Income Inequality: Not Your Usual Suspect in Understanding the Financial Crash and Great Recession

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Rising income inequality was a major factor in the surge of household debt that brought on the financial crash and Great Recession. Other studies have identified rising household debt as a cause of the crash but not income inequality as a cause of the rising debt. Here the unusual rise in household debt post 1995 is documented. Econometric evidence links rising income inequality to the rise of household debt. Consumer expenditure data shows that prices of major necessities — shelter, healthcare and education — rose faster than inflation as demand by high-income households surged. In order to maintain their consumption of such necessities, lower-income households resorted to massive borrowing. Their rising debt precipitated the financial crash and Great Recession. That link was overlooked by mainstream economists because they adhere to a theory of household consumption that posits no role for income inequality.

Introduction

This Article tells two stories. The first tells how rising income inequality over the past decades led to rising, indeed surging, household debt to support consumption, a surge that brought on the financial crisis and Great Recession of 2008-2009. The second shows that mainstream economists have adhered to a theory of consumption that assigns no role to the distribution of income, and therefore is inadequate for fully understanding the Great Recession.

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Of course, rising income inequality is only one of the causes of the surge in household debt, but it is an important one that is too often neglected by economists and policymakers. The period from about 1995 to 2007, especially post 2000, can be characterized as a perfect firestorm of household indebtedness, fueled by four factors: (1) stagnant incomes for most households related to the long-term rise in income inequality; (2) unusually low interest rates after 2000; (3) legal and institutional changes that relaxed borrowing standards of lenders, raised the availability of credit, and made housing a more liquid asset; and (4) the housing price bubble. The bursting of that bubble in 2006-2007 precipitated the financial crisis and the Great Recession, but it was only the last straw. The debt-supported expansion of consumption became unsustainable after 2007. As consumers have begun to reduce their debt — deleveraging — and increase their saving, consumption will be depressed for some years, producing an anemic recovery.

Most analyses of the financial crash and Great Recession identify factors (2) through (4) as causes but not (1), income inequality. The argument in this Article is that lower- and middle-income households were seeking to maintain their living standards in the face of stagnant or declining incomes. Joseph Stiglitz, Raghuram Rajan, Paul Krugman, and Thomas Palley also name rising income inequality as a cause of the jump of indebtedness and ensuing economic crash.[1] They all make well-reasoned arguments linking growing personal indebtedness in part to rising income inequality, but fail to provide empirical support for such a link. This Article goes beyond their writings in two ways. First, it summarizes econometric evidence supporting such a link. Second, it uses household budget data to show that households' increased indebtedness was not merely for leisure or competitive conspicuous consumption. Rather, the drivers of debt were increased spending on what most would agree are necessities. Faced with stagnant or declining incomes, households maintained their consumption on essentials through massive borrowing.

The next Part presents the unusual rise in household debt post 1995, and the econometric evidence linking that rise in debt to rising income inequality. That is followed in Part II by data showing that households' budgets were squeezed by price increases brought on by enhanced spending by the rich on shelter, healthcare and education. Part III shows that mainstream economists

1 Paul Krugman, End This Depression Now! 259 (2012); Thomas I. Palley, From Financial Crisis to Stagnation 241 (2012); Raghuram G. Rajan, Fault Lines: How Hidden Fractures Still Threaten the World Economy 260 (2010); Joseph E. Stiglitz ,The Price of Inequality (2012).

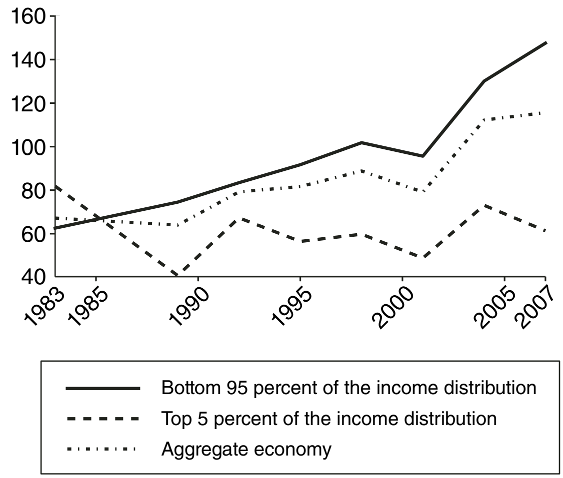
assume away any role for income inequality in the theory of consumption and therefore do not understand the Great Recession. The last Part concludes.

I. Consumers' Shift to Debt

This Part documents the huge rise of household debt and argues that rising income inequality has been a major cause of the increase in debt. In addition to documenting the rise of debt, econometric evidence is presented to support the argued link from rising income inequality to the rise of household debt.

Based on data from the Survey of Consumer Finances, Figure 1 shows debt to income ratios for the top five percent of the income distribution and the bottom ninety-five percent.

Figure 1: Debt to Income Ratios[2]



The figure is taken from an International Monetary Fund (IMF) working paper, and the authors note about it that

> [i]n 1983, the top income group was more indebted than the bottom income group, with a gap of around 20 percentage points. In 2007, the situation was reversed. The debt-to-income ratio of the bottom group, at 147.3 percent compared to an initial value of 62.3 percent, was

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2 Michael Kumhof, Romain Ranciere & Pablo Winant, *Inequality, Leverage and Crises: The Case of Endogenous Default*, 105 Am. Econ. Rev. 1217, 1222 fig. 2 (2015).

> now more than twice as high as that of the top group, which remained fluctuating around 60%.[3]

But the figure also shows that the huge run-up of the debt to income ratio for the bottom ninety-five percent occurred in the period after 2004.

One of the direct causes of the financial crash was the increased volume of subprime mortgages that were bundled into securities and sold to investors. The collapse of prices for those securitized debt obligations touched off the financial crisis. There was a stunning rise of subprime mortgage originations from slightly over 400,000 in 1999 to over two million in 2005, the peak year.[4] The total of originations is split between refinancings and purchases. In every year from 1999 through 2006, the refinancing with subprime mortgages is sixty to seventy-five percent of total originations. A major purpose of mortgage refinancing is to take out cash. As shown above in Figure 1, the ratio of debt to income for the bottom ninety-five percent of the wealth distribution shot up sharply from about eighty percent in 2004 to 140% in 2007. Some part of that rise reflects the fivefold increase in subprime mortgages.

The strong rise of household indebtedness documented here was not underpinned by a strong rise of household income. It was underpinned by the housing price bubble and supply-side factors that increased the availability of credit — subprime mortgage lending, low interest rates, relaxed credit standards, and financial deregulation that made residential property more liquid. Both the explosion of debt and the housing price bubble were mostly ubiquitous across states, although four states stand out for larger gains and more severe declines: Arizona, California, Nevada and Florida.[5]

A central argument of this Article is that the huge run-up in household debt that was one of the major causes of the financial crisis and Great Recession was itself in part a manifestation of the long rise of income inequality. That possible link of rising income inequality to rising household debt has been explored econometrically using the New York Federal Reserve Bank data on household debt by state, 1999 to 2010.[6] The key advantage of that data is that it provides time series on household debt for all states, enabling the estimation of panel data regression equations. Panel data equations are less fraught with the estimation problems of time-series data, and they have much larger sample sizes. Instead of having a sample limited to the number of years, a panel regression sample size is equal to the number of time periods,

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3 *Id.* at 1221.

4 Christopher J. Mayer & Karen Pence, *Subprime Mortgages: What, Where, and to Whom?* (Nat'l Bureau of Econ. Research, Working Paper No. 14083, 2008).

5 Fed. Reserve Bank of N.Y., Household Debt and Credit (2011).

6 *Id.*

twelve years in this case, multiplied by the number of entities, fifty states and the District of Columbia, or 612. Panel regression equations have been estimated to measure the connection, if any, between rising income inequality and rising household debt. Here the substantive results are presented in a nontechnical manner.

The purpose of the regressions is to measure the percent change in per capita household debt with respect to a one percent change in the variable named, holding all else equal. The key variable is the income share of the bottom eighty percent by state and year. Its estimated value is -0.2. That means that a one percent *fall* of the state income share (rising income inequality) for the bottom eighty percent of households is expected to produce a *rise* of 0.2% in state per capita household debt three years later, other things being equal. In other words, rising inequality is accompanied by rising household debt with a lag of three years. The variable with the largest effect on per capita household debt is the state house price index. A 1% rise of the house price index is associated with a 0.4% rise of per capita household debt. The interpretation of that result is that rising house prices induced a perception of enhanced wealth which motivated households to borrow more.

These results of course do not prove a causal link from a diminishing state share of income received by the four lower income quintiles (rising income inequality) to rising household debt, but they do support the argument of a causal link. Stronger support is provided in an article by Robert Hockett and Daniel Dillon. Their careful econometric analysis shows that a rise of the very top income share, the share of the top 0.1%, is followed two years later by a rise in all household debt per capita, ceteris paribus. The same holds true on the downside. A decline of the income share of the top 0.1% is associated with a drop in household debt two years later. The authors argue that "[t]his positive feedback loop presents evidence of the hypothesized relationship between inequality and debt, namely that as the wealthy amass more of the aggregate income, the average household ramps up its borrowing to maintain accustomed living standards."[7]

The argument that the rise of consumer indebtedness is linked to income inequality is well stated by Stiglitz:

> The negative impact of stagnant real incomes and rising income inequality on aggregate demand was largely offset by financial innovation in risk management and lax monetary policy that increased the ability of households to finance consumption by borrowing, especially in the United

7 Robert Hockett & Daniel Dillon, Income Inequality and Market Fragility: Some Empirics in the Political Economy of Finance 39 (2013) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2204710.

> States . . . . But increasing household indebtedness was not sustainable. Or rather what was perceived to be sustainable was dependent on artificially inflated asset prices that created the illusion that household wealth was increasing at a faster pace than their debt. The support for the bubble thus depended on expansionary monetary policy together with financial sector innovation leading to ever-increasing asset prices that allowed households virtually unlimited access to credit.[8]

The relative rise in households' debt documented in this Part was facilitated by a number of factors. One was the advent of subprime and alt-A mortgages aggressively pushed by mortgage lenders who understood that investment banks were eager to buy them and bundle them into bonds — securitized debt obligations. Another was the development of mortgage refinancing, home equity loans and home equity lines of credit, financial instruments not widely available to households until the 1990s. Finally, unusually low interest rates following the onset of recession in 2000-2001 and after the World Trade Center attack in 2001 were continued until 2005. As Stiglitz noted about that period leading up to the financial crash and Great Recession,

> Greenspan lowered interest rates flooding the market with liquidity. With so much excess capacity in the economy, not surprisingly, the lower interest rates did not lead to more investment in plant and equipment. They worked — but only by replacing the tech bubble with a housing bubble, which supported a consumption and real estate boom.[9]

All of those supply-side factors raised the availability of credit. But increased supply does not assure increased demand for credit by households. The rise of demand was for two purposes: to buy homes and to take out cash for maintaining consumption.

The ten-year rapid rise of house prices lured consumers into thinking that the future would be similar to the past. A Case-Shiller survey of home buyers in the spring of 2005 revealed that the median expectation of house price appreciation for the next ten years was seven percent annually. In fact, house prices nationally declined twenty-five percent from the spring of 2005, when the Case-Shiller survey was taken, to the spring of 2009.[10]

Not all the debt that shows up as mortgage debt, by far the largest debt category for households, represents borrowing to purchase a home. Many

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8 Joseph Stiglitz, The Stiglitz Report: Reforming the International Money and Financial Systems in the Wake of the Global Crisis 24 (2010).

9 *Id.* at 4.

10 Case-Shiller House Price Index (2012), http://www.econ.yale.edu/~shiller/data.htm.

households tapped that increased wealth with second or junior mortgages, cash-out refinancing, and home equity loans or lines of credit. Indeed, an analysis by Atif Mian and Amir Sufi of what existing homeowners did in reaction to their increased home values argues that rising home values lured consumers into taking on more debt. The effect they calculate is large. That is, every dollar of additional home equity is associated with $0.60 additional debt.[11] Recall that rising house prices have the largest positive impact on per capita state debt. And it was rising house prices (higher home equity) that enabled lower-income households to borrow in order to maintain their consumption in the face of stagnant incomes.

II. Squeezed Household Budgets

What did households do with all that borrowed money? The shifting relative distribution of households' consumption provides some insight into what they have been spending on, as shown in the Table below.

Expenditure Shares by Selected Categories, 1984 & 2007[12]

Category \ Year	1984	2007
Food, apparel & transportation	40.6%	33.8%
Shelter, healthcare & education	21.7%	27.8%

This table shows expenditure relative shares for selected categories of consumption for all households, 1984 to 2007. The first category includes food, apparel, and transportation. It fell almost seven percentage points from 1984 to 2007. The other three categories — shelter, healthcare, and education — have had increased relative shares. Shelter includes the major costs of owning (mortgage interest, property taxes, insurance and maintenance) as well as renting. Healthcare only includes the out-of-pocket spending, not the parts covered by private insurance, Medicare, or Medicaid. Note that in the first year, 1984, the share spent on food, apparel and transportation, 40.6%, was almost two times greater than the share spent on shelter, healthcare and education, 21.7%. But gradually the share spent on food, apparel, and transportation dropped while the share spent on shelter, healthcare, and education rose.

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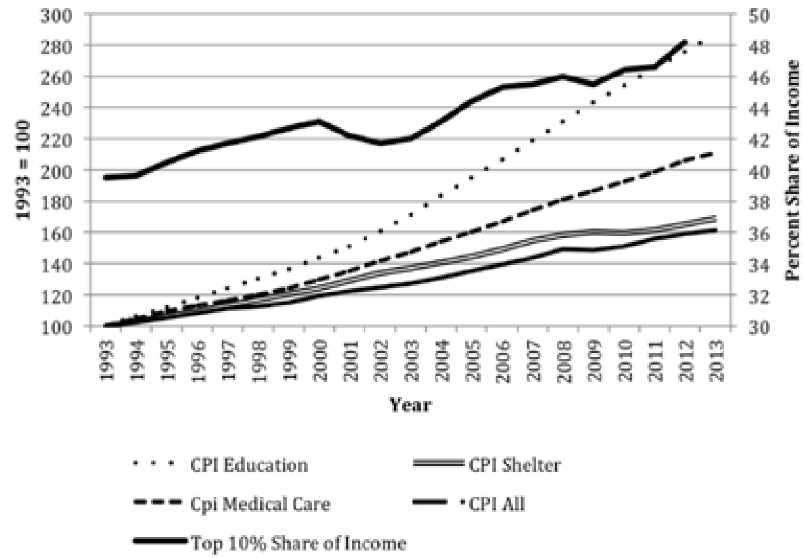
11 Atif Mian & Amir Sufi, *House Prices, Home Equity-Based Borrowing, and the United States Household Leverage Crisis*, 101 Am. Econ. Rev. 2132, 2132-33 (2011).

12 *Consumer Expenditure Survey, 1984-2007*, Bureau of Lab. Statistics, http://www.bls.gov/cex/#tables (last visited Jan. 8, 2017).

Aside from the much noted increased demand for shelter, healthcare and education over the past decades, their prices have risen much faster than inflation, while the prices for food, apparel and transportation have risen at or below inflation. Figure 2 presents the percentage growth of the Consumer Price Index for shelter, healthcare and education as well as all items from 1993 to 2013.

Figure 2: Top Ten Percent Income Shares Compared with Selected Consumer Price Index Categories, 1993-2013[13]



The all items index rose 107%, a doubling of the cost of living in about twenty-five years. The shelter index rose more — 140% — and the healthcare index jumped over 250%. Largest of all are the increases in the major components of the education price index — tuition, fees and childcare, up almost 400% and books and supplies, up 320%.

Why did the prices for shelter, education and medical care rise so much more than the overall price level? One reason is that they are not in competition with cheap imports, unlike electronics and apparel. But the more salient reason for this analysis is that the demand of the top ten percent for those categories must have expanded strongly with their expanded share of income. In this Figure the trends for each of those items — shelter, healthcare and education

13 World Health & Income Datatbase, http://wid.world/#Home (last visited Jan. 17, 2017); *Consumer Expenditure Survey*, *supra* note 12.

— are compared with the trend of income share for the top ten percent, 1993 through 2013. In that period the income share of the top ten percent rose from just under forty percent to just over forty-eight percent. That gain must have strongly boosted demand for shelter, education and medical care among the top ten percent, thus putting upward pressure on prices for those items.

Consequently, those items — shelter, healthcare, and education — are taking a much bigger bite out of all households' spending than in the past, and they are not expenditures that can be postponed such as replacing the car or taking a vacation trip. The immediacy of such demands, combined with decades of stagnant household incomes for most, must have made the easy availability of credit an almost irresistible solution to the problem of households' squeezed budgets. This analysis of what happened to households' relative consumption is another support for the argument that stagnant incomes and rising income inequality lead to an explosion of debt. Mian and Sufi note:

> Where did the borrowings go? Some have asserted that it went to investments in stocks. However, if this were the case, then stocks as a share of total assets would have increased over this period, which it did not (it fell from 13 to 7 percent between 2001 and 2007) . . . . Instead middle class households experiencing stagnating incomes, expanded their debt almost exclusively in order to finance consumption expenditures.[14]

Edward Wolff asks whether debt was increased in order to support normal consumption or to expand consumption. Analyzing the Consumer Expenditure Survey data over that period, Wolff concludes "that the CEX data, like the NIPA data, show no acceleration in consumer spending during the debt splurge of the 2000s. As a result, it can be concluded that the debt build-up of the 2000s went for normal consumption, not enhanced consumption."[15] The data presented in this Part show that the money taken out from appreciating housing was not used to pay down debt because indebtedness rose. Rather, it was used to support consumption in the face of stagnant income.

This Part on consumers' squeezed budgets and the previous Part on household debt lay out the facts of stagnant incomes and rising income inequality and the unusually large increase of consumer debt beginning in the mid-1990s that culminated in the financial crash and the Great Recession. The econometric evidence presented links rising income inequality to the expansion of household debt, an expansion that was unsustainable. If the Great Recession was in part

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14 Mian & Sufi, *supra* note 11, at 2135.

15 Edward N. Wolff, *Recent Trends in Household Wealth in the United States: Rising Debt and the Middle-Class Squeeze — An Update to 2007*, at 21 (Levy Econ. Inst. Working Paper No. 589, 2010).

caused by the big rise in household debt, and that rise in debt was in part the result of stagnant incomes and increased income inequality for three decades, then surely increasing income inequality matters. It matters for understanding how to prevent another big recession. It matters for understanding why the economic recovery has been so sluggish.

III. No Role for Income Inequality in the Economic Theory of Consumption

Part I above established the massive rise of household debt post 1995, which only ended with the bursting of the housing bubble. As house prices fell, households could no longer borrow on their shrinking home equity. Part II above established that rising prices above the rate of inflation for key necessities — shelter, healthcare, and education — pressed households to maintain their consumption through massive borrowing. And one reason for that run-up in prices was because higher-income households were capturing a much larger share of income than in the past (i.e., rising income inequality), so their demand soared for those categories.

Economists have ignored or misunderstood the effects of rising income inequality on macroeconomic outcomes. Moreover, the mainstream consumption theories cannot explain recent trends in relative consumption and saving. For example, Neither Milton Friedman nor Franco Modigliani and Richard Brumberg — the leading theorists of consumption in recent economic thought — posited any role for the distribution of income in their theories of consumption.[16] Friedman's permanent income theory of consumption does not explain the observed rise of debt-fueled consumption in the decade before the crash; Modigliani and Brumberg's lifecycle theory of consumption contains the seed of an explanation, but not one that they anticipated.[17]

Two of Friedman's assumptions in his consumption theory[18] no longer hold true, namely stable or diminishing income inequality and a constant consumption/income ratio (formerly called the average propensity to consume). After years of stability following World War II, the consumption/income ratio began a long-term rise (and thus a long-term fall in the saving rate). But that

16 *See* Milton Friedman, A Theory of the Consumption Function (1957); Franco Modigliani & Richard Brumberg, *Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data*, *in* Post Keynsian Economics 388 (Kenneth K. Kurihar ed., 1954).

17 Matthew P. Drennan, Income Inequality: Why It Matters and Why Most Economists Didn't Notice (2015).

18 Friedman, *supra* note 16.

rise was not unprecedented. Based on Simon Kuznets's data, there was a three-decade rise of the consumption/income ratio, 1894-1903 to 1924-1933.[19] Friedman did not note that long-term rise in his 1957 book. Kuznets's data on income distribution, which begins in 1920 and ends in 1938, shows rising income inequality in the 1920s. The fact that Kuznets's long period of a rising consumption/income ratio includes a decade of rising income inequality, and the thirty-eight-year rise of income inequality, 1974-2012, includes a long period of a rising consumption/income ratio, raises the question of whether there is a causal link from rising income inequality to a rising consumption/income ratio.

But economists have not been interested in rising income inequality. The centrality of Pareto efficiency in economics suggested that we need not worry about income inequality in theory because any redistribution of income that made some better off and others worse off was not Pareto efficient and so was beyond the domain of positive economics. Kuznets's inverted "U" hypothesis, supported empirically, suggested that we need not worry about income inequality in fact because it was destined to fall. That questionable past baggage has been dragged into the present, resulting in little interest in income distribution or inequality by mainstream economists. Counting articles published in the most prestigious economic journals over the five years, 2009 through 2013, only twenty-six are about income inequality or income distribution generally, based upon their titles. So that amounts to less than two percent of the 1561 articles published in those journals. That certainly indicates a lack of interest and perhaps some hostility. As Krugman noted in his review of Thomas Piketty's book, *Capital in the Twenty-First Century*,

> [s]ome economists (not to mention politicians) tried to shout down any mention of inequality at all. "Of the tendencies that are harmful to sound economics, the most seductive, and in my opinion the most poisonous, is to focus on questions of distribution," declared Robert Lucas Jr. of the University of Chicago, the most influential macroeconomist of his generation, in 2004.[20]

The neoclassical theory of consumption is not germane to understanding the financial crisis and the Great Recession. Jettisoning that theory in favor

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19 Simon S. Kuznets, National Income: A Summary of Findings (1946).

20 Paul Krugman, *Why We Are in a New Gilded Age*, N.Y. Rev. Books (May 8, 2014), http://www.nybooks.com/articles/2014/05/08/thomas-piketty-new-gilded-age/ (reviewing Thomas Piketty, Capital in the Twenty-First Century (Arthur Goldhammer trans., 2014)).

of one that gives central place to the distribution of income, relative income and consumption, as well as household debt, is necessary for making macroeconomics more germane to public policy.

Conclusion

The preceding analysis has shown that rising income inequality has had deleterious effects upon household debt. The overhang of debt will be a drag on economic expansion for some years. The adverse aftereffects of the Great Recession, although officially ended in June 2009, will be much longer than recessions of the recent past. The more daunting issue is how to reverse or at least stop the decades-long rise of income inequality, which, as argued here, has been a major cause of the Great Recession and our sluggish recovery.

The mainstream theory of consumption does not accord any importance to the distribution of income. But that theory cannot explain recent trends in debt-supported consumption. The analysis in Parts I and II above shows that rising income inequality was central to what has happened to consumer indebtedness. The state panel regressions show that household debt rose with rising income inequality. The Consumer Expenditure Survey data show large gains in the relative share of consumer spending on shelter, healthcare and education while the share of non-housing necessities shrank, as shown in Parts I and II. A revised theory of consumption should be developed that affords a central place to income distribution and household debt.

We need a more fact-based economics than an authority-based economics. In the 1960s, when it became clear that indeed the consumption/income ratio was stable despite rapid income growth, Keynes's concern that income growth would lower the consumption/income ratio was jettisoned by macroeconomists. That was the right choice, and it was based on evidence. Starting in the mid-1980s the consumption/income ratio began its long-term rise (and thus the long-term fall in the saving rate because the saving rate is equal to one minus the consumption/income ratio), which continued for twenty years. In the 2013 eighth edition of his popular economics text, *Macroeconomics*, Gregory Mankiw argues that that ratio in Friedman's consumption model will only rise "when current income temporarily falls below permanent income . . . ."[21] So although the actual ratio had been rising for twenty years, a period no one would consider temporary, Mankiw explains why the consumption/income ratio of the major authority on the theory of consumption will be constant or at least stable. "Hence, in long-time series, one should observe a constant

21 Gregory N. Mankiw, Macroeconomics (8th ed. 2012).

average propensity to consume [consumption/income ratio], as in fact Kuznets found."[22] Did he look at the data? Apparently not. As noted in Part III above, Kuznets found a *rising* consumption/income ratio from the beginning of the twentieth century through 1933, and the current data on the consumption/income ratio clearly shows a long-term rise of more than twenty years until the Great Recession.

22 *Id.* at 483.