

Household Debt and the Weak U.S. Economic Recovery

Atif Mian

University of California, Berkeley and NBER

Amir Sufi

University of Chicago Booth School of Business and NBER

The U.S. economic recovery has been weak, especially in employment growth. A micro-economic analysis of U.S. counties shows that this weakness is closely related to elevated levels of household debt accumulated during the housing boom. U.S. counties that experienced moderate levels of household debt growth from 2002 to 2006 show signs of a robust recovery in durable consumption and residential investment, and employment losses in these areas are moderating. In contrast, U.S. counties that experienced large increases in household debt during the housing boom remain mired in a severe recessionary environment.

I. Introduction

One of the striking features of the recent U.S. economic downturn is that it was preceded by the largest increase in household debt in recent history. The solid line in Figure 1 plots the household debt to income ratio for the aggregate U.S. economy over time, where income is measured as compensation and wages. After a steady increase from 1950 to 2001, the household debt to income ratio skyrocketed from 2001 to 2007 by more than it had increased in the 45 years prior.

While housing wealth and stock market gains masked the increase in debt from 2001 to 2006, the collapse in asset prices has led to a tremendous increase in the total debt to total assets ratio of the U.S. household sector, as shown by the dashed line in Figure 1. The housing-related debt to housing wealth ratio peaked at 65% in 2009, which was 25 percentage points higher than at any other time since 1950. The concurrent household default crisis has been catastrophic. Most agree that household defaults sparked the financial crisis of 2007 and 2008. Further, our own research suggests that a high level of household debt was an important factor explaining the onset of the recession (Mian and Sufi (2010)).

All eyes have turned to the economic recovery. Many argue that the nascent recovery appears weak, especially with respect to employment. This *Economic Letter* examines the relation between the weakness of the current economic recovery and the preceding sharp increase in household leverage ratios. The evidence suggests that elevated levels of household debt represent an important impediment to growth.

II. U.S. County Patterns

How has the sharp rise in household debt from 2002 to 2007 affected the economic recovery? It is difficult to answer this question using aggregate data alone. Household debt levels are elevated, but many other factors could also be causing weakness. For example, many argue that an unwillingness to lend by banks and a lack of business investment are the key impediments to growth.

The approach here is to analyze county-level data on household debt and economic activity during the recovery. U.S. counties experienced very different levels of debt growth during the housing boom. Counties where housing is inelastically supplied, such as counties in California and Florida, experienced much higher increases in household debt than counties where housing is elastically supplied, such as counties in Texas. Using the variation across U.S. counties in household debt growth from 2002 to 2006, this analysis examines the effect of high debt on residential investment, durable consumption, and employment during the recovery.

The analysis that follows focuses on the 238 counties that have at least 100,000 residents. We split this sample of 238 counties into deciles based on the increase in the household debt to income ratio from 2002 to 2006. The analysis below focuses on the counties in the highest and lowest decile. Counties in the top decile are mostly in California and Florida, with a county from

Massachusetts and Virginia also included. Counties in the bottom decile are from a number of states, including New York, Pennsylvania, and Texas. The county with the largest increase in the household debt to income ratio from 2002 to 2006 is Monterey County in California; the county with the smallest increase is Will County in Illinois.

Throughout the remaining text, we refer to the top decile counties in terms of the increase in debt to income from 2002 to 2006 as high household debt counties; we refer to the bottom decile as low household debt counties.

III. The Economic Recovery in High and Low Household Debt Counties

In Figure 2, we plot the growth in auto sales and residential investment for high and low household debt counties. The plots are indexed to the fourth quarter of 2005. The top panel shows that auto sales began to decline in high household debt counties as early as 2006, long before low household debt counties (Mian and Sufi (2010)). Both high and low household debt counties experienced a sharp drop in auto sales during the most severe part of the recession.

But perhaps the most stunning evidence on auto sales is in the recovery. Relative to the level of auto sales in 2005, auto sales in high household debt counties were 50% lower in every quarter after the recession ended except for a brief blip associated with the "cash for clunkers" program. In contrast, low household debt counties experienced a robust recovery in auto sales. In the second quarter of 2010, low household debt counties had auto sales that were as high as pre-recession levels.

The pattern in residential investment is similar. The decline in residential investment in high debt jurisdictions began even before the recession formally began. Further, there has been no recovery. Residential investment in high household debt jurisdictions remains 40 to 60%

below pre-recession levels. In contrast, low household debt jurisdictions have almost completely avoided a decline in residential investment.

The emphasis on residential investment and durable consumption (as measured by auto sales) is particularly important given evidence from Leamer (2007). He shows that nine of the last 11 recessions were preceded by drops in residential investment and durable consumption. Further, residential investment and durable consumption are among the strongest leading indicators of escaping a recession. Given the evidence in Leamer (2007), Figure 2 suggests that high household debt areas of the country are likely to remain in a recessionary environment well into the future.

Figure 2 shows evidence of weak consumer demand for durable goods in high household debt counties. How does this translate into employment? Unfortunately, the approach of focusing on counties is not as well-suited for examining the effect of household debt on employment patterns. The reason is simple: production of goods does not necessarily take place in the same geographical area as the consumption of goods. For example, suppose high household debt in Monterey County in California leads to a reduction in purchases of recreational vehicles. The household debt-driven reduction in RV purchases may lead to more unemployment in Elkhart County, Indiana, where RVs are produced. If Elkhart has low household debt, the methodology will fail to connect high household debt in Monterey with higher unemployment in Elkhart.

However, part of a given county's production caters to local demand, and Figure 3 shows powerful evidence that employment and household debt patterns are indeed closely linked. Counties with high household debt experienced relative employment declines well before the recession began. During the most severe part of the recession, employment losses in high household debt counties were dramatic. Total employment declined by 7% from the second

quarter of 2008 to the second quarter of 2009. Further, employment remains at extremely depressed levels in high household debt counties, even through the second quarter of 2010.

In contrast, employment growth in low household debt counties stabilized as early as the second quarter of 2009. The total job losses were much lower. While there is still no evidence of a robust recovery in even low household debt counties, the employment situation is far less bleak than in high household debt counties.

One important factor not yet mentioned is house prices: How are house prices related to the differences in economic outcomes across high and low household debt counties? High household debt counties experienced much larger price declines than low household debt counties during the recession. In fact, previous research demonstrates that the debt to income increase from 2002 to 2006 alone can explain more than 60% of the variation in subsequent house price declines across U.S. counties from 2006 to 2009 (Mian and Sufi (2010)). It is likely that the large increase in debt burdens had both a direct effect on the economy and an indirect effect due to the subsequent sharp declines in house prices in highly leveraged areas.

IV. Why the Weak Recovery?

What does the evidence above suggest about the reasons for the weak recovery? One common reason is hangover from the financial crisis in the fall of 2008; in this view, banks for a variety of reasons associated with the crisis are not lending to businesses that have strong investment opportunities. But it is hard to imagine that businesses in high debt counties have good investment opportunities when residential investment and durable consumption remain 40 to 60% below pre-recession levels.

A variant of this argument is that local credit conditions are crucial. But this is also difficult to reconcile with the facts. In earlier work we have shown that the correlation between household debt and economic outcomes is the same when we examine counties that have primarily national banks (Mian and Sufi (2010)). In these counties with branches of the same national banks, there remains a very strong effect of household debt on residential investment, durable consumption, and employment.

Overall, the across-county evidence strongly suggests that credit demand is weak because of an over-levered household sector. This view is supported by survey evidence that the main worry for businesses relates to sales, *not* to difficulty in obtaining financing. The National Federation of Independent Businesses survey in October 2010 shows that almost no small businesses view credit availability as their primary problem. In fact, the NFIB has reported that weak sales were the top problem facing small businesses throughout the recession. Weak consumer demand also helps explain the enormous cash balances being currently held by U.S. corporations (e.g., Lahart, Wall Street Journal, October 8th, 2010).

These results have important implications for policy. If the main problems facing businesses relate to depressed consumer demand given a household sector weighed down by debt, investment tax subsidies and lower interest rates may have a limited effect on business investment and employment growth.

The evidence is more consistent with the view that problems related to household balance sheets and house prices are the primary culprit for the weak economic recovery. King (1994) provides a detailed discussion of how differences in the marginal propensity to consume between borrowing and lending households can generate an aggregate downturn in an economy with high household leverage. This idea goes back to at least Irving Fisher's debt deflation hypothesis

(1933) and has found empirical support in several studies (Mishkin (1978), King (1994), Olney (1999), Eichengreen and Mitchener (2003), Glick and Lansing (2010), Mian and Sufi (2010)).

Our view is that the depth and length of the current recession relative to previous recessions is closely linked to the tremendous rise in household debt that preceded it.

References

Eichengreen, Barry and Kris Mitchener (2003), "The Great Depression as a Credit Boom Gone Wrong", BIS Working Paper 137, September.

Fisher, Irving (1933), "The Debt-Deflation Theory of Great Depressions", *Econometrica*, 337-357.

Glick, Reuven and Kevin Lansing (2010), "Global Household Leverage, House Prices, and Consumption", FRBSF Economic Letter, January.

Leamer, Edward, 2007, "Housing IS the Business Cycle", NBER Working Paper #13248.

King, Mervyn, 1994. "Debt Deflation: Theory and Evidence," *European Economic Review*, 38: 419-45.

Mian, Atif and Amir Sufi, 2010, "Household Leverage and the Recession of 2007 to 2009," *IMF Economic Review*: 58, 74-117.

Mishkin, Frederic S., 1978, "The Household Balance Sheet and the Great Depression," *Journal of Economic History*, 38: 918-37.

Olney, Martha (1999), "Avoiding Default: The Role of Credit in the Consumption Collapse of 1930", *Quarterly Journal of Economics*, 114: 319-335.

Figure 1
U.S. Household Debt

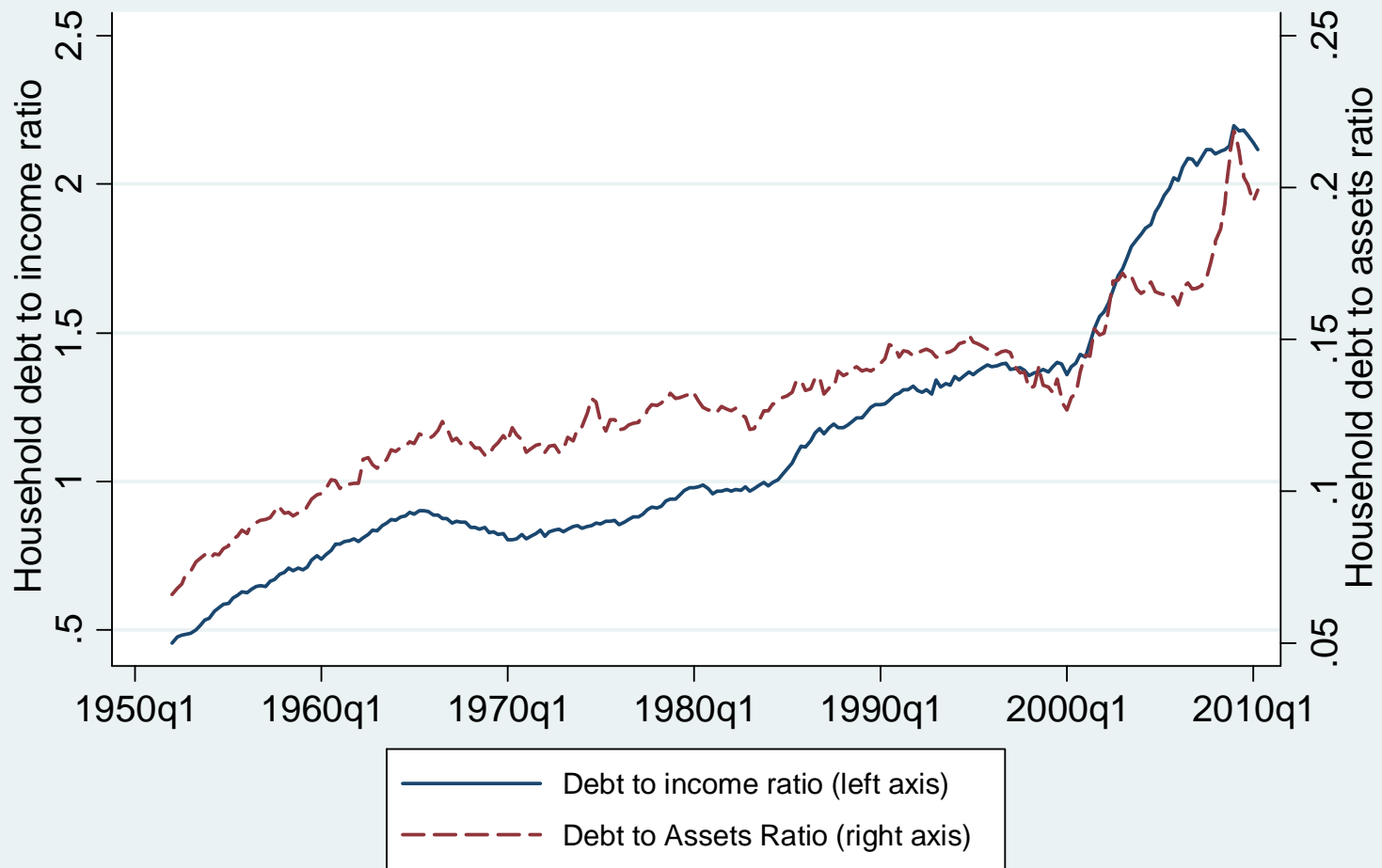


Figure 2 Auto Sales and Residential Investment

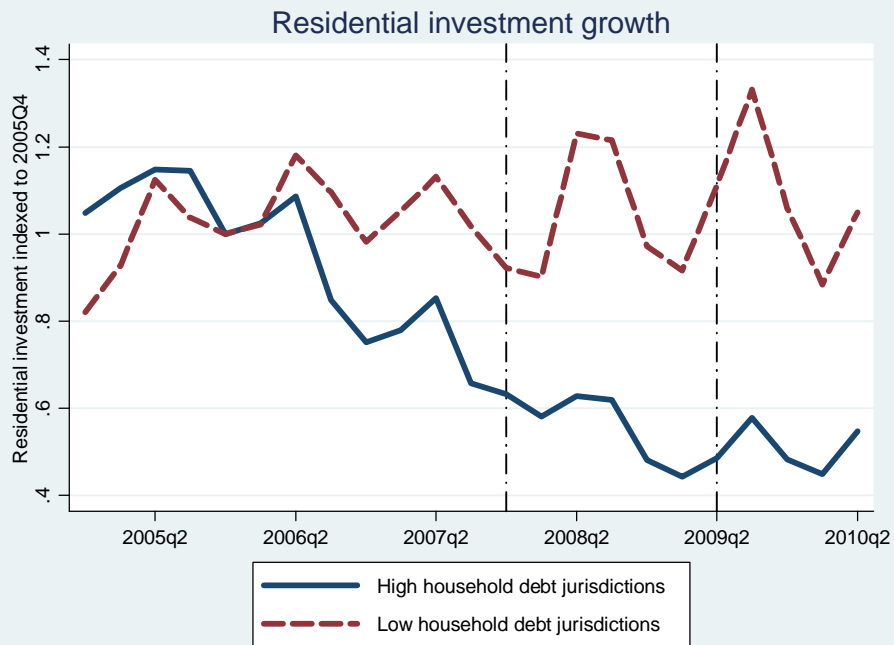
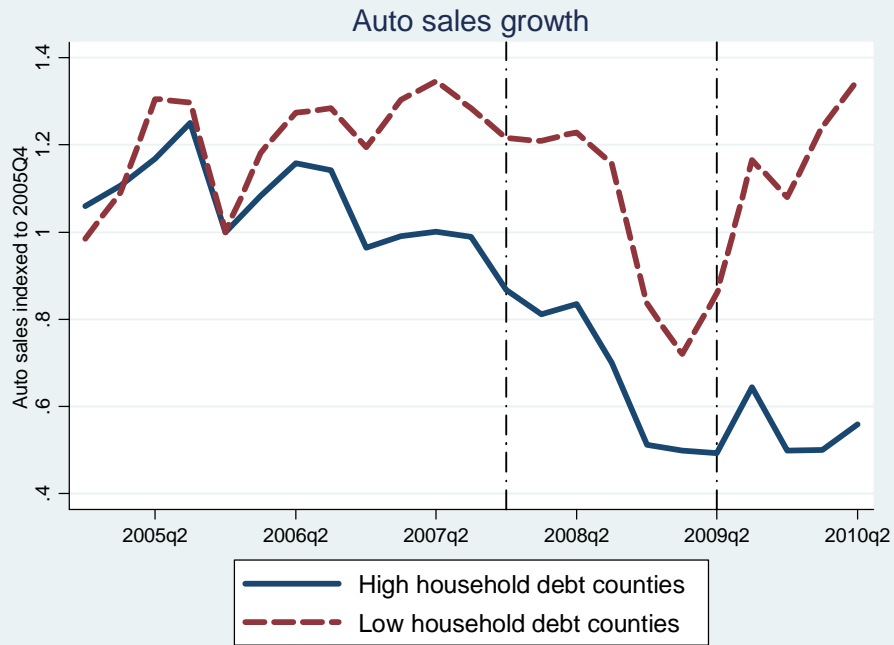
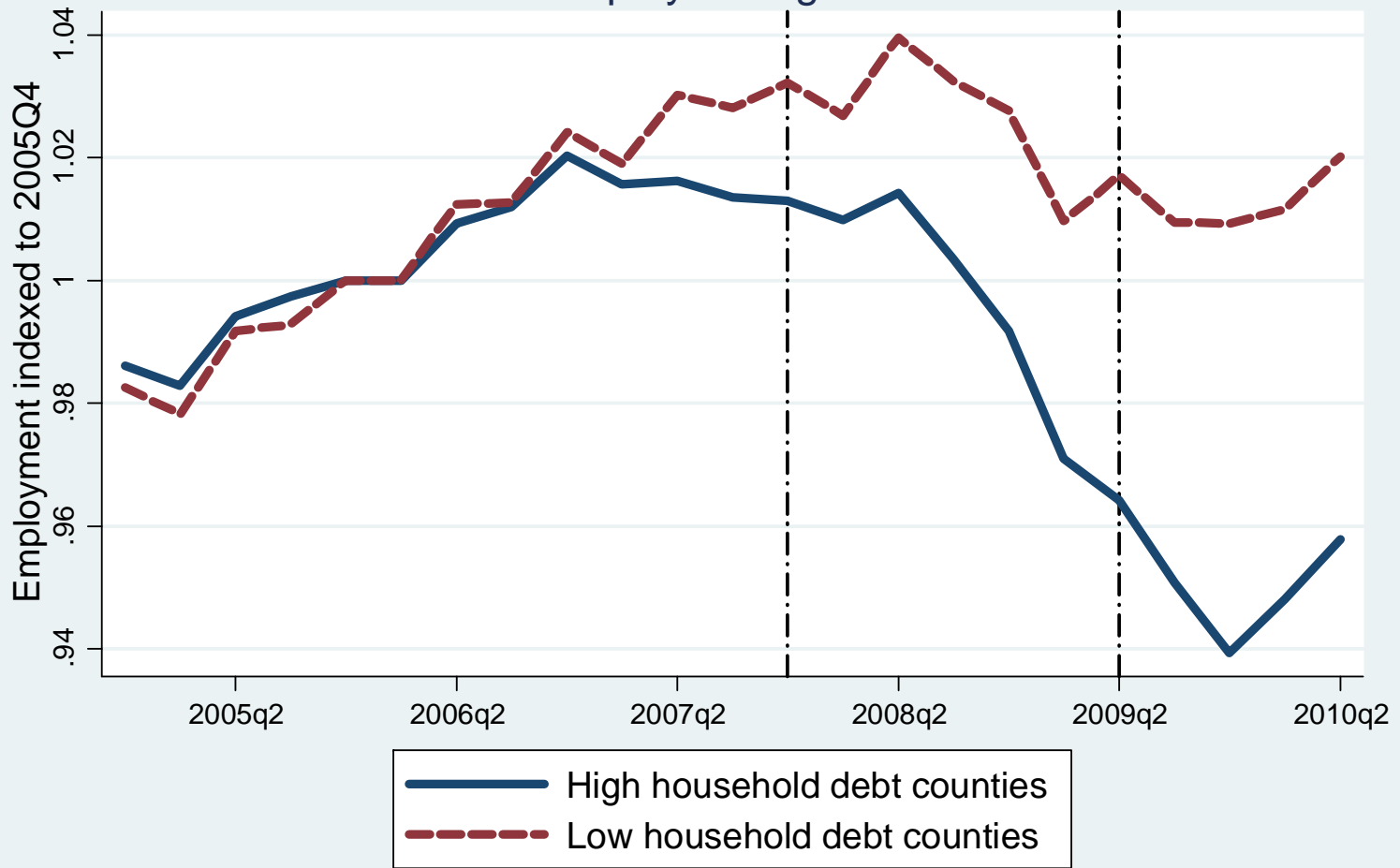


Figure 3
Employment growth



Data Appendix

Household Debt and the Weak U.S. Economic Recovery

Atif Mian

University of California, Berkeley and NBER

Amir Sufi

University of Chicago Booth School of Business and NBER

Figure 1

Data on household debt and household wealth are from the Federal Reserve Flow of Funds. Data on Compensation and Wages is from the NIPA accounts. Data on household default rate is from Equifax. The Equifax data are described in more detail in Mian and Sufi (2009).

Figure 2

Data on debt at the county level are from Equifax. Data on income at the county level are from the IRS Statistics of Income Division.

Figure 3

Data on auto sales at the county level are from R.L. Polk, and are more fully described in Mian and Sufi (2010)). Data on residential investment are from a company called BuildFax. The data represent properties in a jurisdiction that have had a building permit filed with the jurisdiction government in a given quarter. A jurisdiction can be a county, municipality, or township. For more information on the BuildFax data, please contact Joe Emison at joe@buildfax.com, 877 600 2329 x444.

Figure 4

Data on employment is from the Bureau of Labor Statistics.

References:

Mian, Atif and Amir Sufi, 2009, "The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis," *Quarterly Journal of Economics* 124: 1449-1496.

Mian Atif, and Amir Sufi, 2010, "The Effects of Fiscal Stimulus: Evidence from the 2009 'Cash for Clunkers' Program," Working paper, September.