the net percentage of bank loan officers who report in the *Senior Loan Officer Opinion Survey on Bank Lending Practices* a greater willingness to make consumer loans. A lower level of this measure thus indicates tighter credit availability.

12. When the credit easing measure is regressed on the delinquency rate over the period from fourth-quarter 1974 to first-quarter 1996, the coefficient on the delinquency rate is -30.3 (standard error: 10.9). However, this relationship is much weaker when the effects of past credit supply decisions are taken into account: when lagged credit easing is added to the regression, the coefficient on the delinquency rate is -11.7 (standard error: 7.5).

13. When consumption growth is regressed on the credit easing measure over the period from third-quarter 1966 to first-quarter 1996, the coefficient on credit tightening is 0.06 (standard error: 0.01). Duca and Garrett (1995) also find that an index of credit availability based on responses from the *Senior Loan Officer Opinion Survey on Bank Lending Practices* has a significant effect on durable goods expenditures.

14. The linkages between delinquency rates and credit easing and between credit easing and consumption growth in the regressions of the previous two notes are also rather fragile. Therefore, it is not surprising that despite the evidence of this indirect relationship, it is hard to find a direct link between delinquency rates and consumption growth. Moreover, a more technical analysis of these linkages indicates that they may have changed over time, with delinquency rates exhibiting a greater direct effect on consumption in the last few years.

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