Inequality and Household Finance During the Consumer Age

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Abstract:

One might expect that rising U.S. income inequality would reduce demand growth and create a drag on the economy because higher income groups spend a smaller share of income. But during a quarter century of rising inequality, U.S. growth and employment were reasonably strong by historical standards until the Great Recession. This paper analyzes this paradox by disaggregating household spending, income, saving, and debt between the bottom 95% and top 5% of the income distribution. We find that demand drag did not occur because the spending share of the bottom 95% rose, accompanied by a historic increase in borrowing. The unsustainable rise in household leverage concentrated in the bottom 95% ultimately spawned the Great Recession. In the Recession’s aftermath, the inability of the bottom 95% to generate adequate demand without faster income growth helps explain the stagnant recovery.

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E21: Macroeconomics: Consumption, Saving, Production, Employment, and Investment
D31: Personal Income, Wealth, and Their Distributions
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The U.S. economy experienced a historic household spending boom leading up to the Great Recession. We labeled this period from the mid-1980s through 2007 as the “Consumer Age” in Cynamon and Fazzari (2008, 2013a). This boom provided much of the demand growth that put U.S. unemployment on a declining trend and fueled global demand through the U.S. trade deficit. Another important trend during this period may seem paradoxical in retrospect: income growth across most of the population stagnated and inequality rose dramatically. How could consumption spending rise so quickly with stagnant income growth over much of the income distribution? To ask the question is to answer it: American households, outside of those in the top of the income distribution, went on an extended borrowing binge. Household debt relative to after-tax income rose to unprecedented levels. And it was the resulting financial fragility that caused both residential construction and broader measures of household spending to plummet, leading to the most severe economic contraction in the U.S. since the Great Depression.

This paper considers how rising inequality, household spending, and consumer debt interacted during the Consumer Age. We disaggregate demand, income, and saving across two broad groups, the bottom 95% and top 5% of the income distribution, to explore the source of the trends in household finance that fueled stimulative demand growth, but also generated financial fragility. Our analysis is based on measures of household demand and saving rates that integrate NIPA statistics on personal consumption expenditure with residential construction spending in a consistent way, following the approach developed in Cynamon and Fazzari (2013c). Our measure of the saving rate plummeted and indebtedness exploded for the bottom 95%, as their income share declined. Our calculations show that a return to a mid-1980s saving rate for the bottom 95% group, the end of a period in which household leverage seemed stable and sustainable, required a withdrawal of demand equal to about 7.5% of GDP by the middle 2000s. Furthermore, the demand accounted for by the cumulative decline in the saving rate for the bottom 95% after the mid-1980s was roughly equal to the cumulative shortfall of their income due to rising inequality relative to a period in which the income share of the bottom 95% was stable. We find that while the demand created by the spending of the top 5% adhered remarkably closely to its trend prior to the Great Recession, the demand generated by the bottom 95% collapsed with a gap between the actual level and the pre-recession trend approaching a stunning $2 trillion.

Counterfactual predictions are speculative. But the results here suggest that rising inequality contributed significantly to the financial instability of American households during the Consumer Age. This interpretation adds to a growing research literature that links changes in the U.S. income distribution to macroeconomic instability, helping to illuminate the sources of the Great Recession.1 Furthermore, the economy has now lost the demand growth created by the

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1 In a comment on Cynamon and Fazzari (2008), Korty (2008) pointed out the likely role of unequal income growth in rising household debt. In a prescient and wide-ranging paper, Barba and Pivetti (2009) identified the same aggregate trends laid out in this chapter and hypothesized about the likely breakdown between lower and higher
spending and borrowing behaviors of the lower 95% prior to 2007. We argue that this fact is an important explanation for the stagnant recovery of the U.S. economy since 2009. In the final section of this paper, we propose some measures of the size of this effect and consider its implications for future U.S. macroeconomic conditions.

I. Income Distribution and Consumption Behavior

A. The Paradox of Rising Inequality and Higher Consumer Spending

A thread of macroeconomic thinking, going back decades, identifies a basic challenge arising from growing inequality.\(^2\) This approach begins with the assumption that high-income people (usually associated with profit earners) spend a lower share of their income than those of more modest means (typically wage earners). In this case, rising inequality creates a drag on demand that could lead to unemployment and even secular stagnation if demand is not generated from other sources.

Figure 1 – Income Share of Top 5%

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\(^2\) Recent work on this topic and very extensive references to earlier research can be found in Setterfield (2010).
Figure 1 shows the top 5% income share from the “The World Top Incomes Database.” After being virtually constant for more than 20 years, the (before-tax) income share of the top 5% began to rise in the early 1980s. By 2010, this share had risen more than 12 percentage points. Using a large and confidential panel of tax returns from the Internal Revenue Service, DeBacker et al. (2012) also find increasing inequality of household income in the United States over the period 1987-2006, both before and after taxes, and they conclude that the this shift was predominantly permanent as opposed to transitory.

Despite this substantial shift of the income distribution toward the affluent in recent decades, however, the U.S. economy performed reasonably well. Unemployment fell from high values in the late 1970s and early 1980s. Aggregate economic growth was relatively strong in the U.S. compared with other developed economies. Macroeconomic volatility declined in what came to be known as the Great Moderation. Where did the demand necessary to sustain strong and stable growth come from? Aggregate data identify two secular sources of demand growth in this period. First, American households, in the aggregate, increased their spending relative to income. This trend is reflected by the widely recognized decline of the household saving rate between the middle 1980s and the beginning of the Great Recession (see, for example, Kopcke et al., 1991). Second, the United States experienced a significant boom in home construction during this period, especially since the early 1990s.

To assess the effect of these factors, we adjust the standard National Income and Product Accounts data (NIPA) data on household spending and income to more closely reflect the actual demand for new production emanating from the household sector, as opposed to the service flow of consumption. The motivation and details of this procedure are described in Cynamon and Fazzari (2013c). In summary, we remove the part of housing rent from NIPA consumption that does not reflect direct purchase of newly produced goods and services, and we replace the rent component with new residential construction. For owner-occupied housing, the rent adjustment subtracts gross value added (implicit rent minus the cost of intermediate goods attributed to home ownership) from personal consumption expenditures. For homeowners, implicit rent does not represent a cash payment in any sense. For tenant-occupied housing we also exclude gross value added, less a small adjustment for wage costs paid in the rental housing sector. Of course, tenant rent is a cash payment, but we treat the part of it that does not go to wages or intermediate goods as a personal transfer rather than the purchase of newly produced output because the rent paid to landlords does not directly purchase new production. In contrast to rent, the construction of new residential structures (both single and multi-family) clearly is an important component of demand for new production. For consistency, we also adjust disposable income, personal transfers, and GDP as described in Cynamon and Fazzari (2013c). These adjustments lead to a treatment of housing that is just like any other consumer durable: output and income occur at the

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3 URL: [http://g-mond.parischoolofeconomics.eu/topincomes/#Database](http://g-mond.parischoolofeconomics.eu/topincomes/#Database), based on concepts due to Piketty and Saez (2007). These figures exclude capital gains income.

4 Also see Mason and Jayadev (2012) who make similar adjustments for related purposes.
time something is produced, not when it is used. Demand occurs when a newly produced item is sold. In what follows, we refer to these new measures as “adjusted” to distinguish them from the standard measures in the NIPA data.

Figure 2 shows our adjusted measure of demand relative to adjusted disposable income of the household sector. This information, along with the strong trend toward inequality shown in figure 1, presents a paradox that is a central theme of this paper. Rising inequality should theoretically reduce overall consumer demand relative to income if affluent households spend a smaller part of their growing share of aggregate income (see Brown, 2004, and Barba and Pivetti, 2009, for example). But the period of rising inequality, starting roughly in the early 1980s, corresponds almost exactly with a historic increase in American household demand relative to income. To better understand these patterns in the data, we need to disaggregate demand, income, and saving across income groups.

Figure 2 – Adjusted Household Demand to Adjusted Disposable Income

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5 In principle, this concept suggests that when measuring demand we distinguish between new housing sold and new housing produced. In the absence of aggregate data on the unsold inventory of newly produced housing, however, we assume that housing production adds directly to demand.
B. Disaggregated Estimates of Household Demand

We decompose aggregate data between the bottom 95% and the top 5% of the U.S. household income distribution. We choose this split for two reasons. First, we can use existing disaggregated data, as discussed below, with a 95%-5% split. Second, a detailed analysis of changing leverage rates across income groups (see the discussion around figure 5 below) reveals that debt-to-income ratios rise at about the same rate for a wide variety of household groupings between the 20th and 95th percentiles of the income distribution. This result suggests somewhat uniform financial behavior for the bottom 95%.

Unfortunately, high-quality disaggregated data on household income and spending over time are difficult to obtain. Two sources released by the Federal Reserve Board provide some useful information, however. The Survey of Consumer Finances (SCF) tracks individual household balance sheets and income every three years. The SCF is limited by the fact that it does not collect data from the same households across surveys. It also does not contain measures of household spending. The Fed’s Flow of Funds Accounts (FFA) data source tracks aggregate household balance sheet measures quarterly. But the FFA is not disaggregated by income group and also does not contain direct measures of household spending. In a creative exercise, Maki and Palumbo (2001) estimate the difference in saving rates across income groups. They begin with the change in aggregate household assets and liabilities from FFA data and disaggregate these changes across income groups using disaggregated balance sheet information from the SCF. With disaggregated data on income and the changes in household balance sheets, one can infer the amount that different groups of households spent and saved. Mark Zandi, of Moody’s Economy.com, has computed disaggregated saving rates, following the procedure described by Maki and Palumbo (2001), from 1989 through 2010. We use the saving rates for the top 5% and the bottom 95% from Zandi’s calculations to disaggregate the NIPA saving rate.\(^6\) We use these saving rates and NIPA personal outlay data to estimate the NIPA consumption measure for each income group and we then apply the household demand adjustment discussed in the previous subsection to each group.

The resulting estimates of the demand rate, equal to adjusted spending divided by adjusted disposable income, are presented in figure 3. The top 5% and bottom 95% both show a very similar trend of increasing demand relative to adjusted disposable income between 1989 and 2000. During those years, the demand rates of the top 5% and bottom 95% are respectively 87.3% and 87.0%. These figures are perhaps surprising in the context of the widely held view that high-income households spend a smaller share of their income than others. But things change in 2001. From 2001 through 2008, the demand rate of the top 5% reversed its trend falling below 84% by 2006, while the demand rate of the bottom 95% continued rising strongly

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\(^6\) We are indebted to Mark Zandi for providing these data. This information disaggregates household saving as measured by the FFA data. We adjust the estimated top 5% and bottom 95% saving rates from the Zandi data so that they aggregate to the NIPA measure. Further details of these computations appear in Appendix A.
to a peak of about 96% in 2005 and 2006. When the Great Recession hits, the demand rate for the bottom 95% plummets and the rate for the top 5% skyrockets.

**Figure 3 – Demand Rates for Bottom 95% and Top 5%**

Figure 4 further explores disaggregated household financial flows during this interesting period. This figure plots adjusted outlay rates, defined as the sum of demand and household transfers to disposable income. Transfers are an important financial category for households, especially with our adjusted approach, because transfers include all interest payments and the majority of rent payments (see Cynamon and Fazzari 2013c for further discussion). The outlay rate is 100 percent minus the saving rate. The patterns in figure 4 are somewhat different from the demand rates in figure 3A. Including transfers, the outlay rate for the bottom 95% is almost always higher than that for the top 5%, substantially so prior to the Great Recession when the gap between the two outlay rates peaks at 19 percent in 2006. Thus, the data in figure 4 support the conclusion from Dynan (2004) and others that saving rates are higher (outlay rates lower) for high-income households. Figure 4 also strongly suggests unsustainable financial practices for the bottom 95% with outlay rates almost 100% by 1994 and exceeding 100% (negative saving rates) from 1999 until spending plummets in the Great Recession.

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7 With NIPA accounting definitions, non-housing household interest payments are also treated as a transfer. This fact supports the basic logic of our approach that interest is best defined as a transfer. In the NIPA accounts, however, mortgage interest paid by homeowners is treated as an expense deducted from implicit rent in the calculation of personal income. Therefore, mortgage interest in the NIPA accounts is treated as a deduction from income rather than an addition to outlays.
Further support for the view that the spending behavior of the bottom 95% was unsustainable in the Consumer Age period comes from balance sheet data. As the outlay rate for the bottom 95% of households increased while the disposable incomes of this group stagnated, it is hardly surprising that debt leverage increased significantly. Figure 5 shows the aggregate ratio of household debt to disposable income. From the 1960s through the early 1980s, this measure of household leverage was largely constant, an indication that household financial behavior was, at least in the aggregate, sustainable in those years. At the beginning of the Consumer Age, however, household debt began to rise, and the trend accelerated after 2000. But this lend-and-spend dynamic came to an abrupt end with the onset of the Great Recession.
Even the strong trend in aggregate household leverage between the middle 1980s and 2007 almost certainly understates the rise in household financial fragility. The combination of slow income growth and fast outlay growth for the lower 95% implies that the rise in leverage was likely more severe for households outside of the top of the income distribution. Figure 5 provides some evidence from the SCF that supports this hypothesis. It shows debt-income ratios for the lower 95% and top 5% of the income distribution. (More finely disaggregated groupings of households below the 95th percentile led to very similar results as putting this entire group together.) Compare the first observation in 1989 to the final observation before the onset of the Great Recession, that is, the last observation of the Consumer Age era in 2007. The ratio almost doubles for the bottom 95%, rising 73 percentage points. The increase for the top 5% was just 20 percentage points.\(^8\)

\[\text{Figure 5 – Household Debt as a Share of Disposable Income}\]

![Graph showing household debt as a share of disposable income over time]

\(^8\) The same conclusion holds if one extends the final point of the calculations to the most recently available SCF data from 2010, but the size of the difference between the bottom 95% and top 5% groups declines. We consider extending the comparison to 2010 misleading for two reasons. First, the Consumer Age ends with the Great Recession in 2008 and the household sector enters a period of deleveraging. Second, the primary reason for the jump in the debt-income ratio for the rich in 2010 is that their income declines. As figure 6 shows, this is typical behavior in a recession (also see the jumps in 1992 and 2004 in the ratio for the top 5% that can be associated with recessions).
The disaggregated household finance data presented in this subsection help to resolve the paradox identified earlier. It is useful to consider three periods covered by our data: the 1990s, the period after the bursting of the dot-com bubble but prior to the Great Recession (roughly 2000 through 2007), and the Great Recession along with its immediate aftermath (2008 through the end of our data in 2010). In the 1990s, the demand rates for both income groups were rising along roughly the same trend. Rising income inequality was not creating demand drag in this period. We propose, however, that the underlying source of rising demand rates was different between the two groups. The top 5% enjoyed a rising income share and strong wealth effects from equity markets in the 1990s. The leverage rate for the top 5% was largely flat from 1989 through 2001. The bottom 95%, in contrast, have stagnant incomes during the 1990s. Their increased spending was financed by a rise in leverage as the Consumer Age dynamics of borrowing and spending takes hold in this group. With the bursting of the dot.com bubble the demand and outlay rates for the top 5% drop significantly, as this group seems to dial back its aggressive spending fueled by the robust economic conditions of the second half of the 1990s. The same cannot be said for the bottom 95%. This group’s spending and outlay rates continue skyward. The rise in leverage for the bottom 95% accelerates and its saving rate becomes strongly negative. In the early 2000s, borrowing of the bottom 95% seems to prevent demand drag from rising inequality.
These trends change dramatically with the onset of the Great Recession. The demand and outlay rates plummet for the bottom 95% and the growth in leverage stalls. The top 5% spending rate rises significantly. Indeed, the top 5% look like life-cycle consumers as the rise in this group’s spending rate appears to smooth consumption when income growth declines in the Great Recession. We see no such behavior for the bottom 95% as their demand rate collapses by a remarkable 15 percentage points between 2006 and 2009. We will analyze the implications of these dynamics for understanding the role played by rising inequality in the Great Recession and its aftermath, but first we conclude this section by considering what was driving the behavior of the bottom 95% prior to the Great Recession collapse.

C. How Can We Make Sense of the Behavior of the 95%?

We believe that an approach capable of making sense of consumer decision making must address the complexity of household spending and financing decisions. As Cynamon and Fazzari (2008, 2013a) explain, households often need to make consumption and saving decisions that require only small adjustments in plans when the outside world delivers small deviations from prior expectation, but that the preferences that underpin those plans are generally mediated by more fundamental—perhaps largely implicit—decisions about the communities that they reside in, the people that they socialize with, and lifestyles (as distinct from consumption bundles) that they strive to attain. These considerations dictate the consumption and financial choices that are modeled for them by the people they look to for external validation. Household decision makers face uncertainty about future labor income, job security, asset market returns, and longevity, all of which muddle their choices about how much to spend and save and how to allocate their savings among asset options. At the same time, the choices that they make about their reference groups dictate what they view as normal, an important force for anchoring their expectations in light of their ignorance and uncertainty about the future.

This approach is similar to that of the sticky information expectations literature in macroeconomics. A number of recent papers have introduced the notion of “rational inattentive” behavior to describe how consumers and producers update their information sets and make new plans only sporadically Reis (2006a, b). In those models, information diffuses slowly because acquiring information and integrating it into new plans are costly actions. Recently, Carroll (2003, 2006) put forward a specific form of “sticky information” expectations that explains how households form their expectations about the economic environment. In our view it is not only expectations about exogenous variables that households must update but also their understanding of their own financial position, available goods and services, and even, to some extent, their preferences.

Our goal is to explain why consumers in the bottom 95% chose to raise their consumption and outlay ratios and take on the debt that was made available to them, but we
pause here to note some of the supply-side explanations for the increased availability of credit over the past thirty years. These factors included the new information technology that made it easier to obtain information on prospective borrowers (e.g., credit scores) and thereby reduced the formerly prohibitive costs of underwriting unsecured lines of credit (credit cards). Tax law changes have also affected the market for household debt. In particular, the Tax Reform Act of 1986 eliminated the income tax deduction for most categories of interest expense, but retained the deductibility of home mortgage interest, which made it advantageous to refinance non-deductible loans with home equity lines of credit. As these facilities became broadly available to households, borrowing against home equity became an easily accessible source of purchasing power for homeowners.

It is difficult for standard models, most notably the life cycle model, to account for the long decline in the saving rate, particularly for the bottom 95%. A multitude of economists propose explanations including wealth effects, permanent income hypothesis (high expected income) effect, and demographics, but along with many researchers we find those explanations unsatisfying.\(^9\) We argue that the decline in the saving rate can best be understood by recognizing the important role of uncertainty in household decision making and the powerful influence of the reference groups that to which those household decision makers turn for guidance.

We propose that households develop an identity over time that helps them make consumption decisions by informing them about the consumption bundle that is normal.\(^{10}\) We define the *consumption norm* as the standard of consumption an individual considers normal based on his or her identity (Cynamon and Fazzari, 2008, 2013a). The household decision makers weigh two questions most heavily in making consumption and financial decisions. First, they ask “Is this something a person like me would own (durable good), consume (nondurable good), or hold (asset)?” Second, they ask “If I attempt to purchase this good or asset right now, do I have the means necessary to complete the transaction?” Increasing access to credit impacts consumption decisions by increasing the rate of positive responses to the second question directly, and also by increasing the rate of positive responses to the first question indirectly as greater access to credit among households in one’s reference group raises the consumption norm of the group. Rising income inequality also tends to exert upward pressure on consumption norms as each person is more likely to see aspects of costlier lifestyles displayed by others with more money.

The coincidence of rising income inequality and increasing access to credit provided the impetus for a debt-fueled consumption boom. It may have been unreasonable for households to

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\(^9\) We cannot provide a literature review that does justice to the rich evolution of the debate about the declining US personal saving rate, but key papers that were written along the way include: Bosworth, Burtless, and Sabelhaus (1991), Browning and Lusardi (1996), Gale and Sabelhaus (1999), Parker (2000). We also learned from Peach and Steindel (2000), Perozek and Reinsdorf (2002), Reinsdorf (2007), and Guidolin and La Jeunesse (2007).

\(^{10}\) In the marketing literature, reference group effects have been examined by several researchers, including Bearden and Etzel (1982) and Childers and Rao (1992).
believe that the favorable macroeconomic trends necessary for them to validate their financial positions (i.e., falling interest rates, easier lending terms, and rapidly appreciating home prices) would continue indefinitely. But in the context of a behavioral model of consumption and financial choices under uncertainty, it was not necessary for people to believe that the systemic conditions that validated their behaviors would necessarily persist. In this way, the behavioral consumption norm model differs from the life-cycle model with self-fulfilling (rational) expectations. These behaviors persisted not because they were ultimately sustainable, but because they were validated month-by-month and year-by-year. People could observe their neighbors and media role models and internalize rising consumption norms increasingly disconnected from their own disposable incomes. For an extended period, middle-income households were able to drive their outlay rates well above 100% without adverse consequences in any generalized sense and without deviating from norms of behavior they observed in their reference groups. As the Great Recession demonstrated, however, the trends highlighted in figure 3 were ultimately on a collision course with reality, a topic to which we now turn.

II. Unsustainable Household Finance and the Great Recession

The rising rate of household spending out of income in the bottom 95% of the income distribution during the Consumer Age, in a sense, rescued the U.S. economy from possible demand stagnation caused by rising inequality. This section considers how this unusual history set the stage for the Great Recession and the painfully slow recovery that has followed.

A. What Caused the Great Recession?

We propose that the financial behavior of the bottom 95% during the Consumer Age sowed the seeds of the Great Recession. The U.S. economy relied on the rising demand rate of this group to drive production and employment upward. But higher spending outside of the top of the income distribution was not supported by rising incomes and the result was an ultimately unsustainable rise in the debt leverage for the bottom 95% Problems with default and a retrenchment of lending became almost inevitable. When financial troubles erupted in the summer of 2007, the Consumer Age demand engine stalled and then crashed. Although some aspects of this story are fairly widespread in analyses based on aggregate data, our results provide direct evidence that the financial instability did indeed emerge from a particular part of the household sector, those outside of the top 5% whose income share declined in the Consumer Age period. This finding directly links the macroeconomic dynamics that caused the Great Recession to the trend toward rising income inequality.

11 Barba and Pivetti (2009) make related points. Carr and Jayadev (2012) study a sample from 1999-2009 in the PSID and find that changes in leverage for a given household were strongly associated with lower relative income, controlling for own income. Specifically, the leverage of a household grew faster if there were a larger the proportion of relatively richer households in the same state as the household, and it grew faster for households with lower relative income compared to other households in similar demographic groups.
In addition, we consider an important quantitative question: how large was the unsustainable part of the demand coming out of the bottom 95% on the eve of the Great Recession? In order to measure the unsustainable part of the demand of the bottom 95%, we must suppose first that some amount of spending is sustainable based on the household’s reasonable expectation of an ongoing ability to finance that level of consumption indefinitely, and we must estimate that amount and compare it to actual spending. We approach this problem by establishing a benchmark saving rate and comparing actual saving to that benchmark. Establishing this benchmark requires some assumptions, and the results are sensitive to those assumptions. In a survey of 156 financial planners and educators Greninger et al. (1996) identified 10% as the median recommended ratio of savings to disposable income for a typical family. A study based on data from the 1992 wave of the Health and Retirement Survey (HRS) attempted to estimate how much households need to set aside in order to maintain their living standards into retirement and found the desired saving rate for those households with incomes between $15,000 and $100,000 was about 14% (Bernheim et al. 2000). There is no universally optimal saving rate for households: “retirement planning should mirror individual psychological preferences,” and “is complex and uncertain” (Skinner 2007). While providing some guidance, neither a widely accepted rule of thumb nor a model dependent on demographic characteristics and expectations of individual households can provide a satisfactory benchmark saving rate; but our goal is not to assert that a single ratio of saving to disposable income reflects the optimal rate for every household, it is to determine a rate of saving that appears to be sustainable in the aggregate.

In this case, historical behavior may be the best guide. History, especially when it is reasonably stable, also can be interpreted as reflecting norms of behavior that guide individual decision-making, as described earlier. The evidence presented so far implies that household financial circumstances were stable through the early 1980s. Figure 5 shows that aggregate household debt was a stable share of disposable income through about 1984. Figure 2 shows that the aggregate household demand rate was stable (or modestly declining), also through about 1984. And the income share of the bottom 95% was approximately stable through 1982 (see figure 1). We therefore assume that the early 1980s period provides a useful benchmark for sustainable household finance. Let us consider how the saving rates of the two income groups deviated from that benchmark in the Consumer Age decades.

Figure 7 shows that the aggregate adjusted saving rate has no discernable trend from 1970 through about 1984 before it declines substantially.

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12 Among the 156 respondents, the mean recommended saving rate was 12% and the standard deviation 5%. The authors concluded that 10% was the suggested minimum threshold saving rate to recommend to families.
Based on the data in figure 7, we assume a benchmark saving rate for the lower 95% of 5.4%. To compute this benchmark we need to account for the decline in the aggregate saving rate prior to the beginning of the disaggregated data in 1989. The average adjusted saving rate for the lower 95% was 2.65% between 1989 and 1991. The average aggregate saving rate fell from 7.38% (1979-84) to 4.61% (1989-91). We assume that the saving rate for the lower 95% fell by the same amount as the aggregate saving rate from 1985 to 1989.\textsuperscript{13} We therefore estimate the benchmark for the lower 95% as 2.65% plus the drop in the aggregate saving rate (7.38% less 4.61%), which rounds to 5.4%. Note that this benchmark is substantially less than the 10% to 12% recommended saving rate from Greninger, et al. (1995). If the appropriate benchmark saving rate that delivers sustainable balance sheet dynamics for the bottom 95% is higher than 5.4%, the results discussed in the next paragraph will be even larger.

The actual saving rate for the lower 95% was below the benchmark throughout the entire Consumer Age, and often substantially negative. This shortfall in saving contributed to the run-up in household debt, and it has driven a large share of U.S. households into financial distress.\textsuperscript{14} Figure 8 presents data that helps assess the effect of the falling saving rate for the lower 95% on

\textsuperscript{13} Note that for the period for which we have data for both the aggregate and lower 95% saving rates, the lower 95% rate almost always falls more quickly. So by linking the decline in the lower 95% rate between the benchmark period and 1989 likely understates the actual decline in the lower 95% saving rate.

\textsuperscript{14} Mason and Jayadev (2012) also point out that high real interest rates and low inflation contribute to the rise in household leverage over this period, particularly the period before 2000.
the overall economy. It shows the demand that would have been withdrawn if the lower 95% were to restore their saving rate back to the benchmark level. The measurement unit in figure 8 is the share of adjusted GDP. This measure peaks in 2006 at 7.5%. This demand stimulus was withdrawn between 2007 and 2009 as the statistic in figure 8 plummets to zero. The result was the Great Recession. These calculations imply that the falling demand from the overleveraged bottom 95% of the income distribution was severe enough to explain a very significant decline in production. It is consistent with the interpretation of the Great Recession as entirely the result of the end of a period in which households outside of the top of the income distribution were spending at a rate inconsistent with the growth rate of their income.

**Figure 8 – Estimated Demand Loss to Restore Benchmark Saving for the Lower 95%**

![Graph showing estimated demand loss](image)

C. Interpreting the Role of Rising Inequality

The collapse of the saving rate and the rise in leverage for the lower 95% would likely not have been as severe if the share of income this group received had not declined. The data we present in this paper provide a quantitative dimension to the possible effects of rising inequality for the economy as a whole. Following the historical approach of the previous subsection, we

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15 We adjust the GDP measure to correspond to the housing expenditure adjustment described earlier. Adjusted GDP differs from the standard NIPA concept of GDP because both implicit and explicit rent on pre-existing housing are not considered part of the economy’s production of final goods and services.
estimate a benchmark income share of 76.0% for the bottom 95%. This figure is calculated based on averaging the Piketty and Saez estimates from 1960 through 1982 and adding the average difference between the Piketty and Saez and the adjusted disposable income shares generated from the SCF in the years 1989 through 2010.

We do not know what would have actually happened to aggregate disposable income, household spending, and debt if the disposable income share of the bottom 95% had remained at its 76% benchmark after 1982 rather than falling below 64%, as it actually did by 2007. But figure 9 presents the results of some simple calculations that compare reduced saving of the bottom 95% to their declining income share. The dotted line in the figure shows the difference between the actual bottom 95% disposable income and a counterfactual level that assumes that the share of the bottom 95% remained constant at the benchmark level set at the 1979 to 1982 average (scaled by adjusted GDP). The solid line is the saving shortfall of the bottom 95% as discussed previously. The correspondence between the two series is remarkable. The figure suggests that, other things equal, the extra disposable income that the bottom 95% would have had if their income share had remained at the benchmark level would have been adequate to offset the entire saving shortfall through 2007. That the cumulative effect of the changing income share and the changing saving rate are roughly equal in magnitude over this period shows that absent the increase in income inequality, the realized level of household demand that stimulated the economy during the Consumer Age could have been supported without the realized decline in the saving rate. Household debt would not have needed to rise at the rate it did in order to support the realized rate of household demand. It is possible that the Great Recession would not have happened, or if it did, that it would have been much less severe. This exercise leaves little doubt that rising inequality played an important role in creating the unsustainable financial conditions that triggered the Great Recession. Note, however, that the problem was not so much that the top 5% did not spend enough of its income creating demand drag. Rather, the problem was that the bottom 95% spent unsustainably out of their shrinking relative income share.

Figure 9 – Shortfall of Disposable Income and Saving Relative to Early 1980s Benchmarks (Bottom 95%)
III. Demand Growth in the Aftermath of the Great Recession

The U.S. economy had to confront two broad macroeconomic problems as of 2007. First, we estimate about 7.5% of aggregate demand was based on unsustainable borrowing of households in the bottom 95% of the income distribution. Second, much of the growth of demand since the middle 1980s was generated by the unsustainable lend-and-spend dynamic of the Consumer Age that presumably has been lost. This section considers the implications of these problems for the macroeconomic recovery going forward.

Clearly the consumption and residential construction generated by a declining saving rate of the bottom 95% was bound to stop growing and likely to start shrinking. Our calculations estimate that this measure of the saving rate became negative in 1999, and stayed negative until the Great Recession. The saving rate of the bottom 95% returned in 2009 to the benchmark rate of the early 1980s and, as figure 2 shows, total household demand plummeted. Yet, there is still an overhang of debt built up during the Consumer Age. Figure 5 shows that the aggregate debt-income ratio has declined from its peak, but it remains well above the historical levels that appeared sustainable from the 1960s to the early 1980s. No doubt that low interest rates help households service this high debt level. But any increase in rates could hit the economy very hard.
Figure 10 shows the real level of household demand implied by our calculations (deflated by the chained personal consumption expenditure price index). Real demand for both the bottom 95% and top 5% are remarkably smooth from 1989 through 2006 but the results for the two groups diverge as the economy enters the Great Recession. If one looks at the top 5% alone, one would not know that the Great Recession ever happened by looking at real demand. This group has been entirely successful at smoothing demand through the crisis (compare the demand rate for the top 5% from figure 3 which rises significantly to keep this group’s demand growing smoothly despite a recession-induced fall of income). But the Great Recession has had a dramatic effect on the bottom 95%. Real demand was growing at a 3.4% rate from 1989 through 2006, well above the growth rate of real income for this group. When the demand and saving rates for the bottom 95% are forced back to early 1980s levels in the Great Recession, their real consumption drops over 19%. By 2010, real consumption of the bottom 95% is $1.8 trillion below the exponential trend estimated from 1989 through 2006. This chart strongly suggests a reason for the stagnant recovery following the Great Recession is the inability of the bottom 95% of households to maintain anything close to their pre-recession demand trend.

**Figure 10 – Real Demand Trends**
The second problem regarding the source of future demand growth is less obvious, but potentially serious. From the figures presented here, we estimate that about 0.5 percentage points of annual demand growth came directly from the unsustainable lend-and-spend behavior of the bottom 95% during the Consumer Age. Adding conventional estimates of the multiplier, the loss of demand growth could exceed 0.7 percentage points. Following the financial crisis of the Great Recession, we believe that this source of growth is gone. These quantities represent about 30% to 60% of conventional estimates of per capita growth of the U.S. economy.

Our conclusion is, on the one hand, simple: rising inequality has fundamentally affected macroeconomic performance. But, on the other hand, the reason for this conclusion is more nuanced than is often assumed. The first-order problem may not be demand drag caused by the affluent spending less than everyone else of their rising income share. The data developed here broadly support the view that the saving rate of the top 5% is higher than that of the bottom 95%, but it is the difference in the time patterns of spending, saving, and debt accumulation across the income groups that is of more importance than the average difference between spending or saving rates. The willingness and ability of the bottom 95% to borrow excessively that kept their demand growing robustly despite their stagnant income growth and sowed the seeds of the Great Recession. Without this borrowing, demand from the bottom 95% cannot come close to attaining the level necessary to reach full employment. Demand from the top 5% has continued to follow the pre-recession trend, but this is not enough. The problem is not so much that output produced by the rising productivity of the middle class is distributed to the upper class, who do not spend it. Rather, the problem is that absent either wage and salary growth or excessive borrowing by the middle class, the spending of the bottom 95% is inadequate to generate the demand growth necessary to push the economy toward full employment at an acceptable pace. A large share of the aggregate income that we could enjoy if our resources were fully utilized is never created at all due to inadequate demand.

The results presented here raise the question of whether adequate demand growth to approach full employment can be attained in a sustainable way with the kind of income inequality that now prevails in the U.S. economy. There a variety of possible sources of demand growth to replace what has been lost from the bottom 95% in the aftermath of the Great Recession, including rising exports, a higher share of government demand, or a renewed re-leveraging of the household sector (that may lead to another bout with financial fragility). Of course, a conventional way to replace the demand lost by households when saving rates rise is higher business investment through lower interest rates. But interest rates are already at historic lows without business investment being anywhere near what is necessary to fill the gap created by the collapse in demand from the bottom 95% of households.\textsuperscript{16} The best outcome would be if the trend toward greater wage inequality is reversed, or at least stabilized, so that robust after-tax wage growth occurs across the income distribution. Redistributive tax policy could help to meet

\textsuperscript{16} This interpretation is consistent with Barbosa-Filho, et al. (2008) who show that business investment has not typically led U.S. recoveries.
this goal, as discussed at the end of Cynamon and Fazzari (2013b), although direct redistribution is politically contentious in the U.S. A more attractive alternative is the “golden rule” for good economic performance proposed by Setterfield (2013) that wage growth keep up with productivity growth (also see Palley, 2013). This condition was satisfied in the immediate postwar decades of broadly shared prosperity. It is far from obvious how to implement policies that would reach this goal, but there may be no other way to generate the demand necessary to escape stagnation in a sustainable way that does not require massive forced redistribution. Policy issues notwithstanding, a first step toward resolving the problem is to have a clear understanding that inequality is more than an issue of social justice. It also threatens the basic demand engine that is necessary for acceptable macroeconomic results.
References


Appendix A. Disaggregation of NIPA Saving and Consumption

There are three published aggregate measures of saving by the US personal sector, which includes households and nonprofit organizations that serve households. First, the Bureau of Economic Analysis publishes the NIPA personal saving rate calculated with data from the National Income and Product Accounts using the “income and expenditure concept” (IE). This approach defines saving as the residual obtained from subtracting personal outlays (equal to consumption plus personal transfers) from disposable income. Second, the Federal Reserve Board publishes the personal saving rate calculated with data from the Flow of Funds Accounts (FFA) using the “balance sheet concept” (BS) that defines saving as the change in net wealth. As Guidolin and La Jeunesse (2007) point out, a bit of algebra involving the basic consumer budget constraint yields an equality in which change in net worth is on one side and the difference between income and expenditure on the other. In other words, the IE and BS definitions would be identical in a world without measurement errors and problems with accounting definitions. In reality, the series published by the BEA and FRB regularly differ, and the FRB even publishes a third personal saving rate calculated with data from the Flow of Funds Accounts but using the income and expenditure concept. While the BEA (NIPA) considers net acquisitions of consumer durable goods by households as personal consumption expenditures, the BOG (FFA) considers the consumption of durable goods as part of gross private investment (Guidolin and La Jeunesse 2007). We refer to these three measures as the NIPA/IE, FFA/BS, and FFA/IE measures, respectively, reflecting the data source and the concept.

From Mark Zandi we received a data file generated by applying the procedure developed by Maki and Palumbo (2001) for combining distributional data from the Survey of Consumer Finances, available only once every three years, with aggregate data available quarterly in the Flow of Funds Accounts. This procedure generates higher-frequency imputed balance sheet information for a cross-section of the US. The data we use in this paper apply the procedure to generate quarterly data for households divided into two segments: the top 5% and the bottom 95% of households by income. The personal saving rate numbers for the 5% and 95% that we start out with aggregate to a series that estimates a decomposition of the FFA/IE aggregate personal saving rate from the Federal Reserve Board.

Our goal is to generate personal saving rate series for the 5% and 95% that aggregate to the NIPA/IE saving rate so that we can make consistent adjustments based on the more widely used IE concept. We get there in two steps. First, we calculate the implied saving levels of the 5% and 95% based on Zandi’s saving data. Then we allocate the difference between the NIPA/IE

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17 The Bureau of Economic Analysis publishes a website with graphs and data tables called “Comparison of Personal Saving in the National Income and Product Accounts (NIPAs) with Personal Saving in the Flow of Funds Accounts (FFAs),” available at http://www.bea.gov/national/nipaweb/Nipa-Frb.asp. This is our source for all three aggregate personal saving rate data series.
and FFA/IE saving levels between the 5% and 95% based on their respective shares of the total flow of saving throughout the sample period from 1989 to 2010.

\[
S95NIPA_t = S95FFA_t + GAP_t \times \frac{\text{sum}_t [ S95 ]}{\text{sum}_t [ (S95 + S5) ]} \\
S5NIPA_t = S5FFA_t + GAP_t \times \frac{\text{sum}_t [ S5 ]}{\text{sum}_t [ (S95 + S5) ]}
\]

Because we have data on disposable income, shares of disposable income, and saving rates for our two household segments, we are able to solve for disposable personal income (DPI), saving, and outlays of the two segments (DPI – saving = outlays). In order to back out disaggregated personal consumption expenditures (PCE), we need one more identifying assumption. That is because personal outlays is composed of both PCE and transfers. We assume that both the 5% and the 95% have the same proportion of transfers (and consumption) to outlays. Thus we use the aggregate ratios of transfers to outlays and consumption to outlays to decompose the outlays of the two household segments into their component parts.