Is There Really an Inflation Tax? Not For the Middle Class

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Abstract. One hallmark of U.S. monetary policy since the early 1980s has been moderation in inflation (at least, until recently). How has this affected household well-being? The paper first develops a new model to address this issue. The inflation tax on income is defined as the difference between the nominal and real growth in income. The inflation gain on household wealth is the revaluation resulting from asset price changes directly linked to inflation. The net inflation gain is the difference between the two. The empirical analysis covers years 1983 to 2019 on the basis of the Survey of Consumer Finances and historical inflation rates. It also looks at the sensitivity of the results to alternative inflation rates. The results show that inflation boosted the real income of the middle wealth quintile by a staggering two thirds. In contrast, the bottom two wealth quintiles lost almost half of their real income.

Keywords: inflation**,** household wealth, inequality, racial inequality, portfolio composition

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1. Introduction

The media and the Federal Reserve are obsessed with the negative side of inflation – its effect on real incomes. On the basis of the Consumer Price Index (the CPI-U-RS, in particular) the annual inflation rate reached a peak of 9.1 percent in June of 2022, the highest level since June of 1982. On the current account front, this means that real income has eroded. This is the "income effect" of inflation.

However, there is an upside to inflation as well. Indeed, inflation has been a boon to the middle class in terms of its balance sheet. It is also a factor that has helped to reduce overall wealth inequality.

A simple example can illustrate this point. Suppose a person holds $100.00 in assets and has a debt of $20.00. Her net worth is then $80.00. Suppose inflation is running at 5 percent per year and the value of her assets also goes up by 5 percent over the year. Then, in real terms the value of her assets remains unchanged over the year. But what about her debt? In real terms her outstanding debt is now down by 5 percent and the real value of her net worth *rises* to $81.00 (100 – 20 x 0.95). In other words, the person's real net worth is now *up* by 1.25 percent (81/80). It should be clear that the higher the ratio of debt to assets, the greater the percentage increase in net worth. (This, by the way, is the principle of leverage). For example, if the debt is $40.00 instead of $20.00, then net worth would grow by 3.33 percent (62/60).

What is the *net* effect of inflation? The best way to decide on this issue is to compare the income effect of inflation with the wealth effect. If the income effect (which is always negative as long as inflation is positive) is greater, then the net effect is a loss. However, if the wealth effect is greater, then the net effect is a gain. Now, at least until recently, inflation has been quite moderate. Indeed, based on Census Current Population Survey (CPS) data, household income has more than kept up with inflation and real median household income actually rose by 34.4 percent from 1983 through 2019. However, without any inflation, median income would have grown by 229 percent. In dollar terms this amounts to a loss of $30,200 (in 2019 dollars) over these years. On the other hand, inflation by my calculations bolstered median wealth by 52.3 percent over these same years and this equals $42,700 in 2019 dollars. That is quite a bit greater than the income loss from inflation and here the wealth effect dominates the income effect. So, in terms of household well-being, inflation on net has been a boon to the middle class at least.

What about the recent surge of inflation? An annual inflation rate of 8.0 percent over years 2016-2019 would lead to an inflation tax on real median household income of $15,100 (assuming that real income growth remains unchanged), which is up by almost 350 percent compared to the actual rate of inflation in the base case. It would also lift median net worth by $11,100 or by 223 percent more than in the base case. In this case, the income effect dominates the wealth effect and the average family will now be behind on net with this inflation spurt, and the net inflation gain would now be -$4,000.

Another important fact is that the middle class is much more indebted than the very rich. In 2019, the ratio of total household debt to total assets was 36.5 percent for the middle class (defined as the three middle quintiles of the wealth distribution), compared to a mere 2.3 percent for the very rich (the top one percent of the wealth distribution). As a result, the middle class will benefit much more from inflation than the rich and inflation will lower wealth inequality. Likewise, Blacks and Latinos are much more in debt than white households. In 2019, the debt-asset ratio was 30.8 percent among Blacks and 28.1 percent among Latinos, compared to 10.9 percent among (non-Hispanic) whites. This is almost a three-fold difference. Likewise, as a result, these two minority groups will benefit much more from inflation than whites.

From 1983 to 2019 (the period I investigate) inflation averaged 2.49 percent per year. Coincident with this trend has been a surge in U.S. wealth inequality. To measure this, I use the so-called P99/P50 ratio – the ratio of the average wealth of the top percentile of the wealth distribution to median wealth. Over the same period, this ratio more than doubled from 131.4 (yes, this correct!) to an even more staggering 273.8.

Using data from the SCF, I find contrary to previous literature that the monetary effect of inflation has actually been to reduce wealth inequality rather than to increase it. In fact, without inflation, wealth inequality would have risen even more. The effect of inflation on inequality was also quite sizeable. Over these years, inflation raised the real wealth of top one percent by 2.7 percent but that of the middle class by a huge 52.3 percent. As a result, inflation helped the middle class much more than the super-rich and as such lowered the P99/P50 ratio by about a third. In other words, inflation helped to offset the actual rise in inequality. Without inflation, the P99/P50 ratio would have risen to 316.6 instead of to its actual value of 273.8.

Another silver lining to inflation is that it pumps up real wealth. By my calculations, the asset price changes and debt devaluation resulting from inflation led to a 12.3 percent advance of

mean wealth over years 1983-2019. It also led to a 52.3 percent gain in median wealth compared to the actual rise of 34.4 percent. Moreover, it helped lower the racial and ethnic wealth gaps. The actual ratio of mean wealth between Blacks and whites dropped sharply from 0.188 in 1983 to a very low 0.137 in 2019. Inflation pushed up the mean wealth of Black households by 51.7 percent but that of white households by only 13.9 percent. As a result, inflation boosted the racial wealth ratio by 0.063, so that without inflation the ratio would have fallen to an incredibly low 0.074. The story is similar for the ratio of mean Latino wealth to mean white wealth. The actual ratio increased a bit from 0.163 in 1983 to 0.188 in 2019. In this case, inflation enhanced Latino wealth by 62.5 percent and improved the ethnic ratio by 0.069. Without inflation the ratio would have dropped to 0.119 instead of rising over these years.

This paper develops a new model to examine the impact of inflation on the household balance sheet. It also develops the concept of the net inflation gain as the difference between the revaluation of household wealth resulting from inflation and the direct income loss from inflation. The empirical analysis covers years 1983 to 2019 on the basis of the SCF and historical inflation rates. It also looks at the sensitivity of the results to alternative inflation rates.

The paper contributes to the existing literature in five ways. First and foremost, it constructs a new concept, the net inflation gain (NIG), which is the difference between the revaluation of household wealth from asset price changes emanating from inflation (IG) and the reduction of real income resulting from inflation (IT). Second, it develops a new, and, I believe, more appropriate, methodology to isolate the effects of the inflation rate on the household balance sheet. In particular, it looks at the direct effects of inflation on wealth movements by establishing a direct analytical linkage between the inflation rate and stock and other asset prices. Third, the empirical analysis covers years 1983 to 2019, whereas other papers on the subject cover considerably shorter time periods. Fourth, results are shown separately for six sub-periods – 1983-1989, 1989-2001, 2001-2007, 2007-2010, 2010-2016, and 2016-2019 – as well as for the full time period, 1983-2019. Fifth, one of the principal finding reported here is that inflation has sharply reduced wealth inequality, in contrast with the several studies that find a small equalizing, neutral, small disequalizing, or strong disequalizing effect of monetary policy on wealth inequality.

The rest of the paper is organized as follows. The next section, Section 2, provides some historical background on trends on the inflation rate and interest rates for the U.S. Section 3

offers a literature review on the effects of monetary policy on inequality. Section 4 elaborates a new model connecting inflation to changes in asset values and develops the concept of the net inflation gain. Section 5 discusses the measurement of household wealth and describes the data sources used for this study. Section 6 presents results on time trends in wealth holdings and highlights differences in portfolio composition by wealth class. Section 7 presents the key empirical findings on the net inflation gain. It also analyzes the effects of inflation on household wealth trends and provides a counterfactual analysis of how annual inflation rates of 4.0, 6.0, and 8.0 percent would affect these outcomes. Section 8 gives a breakdown of the impacts of inflation on net worth by race and ethnicity. Concluding remarks and policy implications are discussed in Section 9. The Appendix analyzes the sensitivity of the results to alternative bond rate series.

2. Time Trends in Interest Rates, the Inflation Rate, and Wealth Inequality

Figure 1 displays 10-year constant maturity Treasury annual bond nominal yields from 1953 to 2019. The time trends are quite revealing. After a more or less steady rise from a low of 2.40 percent in 1954 to a high of 13.92 percent in 1981, there followed a more or less steady decline to 2.14 percent in 2019. There was a particularly sharp decline between 1985 and 1986 from 10.62 to 7.67 percent.

Trends in the inflation rate, based on the CPI-U-RS, seem to parallel those in interest rates (see Figure 2). The annual inflation rate shot up from 4.40 percent in 1978 to 11.20 percent in 1980 and then showed a generally downward drift to 1.81 percent in 2019.[1] There were some deviations from this general trend. The inflation rate was down to 1.75 percent in 1986 and then bounced back to 4.93 percent in 1990. It then dropped to 1.35 percent in 1998, came back to 3.39 percent in 2000, fell to 1.58 percent in 2002, but was up to 3.39 percent in 2005.

The real interest rate is defined as the nominal interest rate minus the annual percentage change in the CPI-U-RS. As I will discuss in Section 4, the real interest rate is used in the valuation of stocks and bonds. As we just saw, nominal interest rates and the inflation rate generally trended downward after the early 1980s. What about the real interest rate? I show the trend in the 10-year constant maturity real Treasury bond rate in Figure 3. Surprisingly, the overall trend is quite similar to the nominal interest rate series. There is an upward trend from 4.01 percent in 1978 (the first date of the series) to a peak of 8.30 percent in 1984 and then a generally downward drift to 0.33 percent in 2019. However, as with the nominal interest rate

[1] The CPI-U-RS series begins in 1977.

series, there are many gyrations from this general trend. Among the more notable ones are a steep drop-off in the real interest rate from 4.01 percent in 1978 to -0.05 percent in 1979; an uptick from 3.35 percent in 1993 to 5.00 percent in 1994; a sharp rise from -0.08 percent in 2008 to 3.61 percent in 2009; and another steep climb from -0.37 in 2011 to 1.97 percent in 2015.

3. Literature Review

Several papers provide an assessment of who bears the costs of inflation due to differences in consumption expenditure patterns. Strasser et. al. (2023) document idiosyncratic inflation differences between households in their everyday shopping and find that low-income households experienced higher inflation in the last ten years. Weber et. al. (2022) report that in normal times, realized inflation barely differs across observable dimensions, except that low income, less educated, and Black households did experience a larger increase in realized inflation than other households.

A number of works have now appeared on the distributional impact of monetary policy on wealth inequality. An early paper by Wolff (1979) assesses the impact of inflation per se on the distribution of wealth in the U.S. over the 1969–1975 period. Because of the strong negative correlation between wealth level and the ratio of debt to wealth, this particular inflation induced a substantial drop in the overall level of wealth inequality, with the Gini coefficient dropping from 0.78 to 0.73. Moreover, comparing the portfolios of different demographic groups, he finds that middle-aged households gained relatively to younger and older ones, married couples gained relatively to singles, whites gained relatively to non-whites, and home-owners gained relatively to renters. The biggest gainers from this inflation were home-owners with large mortgages and the biggest losers the large stock holders. However, it should be noted that Wolff (1979) considers only the effects of inflation on household debt. The paper does not include the effects of inflation on asset prices such as stocks and bonds. One contribution of my paper is to extend the analysis of the effects of inflation to the total household balance sheet.

Domanski et. al. (2016) report that low interest rates had a negligible effect on wealth inequality in the euro area and the U.S. They find that low interest rates and rising bond prices had very little impact on wealth inequality trends but the main driver was rising equity prices. However, their analysis does not take account for the effects of inflation. Gabriel and Lutz (2017) analyse the relationship between interest rates and house prices. They find that lower interest rates in the U.S. led to higher real estate prices. Their analysis is based on a structural

factor-augmented vector autoregression (FAVAR) model and a dataset of daily time series on housing, real estate, and related markets in the 2000s. However, there is also no analysis of the effects of inflation on housing prices.

Using hypothetical scenarios, Adam and Tzamourani (2016) quantify the effects of a 10 percent price increase of stocks, bonds, and houses on the wealth distribution of euro area households using data from the Household Finance and Consumption Survey (HFCS). The paper finds that capital gains from equity price increases are concentrated among the rich, while housing price increases strongly benefit the middle class. The capital gains from bond price increases do not correlate with household net wealth. However, no result is reported on the overall wealth distribution and there is no consideration of the effects of inflation.

Lenza and Slacalek (2018) find that quantitative easing (QE) compressed the income distribution in the euro area but that monetary policy had a negligible effect on wealth inequality. Their paper estimates the effects of QE using a multi-country VAR model of the four largest euro area countries, in which key variables affecting household income and wealth are included, such as wages, interest rates, house prices and stock prices. The aggregate effects are distributed across the individual households by means of a reduced-form simulation on micro data from the HFCS. Their work likewise does not directly take account of the effects of inflation.

Bunn et al. (2018) find that the overall effect of accommodative monetary policy over the past decade or so in the UK on wealth inequality was equalizing though rather small. The paper uses panel data from the Office of National Statistics (ONS) Wealth and Assets Survey (WAS) to estimate the distributional impacts of UK monetary policy between 2008 and 2014 and elasticities from a large-scale econometric model of the UK economy to assess the aggregate effects of QE. However, the paper does find that monetary policy was equalizing, lowering the Gini coefficient for net worth in 2012-2014 by 0.017. Increases in the value of financial wealth on account of monetary policy/low interest rates are estimated to raise wealth inequality since the rich hold a higher share of these assets in their portfolio but those effects are more than offset by housing wealth and the effects of inflation acting in the opposite direction and helping to reduce inequality. Here the authors do incorporate the effects of inflation on the real value of debt.

Greenwald et. al. (2021) using data for the U.S. from 1983 to 2016 find that the long-term decline in real interest rates led to a strong uptick in wealth inequality from the 1980s to the 2010s. The authors attribute this mainly to the fact that high financial-wealth households have a

financial portfolio with long duration. However, here too their analysis does not consider the direct effects of inflation. Bartscher et. al. (2021), using data from the 2019 SCF, focus on portfolio differences between Black and white households and conclude that the accommodative monetary policy pursued in the U.S. exacerbated the racial income gap because Black households own relatively less financial assets than white households. As a result, a rise in the value of financial assets leads to relatively greater gains among white households and widens the wealth gap. The effect stems mainly through stock price gains. House price gains also disproportionately benefit white households even though Blacks hold a higher share of their assets in housing. However, this paper does not consider the effects of inflation on relative wealth holdings nor does it directly address the racial wealth gap directly.

Andersen et. al. (2021) use administrative individual-level tax records for Denmark with detailed information about income and balance sheets for the period 1987-2014 to analyze the effects of softer monetary policy on wealth gains by income class instead of by wealth level. The paper considers the various direct and indirect channels of monetary policy. It consistently finds that gains from softer monetary policy in terms of wealth are monotonically increasing with income. Softer monetary policy increases the value of housing assets at all income levels and the magnitude of the effect is monotonically increasing in income. It also increases stock values but the gains are highly concentrated at the top of the income distribution. Measured relative to total asset values, the estimated effects range from around 6 percent at the bottom to around 8 percent at the top. The analysis includes the effect of inflation on household debt.

Amberg et. al. (2022) use Swedish administrative data to examine the distributional effects of monetary policy shocks on individual income. They find, first, that overall expansionary shocks increase the incomes of low- and high-income individuals relative to middle-income ones. Second, the response of labor incomes to monetary shocks is large in the bottom of the distribution but is small in the middle and top. Third, the capital-income response is particularly large at the very top. Fourth, the heterogeneity in the labor-income response over the income distribution is accounted for by overall earnings heterogeneity. Fifth, the heterogeneity in the capital-income response is due to the fact that capital income responds particularly strongly to monetary policy shocks and constitutes a larger share of total income for high-income individuals than for low and middle-income ones. However, no separate analysis is provided on the effects of inflation per se nor on household wealth.

McKay and Wolf (2023) look at the distributional impact of monetary policy in the U.S. They consider a host of mechanisms. Monetary stimulus—that is, lower nominal interest rates—affects households through several channels. Most directly, households may pay lower interest rates on their debts and receive lower returns on their savings. Moreover, interest rate changes cause changes in the aggregate economy that indirectly affect households: jobs become easier to find, wages and prices increase, and asset prices rise. On net, the gains roughly appear to be evenly distributed. Low-income families benefit from a tighter labor market, middle-class households gain from lower mortgage rates, and rich households benefit from capital gains on assets. The paper concentrates on the effect of changes in nominal interest mainly on consumption and does not appear to provide summary measures of the distributional effects of changes in the rate of inflation per se (this is not the paper's objective).

Mäki-Fränti et. al. (2022) use Finnish household-level registry and survey data to study the effects of the European Central Bank's monetary policy on the distribution of income and wealth. They find that the overall net impact of monetary easing on income and wealth inequality is negligible. Monetary easing increases gross income by reducing unemployment and leading to a general rise in wages, while at the same time it boosts asset prices. These different channels have counteracting effects on wealth inequality. The reduction in aggregate unemployment benefits especially households in lower income quintiles, while households in the upper income quintiles benefit relatively more from wage increases. A rise in house prices benefits all homeowners. In terms of net wealth, households with large mortgages in the lower wealth quintiles benefit the most from an increase in house prices due to a leverage effect. An increase in stock prices, in contrast, benefits mainly households in the top wealth quintile.

There are several articles that consider the so-called net nominal position of the household sector and other sectors of the economy. The earliest is Doepke and Schneider (2006) who document the nominal asset positions across sectors and groups of households and estimate the wealth redistribution caused by a moderate inflation episode. They define nominal assets and liabilities as those denominated in U.S. dollars. The net nominal position (NNP) of an agent such as a sector or an individual household is then given as the market value of all nominal assets minus the market value of all nominal liabilities. This definition includes the indirect nominal position, which is due to claims on investment intermediaries and the ownership of firms. They also include the net equity of U.S. businesses which is defined as the market value of all equity

claims on U.S. businesses not held by other U.S. businesses as part of household net worth. They consider balance sheets for U.S. households in years 1989 and 2001 based on SCF data.

They note that bond markets immediately incorporate the revised inflation expectations into the nominal yield curve. Redistribution occurs because future nominal payments are discounted at higher interest rates. They also differentiate the effect by the maturity of the bond and other factors. I do something similar though I do not differentiate by bond maturity but I do present an analysis for different bond maturities. However, I do not see a similar analysis for stock (equity) prices, as I do in my analysis.

With regard to the household sector, according to Doepke and Schneider (2006), the main losers from inflation are rich, older households, who are the major bondholders in the economy, while the main winners are young middle-class households with fixed-rate mortgage debt. However, I do not find summary statistics on the effects of inflation on overall wealth inequality such as the Gini coefficient or the P99/P50 ratio as I do in my paper. I also find that the main beneficiaries of actual historical inflation in the U.S. from 1983 to 2019 were middle class households but in contrast to their paper that super rich (the top one percent of the wealth distribution) were also net gainers from inflation (at least below an annual inflation rate of eight percent). However, in my results households between the 80^{th} and 99^{th} net worth percentile were net losers.

The follow-up literature includes not just the direct effects of inflation on household wealth but indirect effects as well. Meh et. al. (2010), like Doepke and Schneider (2006), also use a multi-sectoral analysis to gauge the impact of inflation. However, they also consider indirect effects of inflation through the wealth effect on work effort and productivity. Using Canadian data for year 2005, they find that the youngest, the poorest, and the government gain at the expense of the rest of the population and, when the government gain is given to households as lump-sum transfers, the effects on GDP are negative and long-lasting. In a follow-up study, again using Canadian data, Cao et. al. (2020) estimate an overlapping generations model to assess the welfare cost of a 3 percentage point increase in inflation. They report that the welfare costs are 13 percent of one-year consumption and these are borne mostly by the poor and the old.

Klaus and Zhu (2015) examine the effects of deflation in the Euro Area (EA) using data from the HFCS for year 2010. They also include a multi-sectoral analysis but look at differences across individual countries. They report that governments as a whole are net losers to deflation,

while the household sector is a net winner in the EA as a whole. Moreover, relatively young middle-class households are net losers to deflation, while older and richer ones are winners. They also find that households in Belgium, Ireland, Malta and Germany experience the biggest per capita gains, while those in Finland are net losers.

Auclert (2019) is not strictly on the distributional effects of inflation but rather examines who gains and who loses from monetary policy changes in general, as well as the effect on aggregate consumption. Moreover, the paper is not strictly on the household sector but the author considers other sectoral effects as well. Auclert identifies three channels through which monetary policy in general redistributes wealth. The first is the "earnings heterogeneity channel." Monetary expansions increase labor and profit earnings and the distribution of these gains is likely to be unequal. The second is the "Fisher channel." The argument is that unexpected inflation revalues nominal balance sheets, with nominal creditors losing and nominal debtors gaining. This is similar to Doepke and Schneider (2006)'s net nominal positions (NNPs) which quantify the exposures of different sectors to unexpected increases in the price level. My paper also encompasses the Fisher effect, though for the household sector alone. The third is the "interest rate exposure channel." The argument for this is that declines in the real interest rate increase financial asset prices. This generally redistributes wealth from agents whose financial wealth is invested in short-term financial assets like certificates of deposit to those who are invested in longer term financial assets like long-term bonds. My analysis also includes this effect as well.

Pallotti (2022) also uses a multi-sectoral model to analyze the effects of the 2021 inflation shock in the U.S. He finds that the US government gained around 4.5% of US GDP from the 2021 inflation shock, primarily at the expense of foreigners. There was also a significant concentration of nominal assets among the wealthiest middle-aged and elderly households, who lost substantially. Most other groups of households gained on average.

The previous literature is in some ways more extensive than this paper in that some articles include the indirect macro effects of inflation on employment, wages, and output. Several also conduct a multi-sectoral analysis of the effects of inflation including the government sector and the foreign accounts. Doepke and Schneider (2006), for example, find that the government sector gains from inflation in terms of wealth, while inflation is a tax on the foreign sector. In contrast, my paper examines the effects of inflation on only the household sector.

However, in other ways the previous literature, with perhaps the exception of Auclert (2009), is less extensive than this paper in that it does not consider the direct effects of inflation on asset prices like stocks and bonds through the revaluation of the household balance sheet. My model is very different than those based on NNP. As far as I can tell, NNP is really a measure of leverage. For example, inflation always reduces the real value of both assets and liabilities. The difference in the two effects reflects the degree of leverage of a sector. In contrast, in my paper, inflation raises the real value of stocks and bonds.

In sum, as far as I can tell, there is no precedent in the literature that includes an attempt to estimate the net inflation gain from asset price changes (except for perhaps Auclert), and my paper offers quite a different model to analyze the effects of inflation than his or the prior literature. Moreover, there is nothing in the literature that I could ascertain on comparing the wealth side of the accounts to the income side of the accounts as I do here to obtain a "net inflation tax." My paper also has a couple of other innovations as well. First, it constructs consolidated household balance sheets, though this is related to Doepke and Schneider (2006)'s investment intermediaries in their household balance sheet which includes mutual funds and defined-contribution pension funds. Second, I also use actual historical rates of inflation in my analysis while the other papers rely on simulated inflation rates.

4. The Model

4.1 Capital Asset Values

There are various channels through which a change in the interest rate affects asset values. First, for stocks, the present discounted value of future corporate earnings will rise if the interest rate falls and the (current) stock price should in principle be proportional to the present value of future earnings. In particular, since the price that an asset A, p_A, will command on capital markets is determined by the net present value of expected receipts from that asset,

(1) $p_A = \sum_{t=0}^{T} \frac{Y_{tA}}{(1+r)^t}$,

where t is time, T is the time horizon, Y_{tA} is the expected revenue at time t, and r is the real interest rate, asset values move inversely to interest rate changes. However, since the net present value of any alternate asset B is given by:

(2) $p_B = \sum_{t=0}^{T} \frac{Y_{tB}}{(1+r)^t}$

which has a different time pattern and/or duration of future receipts ($\frac{Y_{tA}}{Y_{tB}} \neq 1$) , p_B will not move exactly proportionately with p_A, and interest rate changes will differentially affect the relative values of different asset types. Therefore, since the composition of wealth holdings varies with wealth levels-- e.g. the wealth of middle deciles of the wealth distribution is largely in residential real estate while financial assets dominate the portfolios of the top wealth percentile (see Section 6 below) -- changes in interest rates affect the level of wealth and differentially affect the inflation tax.

While it is true that a decline in the interest rate will generally boost stock prices, this is a *direct* effect only. It is likely the case that actual stock prices depend more on the expected revenue flow from the asset than the interest rate. Of course, there are many factors that affect future revenue flow (and expected future revenue flow), and the expected earnings stream can shift (widely) over time.[2] The same logic applies to the value of (unincorporated) business assets, which is another important component of the household portfolio. The value of unincorporated business tends to follow the stock market. A fall in interest rates produces a rise in the present value of future business profit flows, which raises the market value of businesses.

4.2 Bond values

For financial securities, since bond values increase when the interest rate falls, the relationship is tighter and can be calculated directly. A one-year bond that promises to make only a single payment of $X in one year (principal plus interest) will have a price, P_{C1}, that depends on the market interest rate, r, as follows: $P_{C1} = X / (1 + r)$.
Actual bonds typically promise a fixed interest payment, called the coupon payment, C, each year until maturity, then pay back the entire principal, P_0, in the year the bond matures. If the term to maturity of the bond is denoted T, then the price (present value) of the bond is:

$$(3)\ P_{C2} = C / (1 + r) + C / (1 + r)^2 + \ldots + C / (1 + r)^T + P_0 / (1 + r)^T$$

[2] For example, a change in the Federal funds rate may affect stockholders' expectation of future profits flows and therefore stock values. However, this is an indirect effect and is ignored in this analysis.

Since the amount of bonds held by households is low relative to total assets, this is likely to have a rather small effect on total household wealth – but since bonds are disproportionately held by the very affluent, it will differentially affect the inflation tax.

IRAs, 401(k) plans, and other defined contribution holdings are typically a mixture of bonds, stocks, money market funds, and other assets. If the interest rate falls, the change in its value will be a weighted average of the change in the individual asset components. In the empirical analysis in Section 6, "consolidated" portfolio accounts are constructed for each wealth group in which stocks and bonds owned indirectly through pension accounts (and also mutual funds and trust funds) are broken down into their constituent components

4.3 Real Estate Values

House prices and other real estate values depend mainly on both capital gains expectations and how much their value reacts to changes in mortgage carrying costs. Generally speaking, the mortgage interest rate tracks movements in the ten-year Treasury bill rate as was shown in Section 2. If the mortgage interest rate falls as a result of a decline in the Treasury bill rate, then real estate carrying costs will decline, producing a rise in demand for real estate and increased real estate prices. As with bonds and stocks, only the *direct* effects of a change in interest rates on real estate values are considered here. There are other factors that influence real estate values like capital gains expectations, as noted above.

There is a direct connection between mortgage rates and house price in terms of affordability. Most home buyers who use a mortgage loan to finance their purchase will need to put down a certain percentage of the sale price. The standard is 20 percent down.
If a person gets a 30-year fixed-rate mortgage for $200,000 with an interest rate of 4 percent, the monthly payment will be about $955. Contrast this with a $200,000 loan at 3.5 percent, with which the monthly payment is $898, a $57 difference each month. Over 30 years, the person will have paid the lender an additional $143,739 in interest on the 4.0 percent loan, and only $123,312 on the 3.5 percent loan.

Figure 4 illustrates the trade-off between home price and the annual mortgage rate, which shows equivalent monthly payments based on a 30-year fixed rate mortgage with a 20 percent down payment and monthly payments. At a 6.5 percent mortgage interest rate, a $100,000 home will result in the same monthly payment as a $125,000 home with a 4.5 percent mortgage rate. That is to say, with a 6.5 percent interest rate, a family could afford the

same monthly payment as a house worth 25 percent more with a 4.5 percent interest rate. This trade-off thus reflects the effect of mortgage rates on home prices. This analysis shows the *direct asset price* effect of a change in the mortgage rate. Presumably, a drop in the mortgage rate will increase the demand for housing and thereby home prices.

On the liability side, for current homeowners with variable rate mortgages, servicing costs go down when interest rates decline (usually pegged to the prime rate) though the face value of mortgage debt remains unchanged. Homeowners with fixed rate mortgages usually have the option to refinance at the lower mortgage rate so that their carrying costs also go down (minus closing costs and other refinancing fees). Since there is a decline in the present value of their cash outflow, mortgage holders get an effective capital gain when interest rates decline. On the other hand, homeowners without mortgages are unaffected by a decline in mortgage rates. In the accounting framework here, reduced carrying costs for mortgage holders shows up as an expenditure effect, not a wealth effect. The rationale is that from a balance sheet point of view, the outstanding debt remains unchanged, so net worth is unaffected. It is, of course, possible that the lowered expenditures could show up as enhanced savings but this will be reflected in the purchase of additional assets and therefore greater net worth. To the extent that interest rates on other debts move with the Treasury bill rate or prime interest rate, the same argument holds true for other loans as well.

4.4 Liquid Assets

The face value of liquid assets like bank accounts does not change when interest rates change. That is to say, unlike bond values, the marketable value of a liquid asset is not altered when the interest rate goes up or down, so that the household balance sheet is unaffected. However, it is true that a change in the Federal funds rate may affect the interest rate that liquid assets such as a bank account may pay. As a result, it may make sense to also include this effect. In the base case, I exclude this effect in the main analysis but in the sensitivity analysis in the Appendix I include this effect. In either case, the real value of liquid assets will change from overall inflation. When the inflation rate is high, the real value of liquid assets will depreciate more over time than when inflation is low.

4.5 The Inflation Rate

The inflation rate comes into play in four ways. First, inflation reduces the real value of household debt. Therefore, an increase in the inflation rate will lead to greater growth in mean

and median household net worth. Second, as we shall see in Section 6, relative indebtedness as measured by the debt-net worth ratio is significantly higher for middle class families than rich ones. As a result, inflation acts as an equalizing force, reducing wealth inequality. For example, Wolff (1979) assesses the impact of inflation on the distribution of wealth during the 1969–1975 period. Because of the strong negative correlation between wealth level and the ratio of debt to wealth, this particular inflation induced a substantial drop in the overall level of wealth inequality. Third, it affects the real interest rate. A fall in the inflation rate will lead to a decline in the real interest rate. Fourth, as noted above, the inflation rate affects the real value of liquid assets.

4.6 Real versus Nominal Interest Rate

As indicated above, "r" is the *real* interest rate in the present value and bond formula (equations 1, 2, and 3). To understand why, consider the fact that the earnings stream Y_t must be in real terms. Likewise, for bonds the coupon rate C must be in real terms. Otherwise, in the former case, a simple rise in the inflation rate would result in a rise in p_A even though real future earnings have remained unchanged. The same logic applies to bond values and holds for valuing unincorporated businesses.

The logic is different for the effect of mortgage rates on house prices. In this case, as shown above, a change in the nominal mortgage rate will translate directly into a change in the current monthly mortgage payment, which will affect the affordability of the property and therefore its (current) price. The house price should vary according to the differential in the nominal interest rate. As a result, it is not a factor in computing the inflation tax.

The "inflation gain" in household wealth, IG, is thus given by:

$$(4)\quad IG = STK(r_n) - STK(r) + BUS(r_n) - BUS(r) + BND(r_n) - BND(r) - LIQ\cdot INF + DBT\cdot INF$$

where r_n is the nominal interest rate, STK is stock holdings, BUS is business holding, BND is bond holdings, INF is the inflation rate over the period, as measured by the CPI-U-RS, DBT is household debt. IG could theoretically be negative but is almost uniformly positive in the empirical results presented below. The inflation tax, IT, is given by:

$$(5)\quad IT = INC\cdot INF$$

where INC is household income. The inflation tax is thus the difference between the nominal change in income and the real change in income, which is its usual definition. IT is always positive (as long as there is positive inflation). Finally, the net inflation gain, NIG, is given by:

(6) NIG = IG – IT.

The wealth effect is not necessarily positive but the income effect is always positive so that NIG can be positive or negative.[3] The net inflation tax is thus the difference between the inflation boost to net worth and the loss in real income due to inflation.

Table 1 shows the time trends in the key ingredients for the analysis of the net inflation gain, where the percentage change in prices have been converted to an annual rate of change. It is first of interest to look at the results for the full period, 1983-2019. By far the fastest rate of increase occurred for home prices and debt, 2.40 and 2.49 percent per year, respectively. This was followed by real bond values, at 1.64 percent per year, and then the present value of real future profits, at 0.74 percent per year. In contrast, the real value of liquid assets declined at an average annual rate of 2.49 percent, mirroring that of the CPI-U-RS index.

It is also of note that when comparing real and nominal trends, differences are relatively small for the 1983-2019 period. The annual rate of change in the nominal value of bonds was 1.64 percent, compared to 1.41 percent for real values, and those in future profits were 0.93 and 0.74 percent, respectively. The higher values for the nominal series are due to the fact that the differential between the nominal and real rate of change narrowed over these years because the inflation rate fell.

The time pattern of annual rates of change also plays a critical role. They generally trended downward over time. It is apparent that the highest rate of change occurred in the earliest period, 1983-1989, for real bond values, real future profits, and the inflation rate and it ranked second highest for home prices. For real bond values and real future profits, returns fell in 1989-2001 and again in 2001-2007, flattened out in 2007-2010, rose in 2010-2016, and then fell again in 2016-2019. Home price gains likewise declined in 1989-2001 and again in 2001-2007, spiked

[3] NIG is similar to (though not identical with) with the so-called Haig-Simons concept of income (Haig, 1921, and Simons, 1938). This is defined as the sum of consumption and the change in net worth, including capital gains. In the case here, NIG is the difference between the "wealth effect" – the implicit capital gains from the revaluation of the balance sheet resulting from inflation – and the loss of real income resulting from inflation.

in 2007-2010 due to a sharp drop in mortgage rates, fell sharply in 2010-2016, and then turned negative in 2016-2019. The inflation rate also fell between the first period and 1989-2001, flattened out in 2001-2007, dropped in 2007-2010, stayed steady in 2010-2016, and then rose somewhat in 2016-2019. As a result, the real value of liquid assets experienced its greatest decline in the first period, fell successively less through 2010-2016, and then decreased somewhat more in 2016-2019.

5. Data sources and methods

The primary data sources used for this study are the 1983, 1989, 2001, 2007, 2010, 2016, and 2019 SCF. Each survey consists of a core representative sample combined with a high-income supplement. Starting in 1989, the first sample was selected from a standard multi-stage area-probability design. This part of the sample was intended to provide good coverage of asset characteristics such as home ownership that are broadly distributed. The second sample, the high income supplement, is selected as a so-called "list sample" from statistical records (the Individual Tax File) derived from tax data by the Statistics of Income (SOI) Division of the Internal Revenue Service. In this case, the IRS provided the names and addresses of a sample of very high income families. This second sample is designed to disproportionately select families that were likely to be relatively wealthy. The advantage of the high-income supplement is that it provides a much "richer" sample of high income and therefore potentially very wealthy families. However, the presence of a high-income supplement creates some complications, because weights must be constructed to meld the high-income supplement with the core sample. Typically, about two thirds of the cases come from the representative sample and one third from the high-income supplement. In the 2007 SCF the standard multi-stage area-probability sample contributed 2,915 cases while the high-income supplement contributed another 1,507 cases.

The wealth concept used here is marketable wealth (or net worth), which is defined as the current value of all marketable or fungible assets less the current value of debts. Net worth is thus the difference in value between total assets and total liabilities. Total assets are defined as the sum of: (1) owner-occupied housing; (2) other real estate; (3) bank deposits, certificates of deposit, and money market accounts; (4) government and corporate bonds and other financial securities; (5) the cash surrender value of life insurance plans; (6) defined contribution (DC) pension plans, including IRAs and 401(k) plans; (7) corporate stock and mutual funds; (8)

unincorporated businesses; and (9) trust funds. Total liabilities are the sum of: (1) mortgage debt, (2) consumer debt, and (3) other debt such as educational loans.

This measure reflects wealth as a store of value and therefore a source of potential consumption. I believe that this is the concept that best reflects the level of well-being associated with a family's holdings. Thus, only assets that can be readily converted to cash (that is, "fungible" ones) are included. Though the SCF includes information on the value of vehicles owned by the household, I exclude this from my standard definition of household wealth, since their resale value typically far understates the value of their consumption services to the household. The value of other consumer durables such as televisions, furniture, household appliances, and the like are not included in the SCF.[4] Another justification for their exclusion is that this treatment is consistent with the national accounts, where purchases of vehicles and other consumer durables are counted as expenditures, not savings. A further reason is that for most people the concept of wealth as a store of potential consumption means that one should exclude assets whose possession is required in order to enable consumption or to earn income – for example, cars which are needed to purchase groceries or go to work.

Also excluded here is the value of future Social Security benefits the family may receive upon retirement ("Social Security wealth"), as well as the value of retirement benefits from defined benefit pension plans ("DB pension wealth"). Even though these funds are a source of future income to families, they are not in their direct control and cannot be marketed.[5]

6. Basic Wealth Data

Table 2 presents the "consolidated" wealth accounts for all households in which stocks and bonds owned indirectly through defined contribution plans like 401(k)s and IRAs, mutual funds and trust funds are allocated to their constituent elements. The results show a rather

[4] On the other hand, the value of antiques, jewelry, art objects and other "valuables" are included in the SCF in the category "other assets."

[5] It should be noted that the 1983 and 1989 SCF data files were aligned to national balance sheet totals in order to provide consistency in the household wealth estimates, since they each use somewhat different sampling frames and methodologies. Estimates for 1992 onward are based on the standard SCF data and weights. My baseline estimates, as noted above, also exclude vehicles. Moreover, my calculations are based on the "public use" samples provided by the Federal Reserve Board, which are to some degree different from the internal files maintained by the Federal Reserve Board. As a result, my figures on mean and median net worth, as well as on wealth inequality, will in general be at a slight variance from the "standard" estimates provided by the Federal Reserve Board which include the value of vehicles in their statistics (see, for example, Bricker et. al., 2016).

different picture than the standard portfolio composition. In 2019, as in the standard accounts, owner-occupied housing was the most important household asset, accounting for 26.9 percent of total assets (also see Figure 5). However, net home equity -- the value of the house minus any outstanding mortgage -- amounted to only 17.7 percent of total assets. Real estate, other than owner-occupied housing, comprised 9.4 percent, and business equity another 20.0 percent. Demand deposits, time deposits, money market funds, CDs, and the cash surrender value of life insurance (collectively, "liquid assets") made up 6.8 percent

[Table 2 and Figure 5 about here]

The major difference is the share of securities and stocks. Financial securities amounted to 12.9 percent in the consolidated accounts, compared to 0.9 percent in the standard accounts. Corporate stocks now comprised 22.6 percent, compared to 15.5 percent for stocks plus mutual funds in the standard accounts. The debt to net worth ratio was 14.9 percent, while the debt-income ratio was 104.0 percent.

There were some notable changes in the composition of household wealth over years 1983 to 2019. First, the share of housing wealth in total assets jumped from around 30 percent in 1983-2001 to a peak value of 33.5 percent in 2004 but then declined to 26.9 percent in 2019. Two factors explain this movement. The first is the trend in the homeownership rate, which rose from 1983 to a peak in 2004 and then fell off in 2019. The second is that the median house price for existing one-family homes rose between 2001 and 2019. A second and related trend is that net home equity, after falling almost continuously from 23.8 percent of total assets in 1983 to 18.2 percent in 1998, picked up to 21.8 percent in 2004 but then fell to 17.7 percent in 2019. The difference between the two series (gross versus net) is attributable to the changing magnitude of mortgage debt on homeowner's property, which increased from 1983 to 1998 but then fell back in 2019.

A third change is that stocks directly and indirectly owned as a share of total assets more than doubled from 11.3 percent in 1983 to a peak of 24.5 percent in 2001, but then declined to 22.6 percent in 2019. The rise during the 1990s reflected the bull market in corporate equities as well as increased stock ownership, while the decline in the 2000s was a result of the sluggish stock market as well as a drop in stock ownership. The increase from 2010 to 2019 reflected the recovery of the stock market and increases in stock ownership. A fourth is that securities directly

and indirectly owned rose almost continuously over time from 6.0 percent of total assets in 1983 to 13.9 percent in 2016 but then fell off to 12.9 percent in 2019.

Fifth, overall relative indebtedness first increased, with the debt to net worth ratio climbing from 15.1 percent in 1983 to 20.6 percent in 2010, and then tumbled to 14.9 percent in 2019. Likewise, the debt-income ratio surged almost continuously over time from 68.4 percent in 1983 to a peak of 127.0 percent in 2010 but then dropped off sharply to 104.0 percent in 2019. If mortgage debt on principal residence is excluded, then the ratio of other debt to total assets actually fell off over time from 6.8 percent in 1983 to 3.8 percent in 2019.

The tabulation in Table 2 provides a picture of the average holdings of all families in the economy, but there are marked class differences in how middle-class families and the rich invest their wealth. As shown in Table 3, the largest asset in value terms among the richest one percent of households (as ranked by wealth) was business equity, which comprised 37.9 percent of their total assets in 2019 (also see Figure 6). Stocks were second, at 25.8 percent, followed by securities and then other real estate. Housing accounted for only 8.9 percent and liquid assets 5.0 percent. Their ratio of debt to net worth was only 2.4 percent, their ratio of debt to income was 45.3 percent, and the ratio of mortgage debt to house value was 15.3 percent.

[Table 3 and Figure 6 about here]

Among the next richest 19 percent of U.S. households, housing comprised 25.9 percent of their total assets (net home equity was 18.9 percent) and liquid assets 7.5 percent. Investment assets -- real estate, business equity, stocks, and bonds – made up 65.5 percent of which 25.4 percent was in the form of stocks directly or indirectly owned. Debt amounted to 10.3 percent of their net worth and 95.9 percent of their income, and the ratio of mortgage debt to house value was 27.0 percent.

In contrast, 64.3 percent of the assets of the middle three wealth quintiles of households was invested in their own home in 2019. However, home equity amounted to only about a third of total assets, a reflection of their large mortgage debt. Another 8.3 percent went into monetary savings of one form or another. The remainder was split among non-home real estate, business equity, and financial securities and corporate stock. Stocks directly or indirectly owned amounted to only 8.6 percent of their total assets. The ratio of debt to net worth was 57.5 percent, and their debt-income ratio was 122.0 percent, both much higher than those of the top quintile. Finally, their mortgage debt amounted to 44.5 percent of the value of their principal residences.

7. Results on the Net Inflation Gain

7.1 Basic Results

Table 4 details the calculation of the net inflation gain (NIG) for mean household wealth. For the base case, I use the 10-year real and nominal bond rates for a 10-year period based on constant maturity Treasury securities and a 30-year fixed rate mortgage with a 20 percent down-payment and monthly payments. On the basis of the 10-year real bond rate, mean wealth would have grown 92.6 percent between 1983 and 2019 from asset price changes. This compares to its actual growth of 127.6 percent, so that asset price changes accounted for 72.6 percent of the wealth advance. Of the 92.6 percent gain, more than half, 46.6 percent, emanated from the appreciation of house prices emanating from declining mortgage rates. The erosion of debt in real terms resulting from the rise in the CPI-U-RS added another 23.7 percent, followed by the appreciation of non-home real estate, and the devaluation of liquid assets in real terms subtracted 17.2 percent. Bonds added another 8.0 percent, businesses 6.6 percent, and stock price gains 6.3 percent.

[Table 4 about here]

Results differ by sub-period. Over 1983-1989, asset price changes accounted for 104.9 percent of the advance in mean wealth, led by house and non-home real estate price gains. For 1989-2001, they explained 45.7 percent and for 2001-2007, 27.4 percent. Over the Great Recession, they accounted for 71.9 percent of the decline in mean wealth, largely due to the collapse in home prices. In 2010-2016, they explained 37.9 percent of the advance and in 2016-2019, 57.9 percent, more than all of it due to home prices and debt devaluation. In this case, changes in stock, business, and bond prices had negative effects.

Results are similar on the basis of the *nominal* 10-year bond rate. Asset price changes caused mean wealth to grow by 98.4 percent over 1983-2019, somewhat more than on the basis of the 10-year real bond rate. The effect of inflation itself on changes in mean wealth is calculated by subtracting the results for the 10-year real bond rate from those for the 10-year nominal bond rate. Overall, inflation resulted in a 12.3 percent rise in mean wealth over 1983-2019. More than 100 percent of this increase was due to debt erosion, though this was offset to a large extent by the negative revaluation of liquid assets. All told, the inflation gain, IG, on mean net worth was $39,000 over this period. However, this compares to an inflation tax, IT, on mean

SCF income of $42,600, so that the net inflation gain, NIG, was negative -- -$3,600. This amounted to 4.1 percent of mean SCF income, so that the net inflation tax was relatively small.

Results again vary by period. NIG was negative over 1983-1989, reflecting the negative IG; positive over 1989-2001, due to the high IG; negative over 2001-2007, because of the high inflation tax on income; positive over 2007-2010, owing to the very high IG on net worth; positive in 2010-2016 and 2016-2019, attributable to the fact that IG was greater than IT. The average ratio of mean net worth to mean SCF income was 5.7. This component will play an important role in later analysis. I also show results using mean CPS income instead of mean SCF income. In this case, NIG is positive over 1983-2019, though small – only 2.7 percent of mean CPS income.

The story is rather different for median wealth. In this case, asset price changes resulting from inflation led to a hefty 52.3 percent gain in median wealth over 1983-2019, compared to the actual advance of 23.4 percent (see Table 5). The devaluation of debt by itself led to a 75.9 percent advance, while the reduction in the real value of liquid assets subtracted 26.7 percent. The other components of wealth were unimportant. In dollar terms, IG was $42,700. In contrast, the inflation tax, IT, on median SCF income amounted to only $28,400, so that NIG was a robust $14,300 or over a quarter of SCF median income. Likewise, IT on median CPS income was $30,200, so that NIG fell slightly to $12,500 or 20.8 percent of median CPS income. NIG was negative over 1983-1989 on the basis of SCF income, positive for 1989-2001, 2001-2007, and 2007-2010, negative for 2010-2016, and then positive for 2016-2019 but in all cases a small percentage of median SCF income.

[Table 5 about here]

In contrast to median wealth, inflation led to an only 2.7 percent growth in the mean wealth of the of the top wealth percentile over years 1983-2019. The main contributor to this gain, 7.3 percent, was the appreciation of stocks, businesses, and bonds collectively. The depreciation of debt contributed another 4.5 percent and this was offset by 9.1 percent from the loss of value of liquid assets. Overall, the mean wealth of the top percentile rose by 2.7 percent from asset price changes. In dollar terms, IG was $291,100. The inflation tax IT on the mean income of this group came to $227,700, so that NIG was a positive $63,500. It might seem surprising that NIG was positive since this group had very low leverage (that is, a very small debt to net worth ratio). However, the key is that this group also had an extremely high average

wealth/income ratio of 23.5 over this period. Because of the very high wealth/income ratio, the wealth effect dominates the income effect.

NIG was also positive in all six sub-periods except 2001-2007. Over the Great Recession, NIG amounted to 55.3 percent of their mean income when asset price changes boosted their mean wealth by 4.0 percent.

For the inequality analysis, I consider changes over time in the *ratio* of the mean wealth of the top one percent to median wealth. I can then determine what portion of the change in this ratio is due to asset price changes emanating from inflation. On the basis of this measure, actual wealth inequality increased in each of the first five periods but declined in the last, 2016-2019 (first row of Panel III). The next row shows what happens to the wealth ratio when asset price changes resulting from inflation only is added to initial wealth. The upshot is that inflation uniformly reduces the wealth ratio and the effect is quite large.

In the 1983-1989 period, inflation lowered the wealth ratio by 6.1 from 131.4 to 125.3 or by 4.6 percent (6.1/131.4). This is due to the fact that the boost to home prices and deflation of real debt were greater in relative terms than the stimulus to stock, business, and bond values. The wealth ratio rose, instead, by 15.1 or by 11.5 percent (15.1/131.4). Results are similar for the next five periods. In 1989-2001, inflation reduced the wealth ratio by 7.0 percent, compared to its actual increase of 17.9 percent; in 2001-2007, the respective figures are 6.6 percent reduction compared to a 4.6 percent increase; in 2007-2010, a 1.0 percent decrease in comparison to a 50.6 percent augmentation; in 2010-2016, a 4.7 percent diminution in contrast to a 24.2 percent enhancement; and in 2016-2019, a 2.2 percent decline compared to a 6.6 percent reduction in the actual wealth ratio, with inflation explaining about a third of the decline. Over the full 1983-2019 period, the wealth ratio more than doubled, from 131.4 to 273.8. However, inflation by itself cut the wealth ratio by about a third from 131.4 to 88.6.

7.2 Results by Wealth Class

I next provide further details by wealth class. As shown in Table 6, inflation led to a 3.5 percent advance in the mean wealth of the P9599 wealth group over the 1983-2019 period and the inflation gain IG in wealth was $50,100. However, the inflation tax IT on income was greater, at $106,200, so that the net inflation gain NIG was negative, -$56,200, which was a considerable 18.5 percent of the group's mean income. It is of interest why NIG was negative for this group while it was positive for the P99100 wealth group (see Table 5). The percentage gain

in net worth emanating from inflation was 3.5 percent for the former compared to only 2.7 percent for the latter. However, the average wealth/income ratio was much higher for the latter at 23.5 compared to 9.9 for the former, which accounts for the difference in results.

[Table 6 about here]

NIG was also negative for the next wealth group, P9095, despite the fact that the total percentage gain in its mean wealth was higher at 5.9 percent. Again, the reason is its relatively low wealth/income ratio. In this case, NIG amounted to a considerable 18.9 percent of the group's mean income. Likewise, NIG was negative for wealth group P8090 and equaled 12.9 percent of the group's mean income.

Results switch between the 40th and 80th percentile. The percentage gain in mean net worth resulting from inflation was 29.0 for wealth group P6080, mainly due to the group's high leverage, and NIG was a positive $12,700 or 16.1 percent of the group's mean income. Results are even more pronounced for wealth group P4060, with inflation leading to a huge 94.3 percent boost to the average wealth and NIG equaling $39,900 or 65.8 percent of their mean income. Results switch again for wealth group P040, the bottom 40 percent of the wealth distribution.[6] In this case, the gain in mean wealth due to inflation was 31.9 percent – a result of high leverage offset by a considerable devaluation of liquid assets. However, since 1983 mean net worth was quite low, only $5,900 (in 2019 dollars), IG was only $1,900. The inflation tax IT amounted to $21,200, so that the net inflation gain NIG was negative, -$19,300 or almost half of the group's mean income. It is clear that poor households were particularly hard hit by inflation.

7.3 Alternative Inflation Rates

As noted earlier, inflation in the U.S. has been relatively modest, at least after the early 1980s and until recently. How would the net inflation tax react to higher rates of inflation? To analyze this issue, I simulate how NIG would change at inflation rates of 4 percent, 6 percent, and 8 percent over the 2016-2019 period. Both the income and wealth results are bolstered at higher inflation rates. Results are shown in Table 7.

[Table 7 about here]

[6] I combine the bottom two quintiles into a single group because the mean net worth of the lowest quintile is negative.

Considering the effect of inflation on mean wealth for years 2016-2019, we find that a rise in the inflation rate to 4.0 percent per year from the actual inflation rate raises the devaluation of liquid assets by 0.5 percentage points from 0.5 to 1.0.[7] However, the contribution of debt to the growth in mean net worth also rises by 0.9 percentage points from 1.0 to 1.8 percentage points, and that of stocks, businesses, and bonds by 0.4 percentage points, so that the total percentage change in mean net worth from inflation over years 2016-2019 increases by 0.8 percentage points to 3.1 percent. This boosts IG by $5,700 from $16,300 to $22,000. However, the inflation tax on income also rises since nominal income goes up as well. In this case, IT climbs from $6,600 in the base case to $13,000 and NIG falls by $700 from $9,700 to $9,000 or from 9.2 percent of mean income to 8.6 percent. A jump in the inflation rate to 6.0 percent per year further raises the total percentage gain in mean net worth from inflation to 3.7 and IG to $26,100 but IT also expands to $20,200 and NIG falls to $5,900 or 5.6 percent of mean SCF income. A further boost in the inflation rate to 8.0 percent per annum ramps up the change in mean net worth to 4.3 percent but IT also grows and NIG sinks to $2,500 or 2.4 percent of mean income.

Results differ over the full period 1983-2019. When the annual inflation rate is advanced to 4.0 percent for 2016-2019, both the inflation gain on net worth and the inflation tax on income are strengthened but NIG remains negative but smaller in absolute value. The percentage growth in mean wealth also rises from 12.3 to 15.3 percent, due both to the greater devaluing of debt and greater appreciation in stocks, businesses, and bonds. A further acceleration of inflation to 8.0 percent per year over 2016-2019 raises the growth of mean wealth to 17.0 percent and the inflation tax on income to $63,900, compared to $42,600 in the base case, and NIG falls lower to -$9,900 or -11.2 percent of mean income.

The pattern of results differs for median net worth. Raising the annual inflation rate from the base case to 4.0 percent over years 2016-2019 increases the percentage gain in median net worth from 4.1 to 7.1 over these years, mainly due to a greater devaluation of debt and secondarily due to greater gains in stocks, businesses, and bonds, though this is offset in part by a greater depreciation of liquid assets. A further escalation of the annual inflation rate to 8.0

[7] Though it is straightforward to analyze the effects of a counterfactual inflation rate like 4.0 percent per year on the household balance sheet and therefore the inflation gain IG, it is a little tricky to assess its effect on the inflation tax on income, IT. For this, it is necessary to make an additional assumption about real income growth. In this regard, it is assumed that real income growth is unchanged.

percent augments the growth rate of median wealth to 13.4 percent. However, the inflation tax on income is also amplified from $3,400 to $15,100, an almost four and a half fold expansion. On net, NIG declines from zero in the base case to -$4,000.

In contrast, over years 1983 to 2019, the percentage rise in median net worth due to inflation rises from 52.3 in the base case to 69.2 percent at an inflation rate of 8.0 percent. IT also increases by 41.3 percent from $28,400 to $40,200, and NIG is enlarged from $14,300 to $16,400 or from 27.2 percent of median income to $28,100 or 31.2 percent.

Results are more muted for the top wealth percentile, since the leverage effect is much smaller. As the annual inflation rate mounts from the base case to 4.0 percent, the percentage growth of the mean wealth of this group climbs from 2.7 to 5.2 percent over years 1983-2019, mainly because of the higher appreciation of stocks, businesses, and bonds. However, as the annual inflation rate goes higher, to 8.0 percent, wealth growth falls off to 4.5 percent as the devaluation of liquid assets picks up. The inflation tax IT also more than doubles from $227,700 to $526,400. As a result, NIG leaps from $63,500 in the base case to $237,300 at a 4.0 percent inflation rate but then turns negative at a 8.0 percent inflation rate.

The impact of lifting the inflation rate on wealth inequality is very strong because it has a much more pronounced effect on median wealth than top wealth. The ratio of the mean wealth of the top wealth percentile to median wealth emanating from asset price changes is lowered by 15.6 with a 4.0 percent inflation rate, compared to only 7.4 in the base case. Further jacking up the annual inflation rate to 8.0 percent reduces this ratio by 33.8. That is to say, at an 8.0 percent inflation rate, asset price changes will lower wealth inequality by over half.

8. The racial and ethnic differences in the inflation tax

Has the moderation in inflation lowered or raised the racial and ethnic wealth gap? I expect that these two effects will lower the gap since Black and (non-Hispanic) white households hold a higher proportion of their assets in homes and a much lower share in financial assets and also have a much higher debt-net worth ratio.

Striking differences are found in the wealth holdings of different racial and ethnic groups. In Figure 7, households are divided into three groups: (i) non-Hispanic whites, (ii) non-Hispanic

African-Americans, and (iii) Hispanics (also see Table 9 below).[8] The ratio of mean wealth holdings between Black and white households was 0.19 in 1983 and again in 2007.[9] The picture is different for Hispanics. In 2007, the ratio of mean net worth was 0.26 compared to a ratio of 0.19 between Blacks and whites. The ratio of mean net worth between Hispanic and white households climbed from 0.16 in 1983 to 0.26 percent in 2007, compared to no change in the racial wealth gap.

[Figure 7 about here]

The racial/ethnic picture changed radically by 2010, with the ratio of mean net worth between black and white households dropping from 0.19 to 0.14. The proximate causes were the higher leverage of black households and their higher share of housing wealth in gross assets (see Table 8). The Great Recession hit Hispanic households even harder than Black households, with the mean net worth in constant dollars of Hispanics falling almost in half, and the ratio of this to the mean net worth of white households plummeting from 0.26 to 0.15. The same factors were responsible as in the case of Black households.

Was there any improvement after 2010? Between 2010 and 2016 the mean net worth of Black households was up by 31.8 percent but there was no change relative to white households. In years 2016 to 2019 the mean net worth of Black households declined sharply, by 5.9 percent, though relative to white households, Black mean wealth remained unchanged. However, all in all, Black mean net worth was still well below, by 16.5 percent, its 2007 peak value.

From 2010 to 2016, the mean net worth of Hispanic households shot up by 61.6 percent and their position relative to white households advanced from a ratio of 0.15 to 0.19. Years 2016 to 2019 saw their mean net worth down slightly but unchanged relative to white families. However, like Black wealth, Hispanic mean net worth in 2019 was still well below its 2007 peak value and almost to the same degree.

Table 8 shows the portfolio composition by racial/ethnic group in 2019. Again, there are stark differences between whites and the two minority groups. The share of housing in total assets is almost double among the two minority groups as among white households, while the

[8] The residual group, American Indians and Asians, is excluded here because of its small sample size in most years.

[9] Ratios of median wealth were even lower, at 0.07 in 1983 and 0.06 in 2007.

share of business equity and stock directly or indirectly owned is much lower. Interestingly, the share of financial securities is about the same for white and Black families but lower among Hispanics. The debt-asset ratio is considerably higher among the two minorities for both mortgage and non-mortgage debt and overall. These differences will play a critical role in analyzing the effect of inflation on the wealth gap.

[Table 8 about here]

Table 9 assesses the effects of inflation on the three racial/ ethnic groups. Again, it should be stressed that the asset price changes used in the analysis are those emanating only from asset price changes. Panel A shows results for mean net worth among white households. The results are not too surprisingly quite similar to those for all households. Over the full 1983-2019 period, inflation resulted in a 13.9 percent gain in mean wealth. More than the total increase was ascribable to debt depreciation, though this was largely offset by the negative revaluation on liquid assets. Stocks, businesses and bonds made a modest contribution as well. In dollar terms, the inflation gain IG on their mean net worth was $51,500. The inflation tax, IT, on their mean income was $45,100, so that the net inflation gain, NIG, was a positive $6,400 (in contrast to being negative for the mean wealth of all households) or 6.6 percent of their mean income. NIG was negative over 1983-1989 and 2001-2007 but positive in the other sub-periods.

[Table 9 about here]

The results are even stronger for the mean net worth of Black households. In this case, asset price changes from inflation led to a 51.7 percent gain in their wealth over 1983-2019, compared only a 13.9 percent advance for white wealth. Debt devaluation was again the main factor but in this case it augmented their wealth by 67.8 percent, much greater than that for whites. Liquid assets offset this by 19.8 percent, somewhat larger than for white households. The revaluation of stocks, businesses, and bonds had a much smaller effect than for whites. IG was $36,200, lower than for whites, IT was $24,300, also smaller than for whites, and NIG amounted to $11,900, greater than for whites. As a percent of mean income, NIG was almost a quarter, much higher than that for whites. NIG was also negative over 1983-1989 and 2001-2007 and positive in the other periods.

Results are quite similar for Hispanics as for Black households. In this case, debt erosion boosted Hispanic wealth by 73.2 percent, a bit more than for Blacks, and inflation raised their overall mean wealth by 62.5 percent, also more than for Blacks. IG was $37,800, about the same,

and NIG was $10,500, also about the same though a little lower as a percent of their mean income. NIG was positive in all sub-periods except 1983-1989.

The ratio of mean wealth between Black and white households seesawed over years 1983 to 2019. However, asset price changes traceable to inflation raised the ratio in each of the six time periods and over the full 1983-2019 time span. In the 1983-1989 period, price changes linked to inflation lifted the wealth ratio by 0.007 or 6.7 percent, compared to an actual decline of 0.021. This is mainly because the devaluation of real debt was greater in relative terms for Black households than white households. In 1989-2001, inflation increased the wealth ratio by 9.3 percent, compared to an actual decline of 15.0 percent; in 2001-2007, the respective figures are a 6.4 percent rise compared to a 32.1 percent increase; in 2007-2010, a 0.7 percent lift in comparison to a 23.7 percent reduction; in 2010-2016, a 4.6 percent gain in contrast to a 0.4 percent enhancement; and in 2016-2019, 1.6 percent advancement in comparison to a 5.2 percent decrease. Over the full 1983-2019, the racial wealth ratio fell by 0.051 or by 27.3 percent. However, asset price changes connected to inflation raised the wealth ratio by 0.063 or 36.9 percent. That is to say, the wealth ratio would have been 0.251 in 2019 instead of the actual 0.137.

The pattern is similar for the Hispanic/white wealth ratio. In this case, the actual ratio rose in all time periods except 2007-2010 and 2016-2019, while asset price changes caused by inflation would have raised the ratio in each of the six time periods and over the full 1983-2019 time span. In 1983-1989, inflation increased the wealth ratio by 0.013 or 7.8 percent, compared to an actual increase of 0.002 or 1.2 percent. In 1989-2001, asset price changes raised the wealth ratio by 9.5 percent, compared to an actual rise of 4.5 percent; in 2001-2007, the respective figures are a 5.3 percent rise compared to a 51.9 percent augmentation; in 2007-2010, a 0.5 percent boost in comparison to a 41.1 percent decrease; in 2010-2016, a 4.3 percent expansion in contrast to a 23.2 percent growth; and in 2016-2019, a 1.3 percent elevation in comparison to virtually no change. Over the full time span 1983-2019, the actual ethnic wealth ratio was up by 0.025 or 15.3 percent. Inflation-led asset price changes, in contrast, would have enhanced the wealth ratio by 0.069 or 42.7 percent. In other words, the wealth ratio would have been 0.232 in 2019 instead of the actual 0.188.

The net effect is that inflation substantially reduces the racial and ethnic wealth gap. It also gives a much greater percentage boost to the mean income of the two minorities than to white households.

I next repeat simulations of alternative inflation rates on NIG by race and ethnicity. Once again, I use inflation rates of 4 percent, 6 percent, and 8 percent over the 2016-2019 period. Results are shown in Table 10.

[Table 10 about here]

An increase in the inflation rate to 4.0 percent per year from the actual inflation rate raises the devaluation of liquid assets by 0.5 percentage points from 0.5 to 1.0 among white households in 2016-2019. The contribution of the depreciation of debt to the growth in mean net worth also rises, by 0.8 percentage points, and that of the appreciation of stocks, businesses, and bonds by 0.5 percentage points, so that the total percentage change in mean net worth from inflation increases by 0.9 percentage points to 3.6 percent. This lifts IG by $8,000. On the other hand, the inflation tax IT also expands from $7,700 to $15,000 and NIG is basically left unchanged. It might seem surprising that IG advances so much since white households have low leverage. However, the key is that they also have a relatively high ratio of net worth to income (a ratio of 7.6 in 2016-2019 as shown in Table 9), so that this counteracts their low leverage.

A jump in the inflation rate to 6.0 percent per year further enhances the total percentage gain in mean net worth from inflation to 4.1 but IT is up to $23,200, so that NIG falls to $15,100 or 12.4 percent of mean income. A further advance in the inflation rate to 8.0 percent per annum heightens the change in mean net worth to 4.7 percent but IT advances to $31,900 and NIG drops to $11,800 or 9.7 percent of mean income.

For the full period 1983-2019, a rise in the inflation rate to 4.0 percent leads to a 16.0 percent devaluation of liquid assets but to a 23.6 percent devaluation of debt, a 10.1 percent advance in the value of stocks, businesses, and bonds, and a 17.7 percent rise in net worth. IG now improves from $51,500 to $65,800. IT also advances to $52,400 from $45,100, and NIG more than doubles from $6,400 to $13,400. A further acceleration of inflation to 8.0 percent per year over 2016-2019 enhances the percentage growth rate of mean wealth to 19.6 but the inflation tax accelerates to $69,300 and NIG deteriorates to $3,700.

Results are even more pronounced for the two minority groups. Lifting the inflation rate from the base case to 4.0 percent increases the percentage gain in the mean net worth of Black

households from 51.7 to 58.0 over years 1983 to 2019, mainly due to larger depreciation of debt. However, IT inflates by 14.1 percent and NIG basically remains flat. A further advancement of the inflation rate to 8.0 percent enhances the growth rate of their mean wealth to 68.5 percent but IT is also up, so that NIG essentially stays the same.

Findings are similar for Hispanics. Boosting the rate of inflation from the base case to 8.0 percent raises the percentage devaluation of liquid assets by 4.5 percentage points from 14.7 to 19.2 percent over years 1983 to 2019. However, the effect is much larger for debt reduction which mounts by 22.6 percentage points from 73.2 to 95.8 percent. Overall, the change in net worth climbs by 20.0 percentage points. However IT is also boosted by almost half, and NIG also essentially remains unchanged.

The impact of lifting the inflation rate on both the racial and ethnic wealth gap is very powerful because it has a more pronounced effect on the wealth of the two minority groups than that of white households. The Black/white ratio of the mean wealth emanating from asset price changes is raised by 0.064 with a 4.0 percent inflation rate, compared to 0.063 in the base case. However, further jacking up inflation rate to 8.0 percent leads to a 0.077 escalation in the racial wealth ratio. Likewise, raising the inflation rate from the base case to 8.0 percent lifts the contribution of asset price changes to the Hispanic/white wealth ratio from 0.069 to 0.085.

9. Concluding Remarks

The paper reports several remarkable findings. First, with regard to the issue of whether there is really a *net* inflation tax, the answer is that it is true for some groups only. For others, there is a positive net inflation gain. Second, all told, the inflation gain, IG, on mean net worth was $39,000 over 1983-2019. This compares to an inflation tax, IT, on mean SCF income of $42,600, so that the net inflation gain, NIG, was negative -- -$3,600. This amounted to 4.1 percent of mean SCF income, so that the net inflation tax was relatively small. The story is rather different for median wealth In dollar terms, IG was $42,700 while the inflation tax IT on median SCF income amounted to only $28,400, so that NIG was a robust $14,300 or over a quarter of SCF median income. That is to say, inflation gave a huge 27.2% boost to median SCF income over years 1983-2019.

Third, results vary by wealth class. For the top wealth percentile, NIG was a robust $63,500 or 6.9 percent of their mean income over the 1983-2019 period, despite their very low leverage. The key is that this group also had an extremely high average wealth/income ratio of

23.5 over this period. Because of the very high wealth/income ratio of this group, the wealth effect dominates the income effect. For the P9599 wealth group, inflation led to a 3.5 percent advance in the mean wealth of over the 1983-2019 period, greater than that for the top percentile, but their wealth/income ratio was much lower – not enough to offset the income loss from inflation -- so that NIG was negative, -$56,200. NIG was also negative for wealth groups P9095 and P8090.

Results switch between the 40th and 80th percentile. The percentage gain in mean net worth resulting from inflation was 29.0 for wealth group P6080, mainly due to the group's high leverage, and NIG was a positive $12,700 or 16.1 percent of the group's mean income. Results are even more pronounced for wealth group P4060, with inflation leading to a huge 94.3 percent boost in average wealth, and NIG equaling $39,900 or about two-thirds of their mean income.

Results switch again for the bottom two quintiles of the wealth distribution. In this case, the gain in mean wealth due to inflation was 31.9 percent – a result of high leverage offset by a considerable devaluation of liquid assets. However, their mean net worth was very low, IG was only $1,900 and the inflation tax IT amounted to $21,200, so that NIG was negative, -$19,300 or almost half of the group's mean income. It is clear that poor households were particularly hard hit by inflation.

Higher (counterfactual) rates of inflation intensify results for both the inflation gain (IG) on net worth and the inflation tax (IT) on income. When the annual inflation rate is advanced to 4.0 percent for years 2016-2019 only, IG advances by a quarter and IT by 15.0 percent and NIG moves up from -$3,600 in the base case for the full 1983-2019 to -$400. The percentage growth in mean wealth also rises from 12.3 to 15.3 percent. However, a further acceleration of the annual inflation rate to 8.0 percent per year over 2016-2019, while it raises the growth of mean wealth to 17.0 percent and IG by 11.2 percent, also enhances IT by 30.3 percent, and NIG dips to -$9,900. Results are again different for median net worth. Raising the annual inflation rate from the base case to 8.0 percent augments the percentage gain in median net worth over 1983-2019 due to inflation from 42.7 in the base case to 56.5 percent and IG by 32.4 percent, but IT is also up by 41.3 percent. However, in this case, NIG expands by 14.6 percent. These results indicate that middle class households do benefit from higher rates of inflation in terms of household well-being.

How has inflation affected the net inflation tax for the different racial and ethnic groups? NIG, was a positive $6,400 for white households over 1983-2019 (in contrast to being negative for the mean wealth of all households) or 6.6 percent of their mean income. It was much higher for Black families, $11,900, or almost a quarter of their mean income, and for Hispanics as well, at $10,500 or about a fifth of their mean income. A simulated acceleration of inflation to 8.0 percent per year over 2016-2019 actually lowers NIG for white households to $3,700 over years 1983-2019 but leaves NIG for Black and Hispanic households basically the same. It also turns the top wealth percentile into a net loser from inflation.

While mean wealth was subjected to a net inflation tax at a10 percent bond rate, it was not at a 20 or a 30 percent bond rate, or with accumulated federal funds interest payments. At a 20 percent bond rate, NIG amounted to 6.4 percent of mean SCF income over years 1983-2019 and at a 30 year bond rate it reached 17.4 percent. With federal funds interest added and a 10 percent bond rate, it attained almost half.

Inflation also has direct effects on wealth accumulation. Asset price changes caused by inflation resulted in a 12.3 percent rise in mean real wealth over 1983-2019 and a hefty 52.3 percent gain in median wealth. Mean wealth growth due to asset price changes advanced to 15.2 percent at a 20 percent bond rate, 18.2 percent at a 30 year bond rate, and 35.0 percent with federal funds interest added and a 10 percent bond rate. Higher (simulated) rates of inflation lead to even greater gains. At a 4.0 percent inflation rate for years 2016-2019 only, the percentage growth in mean wealth at a 10 percent bond rate rises to 15.3 percent, and a further acceleration of inflation to 8.0 percent per year raises the growth of mean wealth to 17.0 percent. Raising the annual inflation rate to 8.0 percent increases the percentage gain in median net worth due to inflation rises from 52.3 in the base case over 1983-2019 to 69.2.

There are racial and ethnic differences here as well. Inflation resulted in a 51.7 percent gain in mean wealth for Black households and a 62.5 percent advance for Hispanics, compared to an only 13.9 percent increase for white households over the full 1983-2019 period. A simulated acceleration of inflation to 8.0 percent per year over 2016-2019 enhances the growth of mean wealth for Black families to 68.5 percent and to 82.5 percent for Hispanics, compared to 19.6 percent for whites.

The wealth inequality analysis is based on in the ratio of the mean wealth of the top one percent to median wealth. Over the full 1983-2019 period, the actual wealth ratio more than

doubled, from 131.4 to 273.8. However, inflation by itself cut the wealth ratio by about a third to 88.6. Inflation is then highly equalizing in terms of wealth inequality. The impact of lifting the inflation rate on wealth inequality is strong because it has a more pronounced effect on median wealth than the wealth of the top wealth percentile. The ratio is lowered by 44.2 with a 4.0 percent inflation rate, compared to 42.8 in the base case. Further jacking up the annual inflation rate to 8.0 percent reduces this ratio by 50.2. Effects are also comparable at other bond rates. At a 20 percent bond rate, the wealth ratio declines by 39.4; at a 30 percent bond rate, it goes down by 37.4, and at a 10 percent bond rate with accumulated federal funds interest, it falls by 51.0.

Inflation also lowers the racial and ethnic wealth gap. Over the full 1983-2019 period, the racial wealth ratio fell by 0.051. In contrast, asset price changes connected to inflation raised the ratio by 0.063. Likewise, while the actual Hispanic/white ratio was up by 0.025, inflation-led asset price changes would have enhanced the wealth ratio by 0.069. The Black/white ratio of mean wealth emanating from asset price changes is raised by 0.077 with a simulated inflation rate of 8.0 percent and the Hispanic/white wealth ratio by 0.085.

So what is the bottom line? Who bears the burden of inflation? In terms of household well-being inflation is a net boon to the middle class. The top one percent of the wealth distribution also gains handsomely from inflation. On the other hand, poor households (the bottom two quintiles in terms of wealth) get clobbered by inflation. The reason is that while they hold high debt and have high leverage and enjoy a particularly high boost to their net worth in percentage terms from inflation, the gain is low in dollar terms because of their low net worth and is not enough in dollar terms to offset the income loss. Other net losers include households between the 80th and 99th wealth percentile. These findings are similar to earlier ones, as far back as Wolff (1979) and including Doepke and Schneider (2006) and Cao et. al. (2020) (but different from Meh et. al., 2010, and Klaus and Zhu, 2015), though the methodology used here and the concept of the net inflation gain are new. Another silver lining to inflation is that it lowers overall wealth inequality and reduces the racial and ethnic wealth gap. Greater inflation also pumps up real wealth growth, both mean and particularly median.

Why is the public, particularly the middle class, so opposed to inflation? The reason is that people tend to feel the income effect of inflation but are not aware of the wealth effect. From a psychological point of view, people do not see the effect of inflation on their balance sheet.

From a policy perspective, should the Fed continue to try to dampen inflation? From my point of view, the answer is yes, though not for the reasons it usually alleges. The rationale is to protect poor families. Though part of the Fed's mandate is to address distributional concerns, its main goals are macroeconomic in nature such as stabilizing inflation and aggregate activity. Tamping down inflation, on the other hand, will not benefit but instead hurt the middle class, increase wealth inequality and the racial wealth gap, and slow wealth growth.

Perhaps, the ideal solution is to have the Federal Reserve promulgate inflation and have the federal government compensate the losers. This could be accomplished with a refundable "inflation tax credit" akin to the Earned Income Tax Credit (EITC). Each year at tax time, the Internal Revenue Service could compute the annual inflation rate for the preceding year, as the Social Security Administration does in calculating the COLA for Social Security beneficiaries, and modify the tax code to provide the inflation tax credit to each family type. This method would make sure that poor families do not lose out from inflation and would capture the benefits of inflation for the middle class.

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Table 1. Annual Rate of Change by Asset Type and Debt (Percentage)

	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
1. Bond Value							
a. Nominal Value[a]	2.39	1.84	0.48	3.59	1.93	-0.89	1.64
b. Real Value[b]	3.10	1.28	0.55	0.67	1.57	0.72	1.41
2. Present Value of Future Profits							
a. Nominal Value[a]	1.48	1.07	0.26	1.89	0.96	-0.43	0.93
b. Real Value[b]	1.74	0.67	0.27	0.32	0.74	0.33	0.74
3. Home Prices[c]	3.69	2.56	1.08	6.07	2.06	-1.15	2.40
4. Liquid Assets							
a. Nominal Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b. Real Value[d]	-3.40	-2.68	-2.63	-1.69	-1.63	-2.11	-2.49
5. CPI-U-RS	3.40	2.68	2.63	1.69	1.63	2.11	2.49

a. Based on US Treasury Securities (Constant Maturity): 10-year nominal bond rate for 10-year period

b. Based on US Treasury Securities (Constant Maturity): 10-year real bond rate for 10-year period

c. Based on 30-Year Fixed Rate Mortgage Average in the United States, Percent, Weekly, Not Seasonally Adjusted

Equivalent monthly payments: 30-year mortgage and 20% down payment

d. The CPI-U-RS is used as the deflator.

Table 2. Composition of Total Household Wealth, 1983 - 2019: Consolidated Accounts
(Percent of gross assets)

Wealth component	1983	1989	2001	2007	2010	2016	2019
Principal residence	30.1	30.2	28.2	32.8	30.7	25.1	26.9
Other real estate[a]	14.9	14.0	9.8	11.3	11.6	10.4	9.4
Unincorporated business equity[b]	18.8	17.2	17.2	20.1	17.7	20.1	20.0
Liquid assets[c]	17.4	17.5	8.8	6.6	7.7	6.7	6.8
Securities, directly or indirectly owned[d,e]	6.0	6.0	9.7	10.8	13.0	13.9	12.9
Stocks, directly or indirectly owned[e]	11.3	10.2	24.5	16.8	17.5	22.4	22.6
Miscellaneous assets[f]	1.3	4.9	1.8	1.7	1.7	1.3	1.4
Total Assets	100.0	100.1	100.0	100.0	100.0	100.0	100.0
Debt on principal residence	6.3	8.6	9.4	11.4	12.7	8.6	9.1
All other debt[g]	6.8	6.4	3.1	3.9	4.4	3.9	3.8
Total debt	13.1	15.0	12.5	15.3	17.1	12.5	12.9

Source: author's computations from the 1983-2019 SCF.

a. In 2001, 2004, and 2007, this equals the gross value of other residential real estate plus the *net equity* in non-residential real estate.

b. Net equity in unincorporated farm and non-farm businesses and closely-held corporations.

c. Checking accounts, savings accounts, time deposits, money market funds, certificates of deposits, and the cash surrender value of life insurance.

d. Corporate bonds, government bonds (including savings bonds), open-market paper, and notes.

e. Includes direct ownership and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

f. Gold and other precious metals, royalties, jewelry, antiques, furs, loans to friends and relatives, future contracts, and miscellaneous assets.

g. Mortgage debt on all real property except principal residence; credit card, installment, and other debt.

Table 3. Composition of Household Wealth by Wealth Class, 2019: Consolidated Accounts

(Percent of gross assets)

Wealth Component	All Households	Top One Percent	Next 19 Percent	Middle 3 Quintiles
Principal residence	26.9	8.9	25.9	64.3
Other real estate	9.4	9.6	10.9	5.0
Unincorporated business equity	20.0	37.9	13.5	3.1
Liquid assets	6.8	5.0	7.5	8.3
Securities, directly or indirectly owned	12.9	11.0	15.7	9.3
Stocks, directly or indirectly owned	22.6	25.8	25.4	8.6
Miscellaneous assets	1.4	1.9	1.0	1.4
Total Assets	100.0	100.0	100.0	100.0
Debt on principal residence	9.1	1.4	7.0	28.6
All other debt	3.8	1.0	2.4	7.9
Total debt	12.9	2.3	9.4	36.5

Source: author's computations from the 2019 SCF. Households are classified into wealth class according to their net worth. Brackets for 2019 are:

Top one percent: Net worth of $11,115,200 or more.

Next 19 percent: Net worth between $527,400 and $11,115,200.

Quintiles 2 through 4: Net worth between $20 and $471,600.

Also, see notes to Table 2.

Inflation Table 4. Calculating the Inflation Tax on Mean Net Worth Using the 10-Year Real And Nominal Bond Rates for 10 Years

(Dollar figures are in 1000s, 2019 dollars)

	Period						
Wealth Component	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
A.Change in Mean Net Worth using the 10-year real bond rate							
1. Actual Percentage Change	16.3	48.8	20.4	-16.1	27.9	1.8	127.6
2. %Change from asset price changes	17.1	22.3	5.6	11.6	10.6	1.0	92.6
a. Stocks	1.4	1.7	0.4	0.2	1.1	-0.3	6.3
b. Homes	8.7	12.2	2.4	7.6	4.3	1.0	46.6
c. Businesses	2.3	1.7	0.4	0.2	1.0	-0.2	6.6
d. Liquid assets	-4.6	-5.8	-1.5	-0.4	-0.9	-0.5	-17.2
e. Non-home real estate	4.2	5.0	0.8	2.7	1.7	0.4	18.6
f. Bonds	1.4	1.5	0.4	0.3	1.6	-0.3	8.0
g. Debt	3.7	6.1	2.8	1.0	1.8	1.0	23.7
B.Change in Mean Net Worth using the 10-year nominal bond rate							
%Change from asset price changes	16.2	25.2	5.5	15.0	11.6	2.9	98.4
a. Stocks	1.2	2.8	0.4	1.2	1.4	0.3	8.3
b. Homes	8.7	12.2	2.4	7.6	4.3	1.0	46.6
c. Businesses	1.9	2.7	0.3	1.3	1.3	0.3	8.7
d. Liquid assets	-4.6	-5.8	-1.5	-0.4	-0.9	-0.5	-17.2
e. Non-home real estate	4.2	5.0	0.8	2.7	1.7	0.4	18.6
f. Bonds	1.1	2.3	0.3	1.6	1.9	0.4	9.7
g. Debt	3.7	6.1	2.8	1.0	1.8	1.0	23.7
C. Effect of Inflation on mean net worth based on the 10-year nominal bond rate minus the 10-year real bond rate							
%Change from asset price changes	-1.8	3.2	1.2	4.0	1.9	2.3	12.3
a. Stocks	-0.2	1.1	0.0	1.0	0.3	0.6	2.0
b. Homes	0.0	0.0	0.0	0.0	0.0	0.0	0.0
c. Businesses	-0.4	1.1	0.0	1.1	0.3	0.5	2.1
d. Liquid assets	-4.6	-5.8	-1.5	-0.4	-0.9	-0.5	-17.2
e. Non-home real estate	0.0	0.0	0.0	0.0	0.0	0.0	0.0
f. Bonds	-0.4	0.7	-0.1	1.3	0.4	0.7	1.7
g. Debt	3.7	6.1	2.8	1.0	1.8	1.0	23.7
D. Overall effect of inflation on mean net worth							
%Change from inflation	-1.8	3.2	1.2	4.0	1.9	2.3	12.3
IG: Inflation gain in dollars	-5.8	11.8	6.3	26.4	10.8	16.3	39.0
E. Overall effect of inflation on mean SCF income							
%Change in nominal income	26.8	80.2	24.8	-8.4	30.7	2.9	251.5
IT: Inflation tax in dollars	5.4	7.1	10.3	6.4	6.9	6.6	42.6
F. NIG: Net Inflation Gain on SCF mean income in dollars	-11.2	4.7	-3.9	20.1	3.9	9.7	-3.6
Percent of SCF mean income[a]	-15.3	5.5	-3.9	20.7	3.9	9.2	-4.1

G. Ratio of mean wealth to mean SCF income[a]							
	4.7	**5.3**	**6.0**	**6.3**	**6.4**	**6.8**	**5.7**
H. Overall effect of inflation on mean CPS income							
%Change in nominal income	**43.8**	**59.4**	**16.2**	**-0.3**	**23.4**	**18.0**	**286.2**
IT: Inflation tax in dollars	**0.4**	**10.3**	**10.1**	**4.2**	**6.4**	**5.4**	**36.8**
F. NIG: Net Inflation Gain on CPS mean income in dollars	**-6.2**	**1.5**	**-3.7**	**22.3**	**4.4**	**10.8**	**2.2**
Percent of CPS mean income[a]	**-9.1**	**1.8**	**-4.5**	**27.4**	**5.3**	**11.6**	**2.7**
J. Ratio of mean wealth to mean CPS income[a]							
	5.1	**5.8**	**7.2**	**7.5**	**7.5**	**7.7**	**6.2**

Source: author's computations from the SCF.
Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.
a. Mean value over the period

Table 5. The Inflation Tax on Median Net Worth and the Mean Net Worth of the Top One Percent of the Wealth Distribution Using the 10-Year Real and Nominal Bond Rates for 10 Years

(Dollar figures are in 1000s, 2019 dollars)

	Period						
Wealth Component	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
A. Median net worth[a]							
%Change from asset price changes							
a. Liquid assets	-6.3	-8.4	-2.6	-0.7	-1.4	-0.9	-26.7
b. Debt	8.9	16.7	9.1	3.4	6.6	3.8	75.9
c. Stocks, businesses, & bonds	-0.4	1.5	-0.1	2.3	0.7	1.2	3.1
d. Total Change	2.3	9.8	6.5	5.0	5.9	4.1	52.3
IG: Inflation gain in dollars	1.8	8.7	6.9	6.3	4.2	3.4	42.7
B. Median SCF income							
%Change in nominal income	27.4	56.0	17.9	-2.2	15.6	9.6	190.4
IT: Inflation tax in dollars	3.5	7.5	6.6	3.0	4.5	3.4	28.4
C. NIG: Net Inflation Gain	-1.7	1.3	0.3	3.3	-0.3	0.0	14.3
Percent of SCF median income[a]	-3.4	2.4	0.5	6.1	-0.6	0.1	27.2
D. Ratio of median wealth to median SCF income[b]	1.7	1.8	2.1	1.8	1.4	1.6	1.7
E. Median CPS income							
%Change in nominal income	38.4	46.1	19.0	-1.9	19.8	16.4	229.0
IT: Inflation tax in dollars	1.4	9.9	7.0	3.2	4.8	3.9	30.2
F. NIG: Net Inflation Gain	0.4	-1.2	-0.2	3.1	-0.6	-0.4	12.5
Percent of CPS median income[a]	0.7	-2.0	-0.3	5.1	-1.0	-0.6	20.8
G. Ratio of median wealth to median CPS income[a]	1.6	1.6	1.9	1.6	1.3	1.4	1.5
II. Mean values of the top one percent of the wealth distribution							
A. Mean net worth of NWP99100							
%Change from asset price changes							
a. Liquid assets	-2.0	-2.7	-0.9	-0.3	-0.6	-0.3	-9.1
b. Debt	0.9	0.9	0.4	0.2	0.3	0.2	4.5
c. Stocks, businesses, and bonds	-1.4	3.9	-0.1	4.1	1.2	2.0	7.3
d.Total Change	-2.5	2.2	-0.5	4.0	0.9	1.9	2.7
IG: Inflation gain in dollars	-263.7	281.4	-99.4	905.9	173.5	523.8	291.1
B. Mean SCF Income Top 1% of Wealth							
%Change in nominal income	218.5	89.3	39.3	-27.8	92.0	-20.7	823.0
IT: Inflation tax in dollars	-271.2	74.6	112.6	144.7	47.3	119.6	227.7
C. NIG: Net Inflation Gain	7.5	206.8	-212.0	761.2	126.2	404.2	63.5
Percent of mean Top 1% SCF income[a]	1.1	17.4	-14.1	55.3	8.2	23.8	6.9
D. Ratio of top 1% mean wealth to top 1% mean SCF income[a]	20.4	13.2	13.7	15.7	15.8	16.7	23.5

III. Ratio of the mean wealth of the top one percent of wealth to median wealth							
1. Change in the actual ratio	**15.1**	**26.3**	**8.0**	**91.5**	**65.8**	**-64.3**	**142.4**
2. Change in the ratio from inflation	**-6.1**	**-10.2**	**-11.4**	**-1.8**	**-12.7**	**-7.4**	**-42.8**
3. Percentage decomposition							
a. From inflation	**-40.1**	**-38.9**	**-141.4**	**-1.9**	**-19.4**	**11.5**	**-30.0**
b. Residual	**140.1**	**138.9**	**241.4**	**101.9**	**119.4**	**88.5**	**130.0**

Source: author's computations from the SCF.
Households are classified into wealth class according to their net worth.
Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.
a. The mean wealth of the middle three wealth quintiles is used to compute the composition of wealth of for the median wealth group.
b. Mean value over the period

Table 6. The Inflation Tax by Wealth Class Using the 10-Year Real and Nominal Bond Rates for 10 Years

(Dollar figures are in 1000s, 2019 dollars)

	Period						
	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
A. Mean Net Worth: NWP9599							
1. %Change from asset price changes							
a. Liquid assets	-2.5	-3.6	-1.3	-0.4	-0.9	-0.5	-13.1
b. Debt	1.6	2.4	1.3	0.5	0.7	0.4	10.6
c. Stocks, businesses, and bonds	-1.2	3.4	-0.1	3.5	1.1	1.9	6.0
d. Total %Change from inflation	-2.1	2.1	0.0	3.6	0.9	1.8	3.5
e. 'IG: Inflation gain in dollars	-29.4	45.6	-1.6	162.2	34.3	85.9	50.1
2. Mean SCF income:NWP9599							
%Change in nominal income	64.8	112.7	32.2	-14.0	36.5	6.9	481.3
IT: Inflation tax in dollars	-14.2	5.4	34.8	29.1	25.1	26.1	106.2
3. NIG: Net Inflation Gain	-15.2	40.2	-36.5	133.1	9.2	59.8	-56.2
Percent of group's mean SCF Income[a]	-7.2	13.1	-9.2	34.9	2.4	14.0	-18.5
4. Ratio of mean wealth to mean SCF income	8.5	9.3	10.1	10.9	11.2	11.7	9.9
B. Mean Net Worth: NWP9095							
1. %Change from asset price changes							
a. Liquid assets	-3.3	-5.0	-1.7	-0.5	-0.9	-0.5	-16.2
b. Debt	2.3	3.8	1.9	0.7	1.4	0.8	16.9
c. Stocks, businesses, and bonds	-1.0	2.9	-0.1	3.1	0.9	1.8	5.2
d. Total %Change from inflation	-2.0	1.8	0.1	3.3	1.4	2.1	5.9
e. 'IG: Inflation gain in dollars	-13.4	16.8	1.4	49.1	21.8	36.6	39.2
2. Mean SCF income:NWP9095							
%Change in nominal income	43.9	83.6	8.0	15.5	29.2	-4.3	307.6
IT: Inflation tax in dollars	0.7	11.9	24.0	4.6	14.1	13.1	68.3
3. NIG: Net Inflation Gain	-14.1	4.9	-22.6	44.5	7.7	23.5	-29.1
Percent of group' s mean SCF Income[a]	-11.2	3.1	-13.0	25.5	3.9	11.5	-18.9
4. Ratio of mean wealth to mean SCF income	6.4	7.2	8.2	8.7	8.3	8.5	7.3
C. Mean Net Worth: NWP8090							
1. %Change from asset price changes							
a. Liquid assets	-4.2	-5.4	-2.0	-0.6	-1.1	-0.7	-20.0
b. Debt	4.0	6.1	3.0	1.1	2.1	1.2	26.8
c. Stocks, businesses, and bonds	-0.7	2.3	-0.1	2.7	0.8	1.6	4.2
d. Total %Change from inflation	-0.9	3.0	0.9	3.2	1.8	2.1	11.1
e. 'IG: Inflation gain in dollars	-3.4	14.5	6.2	25.5	12.6	16.9	40.1
2. Mean SCF income:NWP8090							
%Change in nominal income	33.1	61.1	17.7	-1.1	33.0	3.2	242.5
IT: Inflation tax in dollars	4.6	13.7	13.6	6.0	8.2	8.1	54.3
3. NIG: Net Inflation Gain	-8.0	0.7	-7.4	19.6	4.3	8.8	-14.2
Percent of group' s mean SCF Income[a]	-8.3	0.7	-6.4	17.3	3.6	6.7	-12.9
4. Ratio of mean wealth to mean SCF income	4.4	5.5	6.4	6.5	6.1	6.1	5.0

D. Mean Net Worth: NWP6080							
1. %Change from asset price changes							
a. Liquid assets	**-4.1**	**-6.4**	**-2.4**	**-0.6**	**-1.3**	**-0.8**	**-21.5**
b. Debt	**6.2**	**10.9**	**5.6**	**2.0**	**3.9**	**2.4**	**47.2**
c. Stocks, businesses, and bonds	**-0.5**	**1.8**	**-0.1**	**2.3**	**0.7**	**1.2**	**3.3**
d. Total %Change from inflation	**1.5**	**6.2**	**3.2**	**3.7**	**3.3**	**2.8**	**29.0**
e. 'IG: Inflation gain in dollars	**2.8**	**13.8**	**9.9**	**13.2**	**8.7**	**8.3**	**52.8**
2. Mean SCF income:NWP6080							
%Change in nominal income	**37.7**	**63.3**	**14.9**	**-7.9**	**20.9**	**14.1**	**228.5**
IT: Inflation tax in dollars	**2.1**	**10.1**	**11.0**	**5.3**	**6.3**	**5.2**	**40.1**
3. NIG: Net Inflation Gain	**0.7**	**3.7**	**-1.0**	**7.8**	**2.4**	**3.0**	**12.7**
Percent of group' s mean SCF Income[a]	**1.0**	**4.5**	**-1.2**	**9.5**	**2.9**	**3.5**	**16.1**
4. Ratio of mean wealth to mean SCF income							
	2.8	**3.2**	**3.8**	**3.7**	**3.4**	**3.4**	**3.1**
E. Mean Net Worth: NWP4060							
1. %Change from asset price changes							
a. Liquid assets	**-4.1**	**-6.7**	**-2.7**	**-0.7**	**-1.6**	**-0.9**	**-23.8**
b. Debt	**12.6**	**24.2**	**13.2**	**5.7**	**12.0**	**6.2**	**115.4**
c. Stocks, businesses, and bonds	**-0.4**	**1.4**	**-0.1**	**2.2**	**0.6**	**1.0**	**2.7**
d. Total %Change from inflation	**8.0**	**18.9**	**10.5**	**7.1**	**11.0**	**6.2**	**94.3**
e. 'IG: Inflation gain in dollars	**6.1**	**15.7**	**11.4**	**9.3**	**8.3**	**5.4**	**72.4**
2. Mean SCF income:NWP4060							
%Change in nominal income	**26.1**	**59.1**	**20.0**	**-4.4**	**15.3**	**11.0**	**194.4**
IT: Inflation tax in dollars	**4.3**	**8.1**	**7.4**	**3.7**	**5.2**	**3.9**	**32.6**
3. NIG: Net Inflation Gain	**1.8**	**7.6**	**4.0**	**5.6**	**3.2**	**1.5**	**39.9**
Percent of group' s mean SCF Income[a]	**3.3**	**12.5**	**6.1**	**8.8**	**5.1**	**2.4**	**65.8**
4. Ratio of mean wealth to mean SCF income							
	1.4	**1.6**	**1.8**	**1.6**	**1.3**	**1.5**	**1.5**
F. Mean Net Worth: NWP040							
1. %Change from asset price changes							
a. Liquid assets	**-21.5**	**-51.0**	**-19.9**	**4.2**	**3.5**	**3.0**	**-65.9**
b. Debt	**102.3**	**359.8**	**216.1**	**-72.9**	**-57.2**	**-40.1**	**103.7**
c. Stocks, businesses, and bonds	**-1.5**	**6.3**	**-0.3**	**-9.4**	**-1.0**	**-2.2**	**-8.4**
d. Total %Change from inflation	**79.3**	**315.1**	**195.8**	**-78.2**	**-54.7**	**-39.3**	**31.9**
e. 'IG: Inflation gain in dollars	**4.6**	**6.7**	**8.1**	**-2.1**	**6.2**	**3.7**	**1.9**
2. Mean SCF income:NWP040							
%Change in nominal income	**24.2**	**61.2**	**16.2**	**9.7**	**7.6**	**11.8**	**207.1**
IT: Inflation tax in dollars	**3.1**	**5.0**	**5.1**	**1.5**	**3.9**	**2.6**	**21.2**
3. NIG: Net Inflation Gain	**1.6**	**1.7**	**3.0**	**-3.6**	**2.3**	**1.1**	**-19.3**
Percent of group' s mean SCF Income[a]	**4.4**	**4.3**	**7.1**	**-8.5**	**5.2**	**2.5**	**-47.8**
4. Ratio of mean wealth to mean SCF income							
	0.1	**0.1**	**0.1**	**-0.1**	**-0.2**	**-0.2**	**0.0**

Source: author's computations from the SCF.
Households are classified into wealth class according to their net worth.
Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.
a. Mean value over the period

Table 7. The Inflation Tax by Wealth Class Using 10-Year Bond Rates And Alternative Inflation Rates for 2016-2019

(Dollar figures are in 1000s, 2019 dollars)

	Base Case		CPI-U-RS = 4%		CPI-U-RS = 6%		CPI-U-RS = 8%	
	2016-2019	1983-2019	2016-2019	1983-2019	2016-2019	1983-2019	2016-2019	1983-2019
A. Mean Net Worth								
1. %Change from asset price changes								
a. Liquid assets	-0.5	-17.2	-1.0	-18.8	-1.5	-20.7	-2.0	-22.5
b. Debt	1.0	23.7	1.8	26.0	2.8	28.5	3.8	31.0
c. Stocks, businesses, and bonds	1.8	5.7	2.2	8.2	2.4	8.3	2.5	8.5
d. Total %Change from inflation	2.3	12.3	3.1	15.3	3.7	16.1	4.3	17.0
e. 'IG: Inflation gain in dollars	16.3	39.0	22.0	48.6	26.1	51.2	30.4	54.0
2. Mean SCF income								
IT: Inflation tax in dollars	6.6	42.6	13.0	49.0	20.2	56.2	27.9	63.9
3. NIG: Net inflation gain	9.7	-3.6	9.0	-0.4	5.9	-5.0	2.5	-9.9
Percent of mean SCF Income[a]	9.2	-4.1	8.6	-0.5	5.6	-5.7	2.4	-11.2
B. Median Net Worth								
1. %Change from asset price changes								
a. Liquid assets	-0.9	-26.7	-1.7	-29.2	-2.5	-32.0	-3.4	-35.0
b. Debt	3.8	75.9	7.3	83.1	11.1	91.1	15.1	99.3
c. Stocks, businesses, and bonds	1.2	3.1	1.5	4.6	1.6	4.7	1.7	4.8
d. Total %Change from inflation	4.1	52.3	7.1	58.5	10.2	63.7	13.4	69.2
e. 'IG: Inflation gain in dollars	3.4	42.7	5.9	47.7	8.4	52.1	11.1	56.5
2. Median SCF income								
IT: Inflation tax in dollars	3.4	28.4	6.9	32.0	10.9	35.9	15.1	40.2
3. NIG: Net inflation gain	0.0	14.3	-1.0	15.8	-2.5	16.1	-4.0	16.4
Percent of median SCF Income[a]	0.1	27.2	-1.9	30.1	-4.4	30.7	-7.2	31.2
C. Mean Wealth of the Top Wealth Percentile								
1. %Change from asset price changes								
a. Liquid assets	-0.3	-9.1	-0.6	-9.9	-0.9	-10.9	-1.3	-11.9
b. Debt	0.2	4.5	0.3	4.9	0.5	5.4	0.6	5.9
c. Stocks, businesses, and bonds	2.0	7.3	2.4	10.2	2.6	10.3	2.7	10.5
d. Total %Change from inflation	1.9	2.7	2.1	5.2	2.1	4.8	2.0	4.5
e. 'IG: Inflation gain in dollars	523.8	291.1	600.6	555.1	585.8	520.5	573.4	486.2
2. Mean SCF Income of the Top Wealth Percentile								
IT: Inflation tax in dollars	119.6	227.7	209.8	317.8	310.9	419.0	418.4	526.4
3. NIG: Net inflation gain	404.2	63.5	390.8	237.3	274.8	101.5	155.0	-40.2
Percent of group' s mean SCF income[a]	23.8	6.9	23.0	25.9	16.2	11.1	9.1	-4.4
D. Ratio of the Mean Wealth of the Top One Percent to Median Wealth.								
1. Change in the actual ratio	-64.3	142.4	-64.3	142.4	-64.3	142.4	-64.3	142.4
2. Change in the ratio from asset price changes	-7.4	-42.8	-15.6	-44.2	-24.8	-47.3	-33.8	-50.2

Source: author's computations from the SCF.

Households are classified into wealth class according to their net worth.

Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.

a. Mean value over the period

Table 8. Composition of Household Wealth by Race and Ethnicity: Consolidated Accounts, 2019
(Percent of gross assets)

Asset	All	Non-Hispanic Whites	African-Americans	Hispanics
Principal residence	25.1	23.1	43.1	44.2
Other real estate	10.4	9.6	12.4	11.8
Unincorporated business equity	20.1	21.7	11.8	12.5
Liquid assets	6.7	6.8	7.0	8.1
Securities, directly or indirectly owned	13.9	14.0	14.7	9.0
Stocks, directly or indirectly owned	22.4	23.5	9.3	12.9
Miscellaneous assets	1.3	1.3	1.6	1.4
Total assets	100.0	100.0	100.0	100.0
Debt on principal residence	8.6	7.8	18.2	19.6
All other debt	3.9	3.1	12.6	8.5
Total debt	12.5	10.9	30.8	28.1

Source: author's computations from the 2019 SCF.
Also, see notes to Table 2.

Table 9. The Inflation Tax by Race/Ethnicity Using the 10-Year Real and Nominal Bond Rates for 10 Years

(Dollar figures are in 1000s, 2019 dollars)

	Period						
	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
A. Mean Net Worth: White Households							
1. %Change from asset price changes							
a. Liquid assets	-3.1	-4.5	-1.5	-0.4	-0.9	-0.5	-14.6
b. Debt	3.3	4.9	2.4	0.9	1.7	0.9	21.5
c. Stocks, businesses, and bonds	-1.0	3.7	-0.2	4.1	1.2	2.4	7.0
d. Total %change from inflation	-0.7	4.2	0.8	4.6	2.0	2.7	13.9
e. IG: Inflation gain in dollars	-2.7	18.6	5.1	36.8	14.1	25.3	51.5
2. Mean SCF income: White Households							
%Change in nominal income	11.2	29.6	3.9	-10.6	23.1	-6.2	54.5
IT: Inflation tax in dollars	2.8	8.3	12.2	6.6	7.5	7.7	45.1
3. NIG: Net inflation gain	-5.5	10.3	-7.1	30.2	6.6	17.6	6.4
Percent of group' s mean SCF income[a]	-6.9	10.6	-6.3	27.9	5.8	14.5	6.6
4. Ratio of mean wealth to mean SCF income[a]	5.1	5.7	6.6	7.0	7.2	7.6	6.1
B. Mean Net Worth: Black Households							
1. %Change from asset price changes							
a. Liquid assets	-2.9	-6.3	-2.7	-0.7	-1.3	-0.7	-19.8
b. Debt	6.2	14.5	8.8	3.0	6.2	3.4	67.8
c. Stocks, businesses, and bonds	-0.4	2.0	-0.1	2.0	0.7	1.3	3.7
d. Total %change from inflation	2.9	10.2	6.0	4.3	5.6	4.1	51.7
e. IG: Inflation gain in dollars	2.0	7.7	5.8	6.6	5.7	5.5	36.2
2. Mean SCF income: Black Households							
%change in nominal income	-8.1	41.0	3.5	-11.6	17.9	-3.8	34.5
IT: Inflation tax in dollars	5.4	2.4	5.9	3.3	3.7	3.5	24.3
3. NIG: Net inflation gain	-3.4	5.3	-0.2	3.3	2.0	1.9	11.9
Percent of group' s mean SCF income[a]	-8.7	11.6	-0.3	6.3	3.7	3.4	24.7
4. Ratio of mean wealth to mean SCF income[a]	1.8	1.9	2.3	2.4	2.2	2.3	2.1
C. Mean Net Worth: Hispanic Households							
1. %Change from asset price changes							
a. Liquid assets	-3.0	-5.2	-1.6	-0.4	-0.8	-0.6	-14.7
b. Debt	10.3	17.2	7.8	3.1	6.4	3.1	73.2
c. Stocks, businesses, and bonds	-0.3	2.0	-0.1	2.4	0.7	1.5	4.0
d. Total %change from inflation	7.0	14.1	6.1	5.1	6.4	4.0	62.5
e. IG: Inflation gain in dollars	4.2	10.3	7.1	10.7	7.0	7.1	37.8
2. Mean SCF income: Hispanic Households							
%Change in nominal income	-16.2	40.9	5.3	0.6	5.3	-0.5	31.1
IT: Inflation tax in dollars	8.0	2.5	5.9	2.4	4.9	3.7	27.3
3. NIG: Net inflation gain	-3.8	7.9	1.2	8.4	2.1	3.3	10.5
Percent of group' s mean SCF income[a]	-8.9	16.9	2.2	14.5	3.5	5.5	19.7
4. Ratio of mean wealth to mean SCF income[a]	1.6	2.0	2.9	2.8	2.4	2.9	2.2
D. Ratio of the Mean Wealth of Black Households to White Households							

1. Change in the actual ratio	**-0.021**	**-0.025**	**0.046**	**-0.045**	**0.001**	**-0.007**	**-0.051**
2. Change in the ratio from asset price changes	**0.007**	**0.010**	**0.007**	**0.000**	**0.005**	**0.002**	**0.063**
3. Percentage decomposition							
a. From asset price changes	**-33.2**	**-38.8**	**16.2**	**1.0**	**796.0**	**-25.3**	**-121.7**
b. Residual	**133.2**	**138.8**	**83.8**	**99.0**	**-696.0**	**125.3**	**221.7**
E. Ratio of the Mean Wealth of Hispanic Households to White Households							
1. Change in the actual ratio	**0.002**	**0.007**	**0.089**	**-0.107**	**0.036**	**-0.002**	**0.025**
2. Change in the ratio from asset price changes	**0.013**	**0.016**	**0.009**	**0.001**	**0.007**	**0.002**	**0.069**
3. Percentage decomposition							
a. From asset price changes	**625.0**	**212.9**	**10.3**	**-1.2**	**18.6**	**-127.1**	**278.3**
b. Residual	**-525.0**	**-112.9**	**89.7**	**101.2**	**81.4**	**227.1**	**-178.3**

Source: author's computations from the SCF. Asset price change data are from Appendix Table 1.
Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.
a. Mean value over the period

Table 10. The Inflation Tax by Race and Ethnicity Using 10-Year Bond Rates And Alternative Inflation Rates for 2016-2019

(Dollar figures are in 1000s, 2019 dollars)

	Base Case		CPI = 4%		CPI = 6%		CPI = 8%	
	2016-2019	1983-2019	2016-2019	1983-2019	2016-2019	1983-2019	2016-2019	1983-2019
A. Mean Net Worth: White Households								
1. %Change from asset price changes								
a. Liquid assets	-0.5	-14.6	-1.0	-16.0	-1.6	-17.5	-2.2	-19.1
b. Debt	0.9	21.5	1.7	23.6	2.6	25.8	3.6	28.2
c. Stocks, businesses, and bonds	2.4	7.0	2.9	10.1	3.1	10.4	3.3	10.6
d. Total %Change from inflation	2.7	13.9	3.6	17.7	4.1	18.6	4.7	19.6
e. IG: Inflation gain in dollars	25.3	51.5	33.3	65.8	38.3	69.3	43.7	73.0
2. Mean income								
IT: Inflation tax in dollars	7.7	45.1	15.0	52.4	23.2	60.6	31.9	69.3
3. NIG: Net inflation gain	17.6	6.4	18.3	13.4	15.1	8.6	11.8	3.7
Percent of mean Income[a]	14.5	6.6	15.0	13.8	12.4	8.9	9.7	3.8
B. Mean Net Worth: Black Households								
1. %Change from asset price changes								
a. Liquid assets	-0.7	-19.8	-1.3	-21.7	-2.0	-23.8	-2.8	-25.9
b. Debt	3.4	67.8	6.5	74.2	10.0	81.4	13.6	88.8
c. Stocks, businesses, and bonds	1.3	3.7	1.6	5.4	1.7	5.5	1.8	5.6
d. Total %Change from inflation	4.1	51.7	6.8	58.0	9.7	63.1	12.6	68.5
e. IG: Inflation gain in dollars	5.5	36.2	9.2	40.5	13.0	44.1	17.0	47.9
2. Mean income								
IT: Inflation tax in dollars	3.5	24.3	6.9	27.7	10.8	31.6	14.9	35.6
3. NIG: Net inflation gain	1.9	11.9	2.2	12.8	2.2	12.6	2.1	12.3
Percent of mean Income[a]	3.4	24.7	4.0	26.6	3.9	26.1	3.7	25.5
C. Mean Net Worth: Hispanic Households								
1. %Change from asset price changes								
a. Liquid assets	-0.6	-14.7	-1.1	-16.1	-1.7	-17.6	-2.4	-19.2
b. Debt	3.1	73.2	5.9	80.1	9.0	87.8	12.3	95.8
c. Stocks, businesses, and bonds	1.5	4.0	1.8	5.7	1.9	5.8	2.0	6.0
d. Total %Change from inflation	4.0	62.5	6.6	69.8	9.2	76.0	12.0	82.5
e. IG: Inflation gain in dollars	7.1	37.8	11.7	42.1	16.3	45.9	21.2	49.8
2. Mean income								
IT: Inflation tax in dollars	3.7	27.3	7.5	31.0	11.7	35.2	16.2	39.7
3. NIG: Net inflation gain	3.3	10.5	4.2	11.1	4.6	10.7	5.0	10.1
Percent of mean Income[a]	5.5	19.7	6.9	20.9	7.6	20.0	8.3	19.0
D. Ratio of the Mean Wealth of Black Households to White Households								
1. Change in the actual ratio	-0.007	-0.051						
2. Change in the ratio from inflation	0.002	0.063	0.005	0.064	0.008	0.071	0.011	0.077
E. Ratio of the Mean Wealth of Hispanic Households to White Households								
1. Change in the actual ratio	-0.002	0.025						
2. Change in the ratio from inflation	0.002	0.069	0.006	0.072	0.009	0.079	0.013	0.085

Source: author's computations from the SCF.

Households are classified into wealth class according to their net worth.

Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.

a. Mean value over the period.

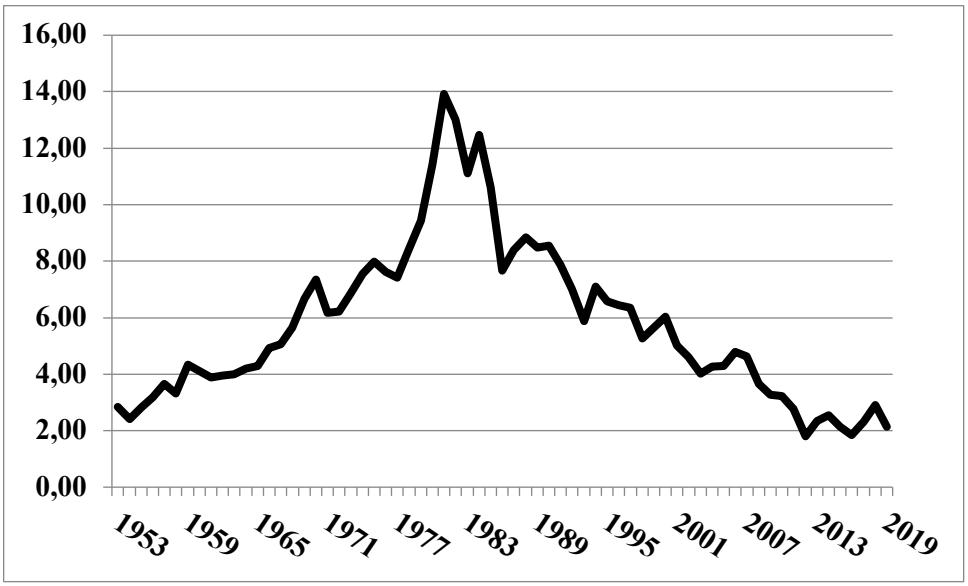

Figure 1. 10-Year Constant Maturity Treasury Bond Nominal Rates, 1953-2019
[Source: *Economic Report of the President, 2020,* Table B-42, p. 414].

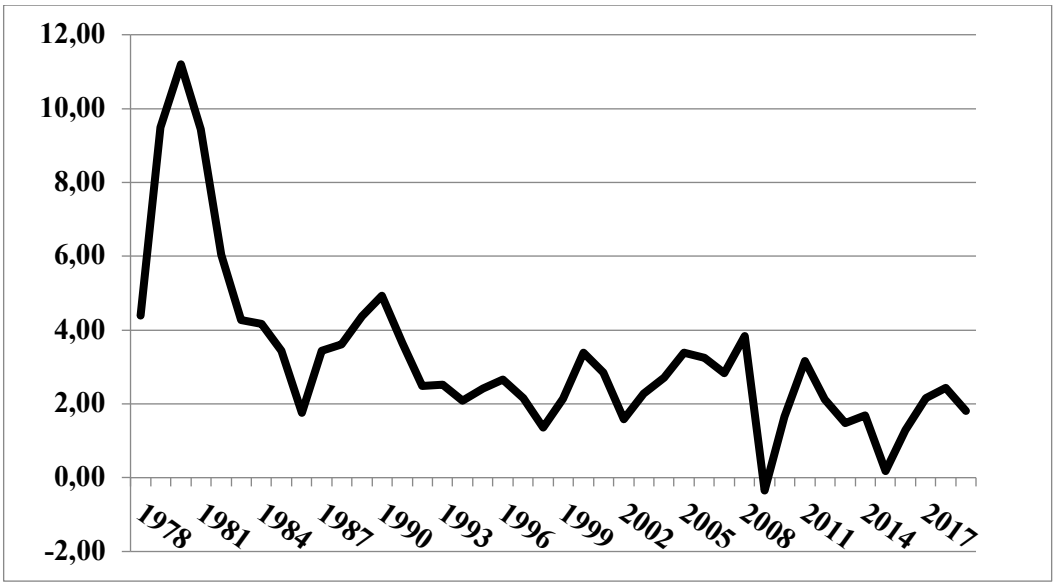

Figure 2. Annual Percentage Change of CPI-U-RS, 1978-2019.
[Source: Bureau of Labor Statistics at https://www.bls.gov/cpi/research-series/home.htm]

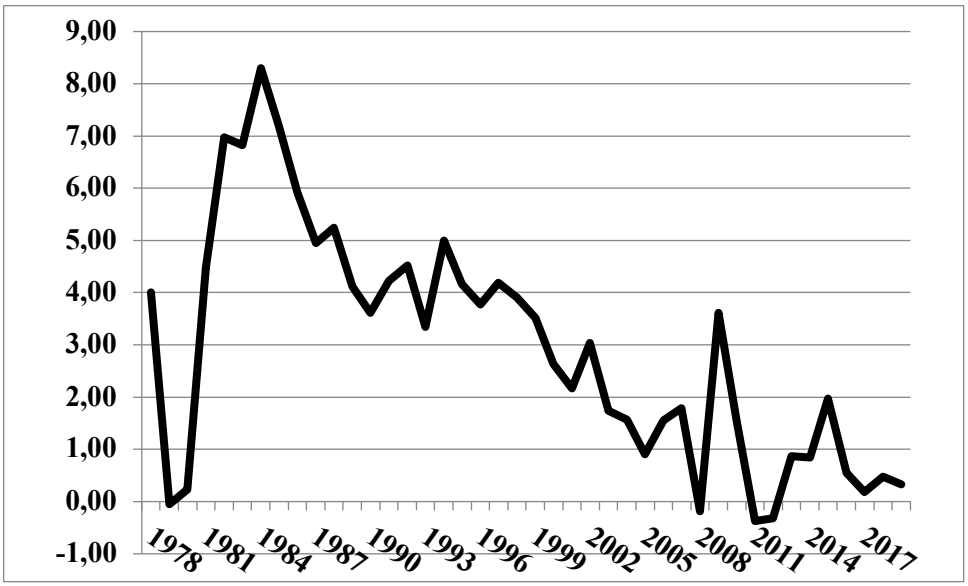

Figure 3. 10-Year Constant Maturity Real Treasury Bond Rates, 1978-2019.
[Source: *Economic Report of the President, 2020,* Table B-42, p. 414]

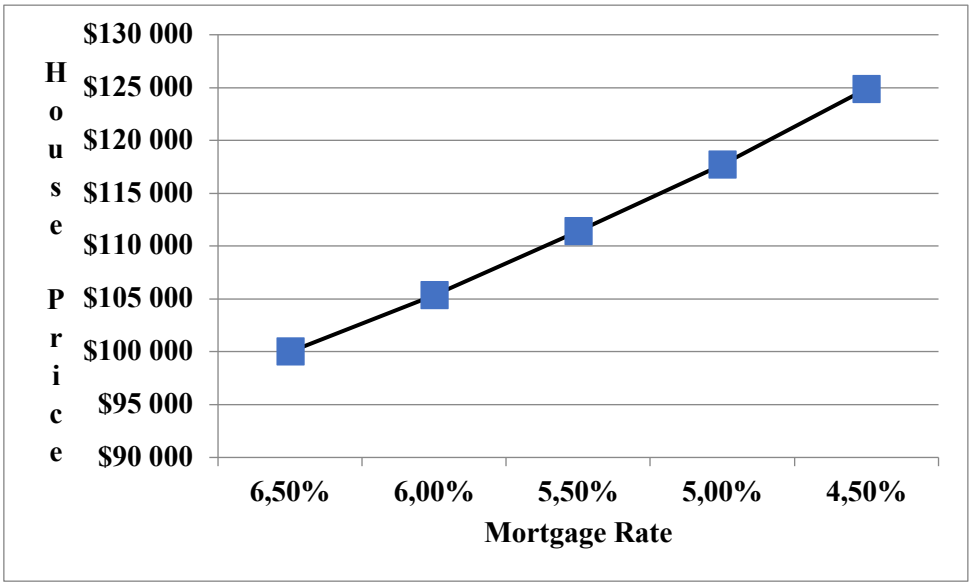

Figure 4. Equivalent monthly payments: House price versus mortgage rate.
[based on a 30-year fixed rate mortgage with 20 percent down-payment and monthly payments].

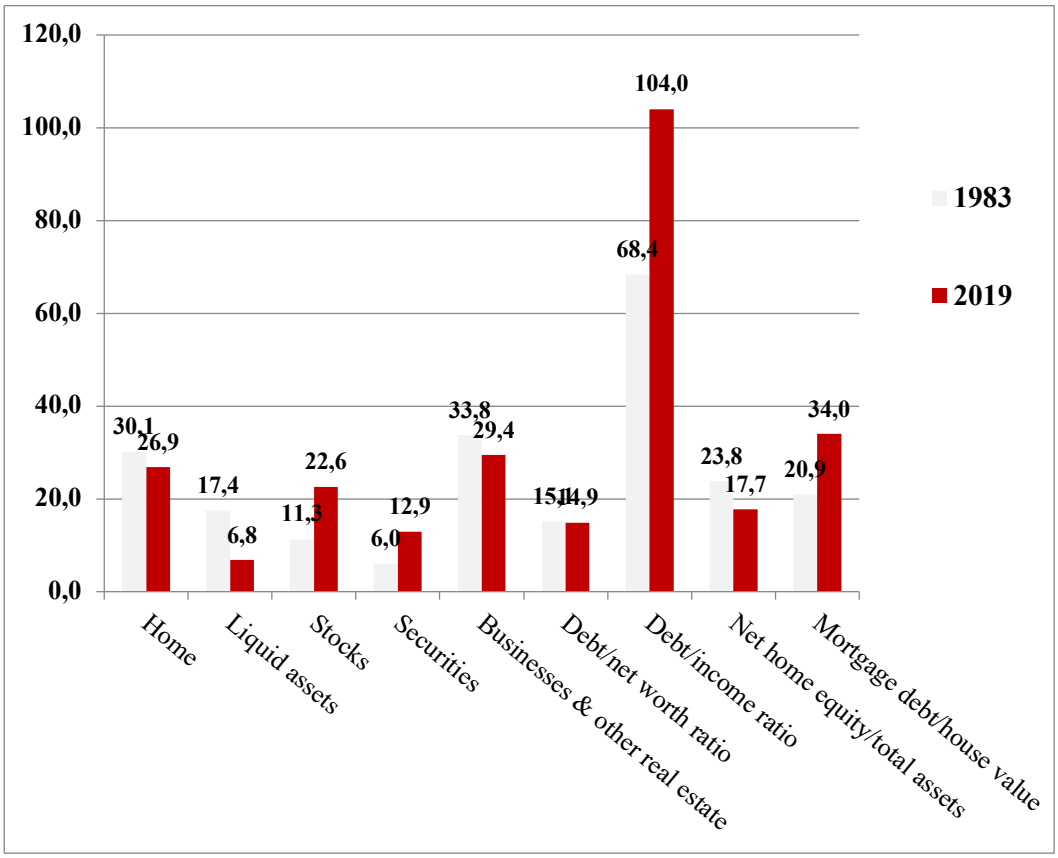

Figure 5 Composition of Household Wealth, 1983 and 2019, Consolidated Accounts (percent of gross assets)
[Source: Author's computations from the SCF]

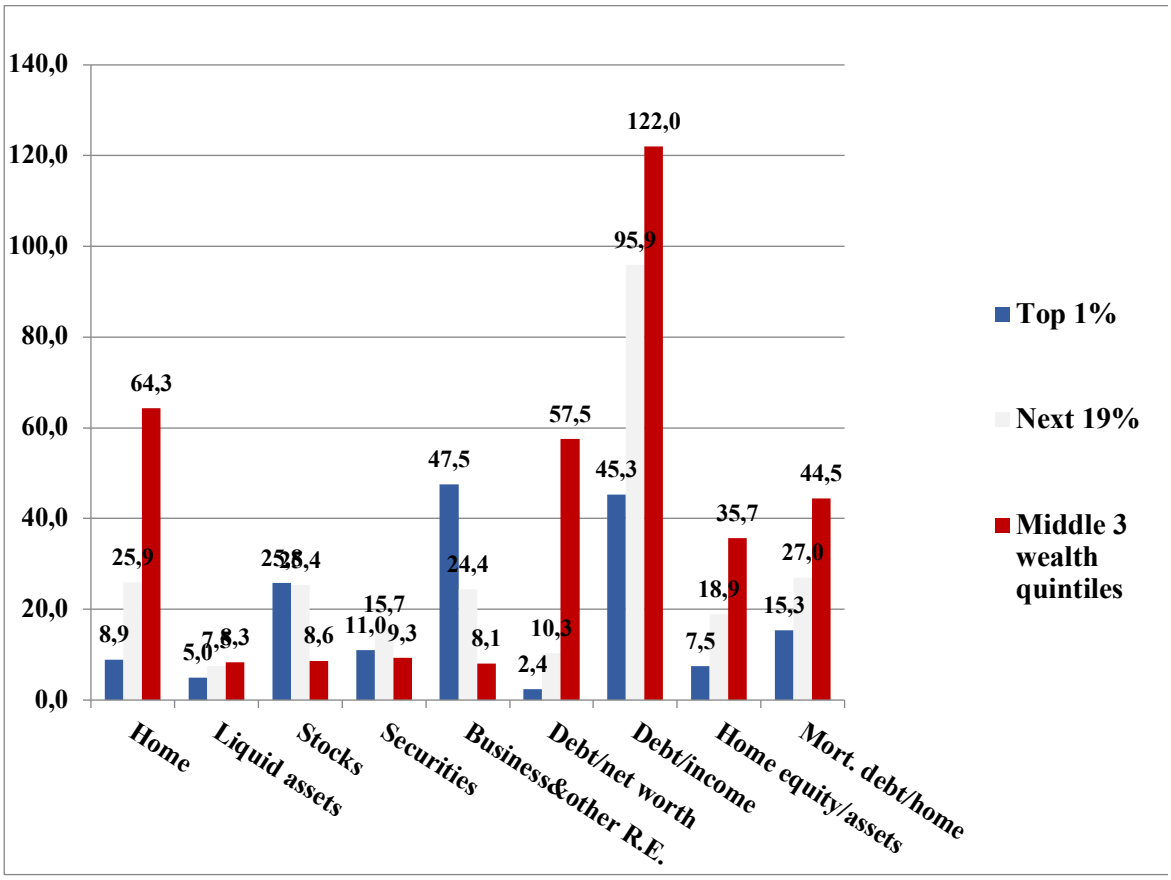

Figure 6. Composition of Household Wealth by Wealth Class, 2019: Consolidated Accounts (percent of gross assets)
[Source: Author's computations from the 2019 SCF]

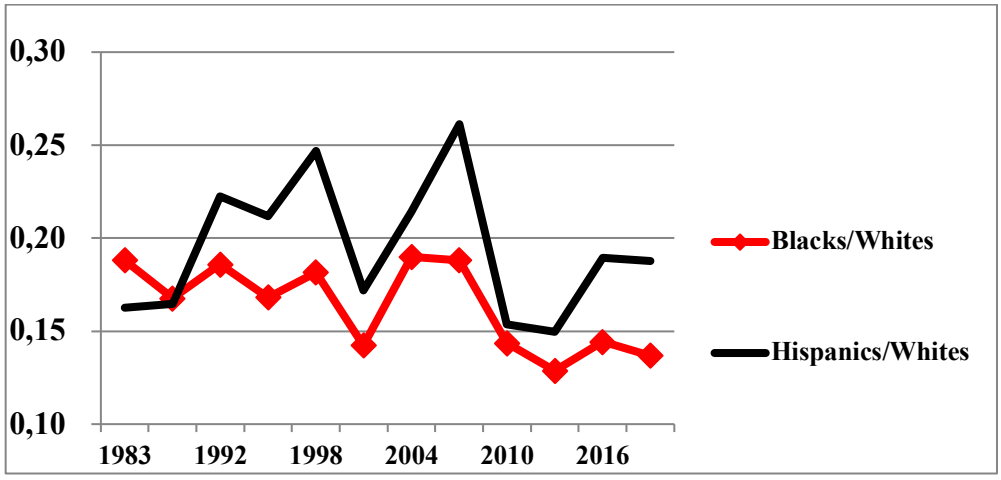

Figure 7. Ratio of Mean Net Worth between Racial and Ethnic Groups, 1983-2019
[Source: Author's computations from the 2019 SCF]

Appendix: Sensitivity Analysis

The last part of the analysis is to conduct sensitivity tests to see how the results of Table 4 and Table 5 change with varying assumptions about price changes in asset values. Results on alternative asset price movements are shown in Appendix Table 1. Here I show the percentage change in real asset values over each period instead of the annualized percentage change. The base case for bond values uses the 10-year Treasury bill rate for a 10-year period. Its value increased by 66.3 percent over the full 1983-2019 period. However, on the basis of the 20-year Treasury bond rate for a 20-year period, the percentage rise in bond value over the period more than doubled to 133.3 percent. The reason is evident from equation 3, the formula for bond values, where P_b rises with the number of periods, T. Actual real yields on 20-year bonds were also uniformly higher than those on 10-year bonds (with one exception, 1989) but the differences were relatively small, with a maximum value of 1.00 percentage points in 2008. Using the 30-year bond rate for a 30-year period raises the percentage gain over the 1983-2019 period to 140.7 percent, not much more than the 20-year bond for a 20-year period. Yields on 30-year bonds were higher than those on 10-year bonds in all years except three. However, differences were again small, with a maximum of 1.13 percentage points in 2011. The difference in percentage gains was again primarily due to the longer holding period for the 30-year bond relative to the 10-year bond.[10] Percentage gains in bond values were also notably higher for the 20-year and 30-year bonds than the 10-year bonds in each of the sub-periods as well with the exception of the 2007-2010. The greater returns to 20-year and 30-year bonds relative to 10-year bonds will benefit the rich relative to the middle class since the former hold a higher share of their assets in bonds than the latter.

The pattern of results is very similar for the calculation of the present value of future profits. On the basis of a 10-year bond rate for 10 years, the gain over the 1983-2019 period was 30.3 percent. The use of the 20-year bond for 20 years more than doubled this to 67.7 percent. Here again the primary reason for the difference is the longer recoupment period for the latter. This is evident from equation 1 where p_A rises with T, the number of periods. Employing a 30-year bond rate for 30 years further enhances the percentage gain to 101.0 percent, a significant rise. Once again the percentage gain in the present value of future profits was greater in each of

[10] Differences in percentage gains over a period between the 30-year and 20-year Treasury bond are small because, as indicated in equation 3, the term $C / (1 + i)^t$ becomes very small for $t>20$.

the sub-periods as well with the exception of 2007-2010. The use of a longer recoupment period in this calculation will benefit the rich relative to the middle class since the former hold a higher share of their assets in stocks and businesses than the latter.

There is a pronounced difference in the valuation of liquid assets when interest based on the Federal funds rate is accrued over time. What is the logic of including accrued interest on liquid assets? The rationale is that inflation also affects the real rate of return on the Federal funds rate. Without adding accrued interest, the real value of liquid assets declined by 144.8 percent between 1983 and 2019 as it was eaten up by inflation. When liquid assets are accrued at the Federal funds rate minus the inflation rate, its value actually shows a 60.8 percent gain. The real Federal funds rate was positive from 1983 through 2002, showed a mixed pattern from 2003 through 2009, turned negative from 2010 to 2018, and became positive in 2019. The percentage gain in the real value of liquid assets accrued using the Federal funds rate was greater than the no interest case in each of the sub-periods but the disparity was much greater in 1983-1989 and 1989-2001 than in the later years. Adding interest accruals to liquid assets in comparison to the no interest case will benefit the middle class relative to the rich since the former hold a higher share of their assets in liquid form than the latter.

Appendix Table 2 analyzes whether the base case results on the inflation tax shown in Tables 4 and 5 hold up using alternative returns to assets. On the basis of 20-year bonds held for 20 years, inflation now results in a 15.2 percent increase in mean wealth over 1983-2019. This compares to a 12.3 percent rise in the base case (10-year bond rates). Once again, over 100 percent of this increase is due to debt devaluation, though once again this is largely offset by the negative revaluation of liquid assets.[11] All told, the inflation gain, IG, on mean net worth is $48,200, compared to $39,000 in the base case. The inflation tax, IT, on mean SCF income remains at $42,600, so that NIG is now a positive $5,600 or 6.4 percent of mean SCF income. NIG is $11,500 or 14.3 percent on the basis of CPS mean income, higher than in the base case.

Differences in results are much weaker for median wealth. In this case, asset price changes emanating from inflation lead to a 53.0 percent advance in median wealth over 1983-2019, compared to 52.3 percent in the base case. In dollar terms, IG is now $43,300, a bit higher than before, and NIG is now $14,900, compared to $14,300 before. Likewise, NIG on the basis of median CPS income is $13,100, compared to $12,500 in the base case.

[11] The contribution from stocks, businesses, and bonds is now $8,700 compared to $5,700 before.

Inflation now results in a 7.2 percent gain in the mean wealth of the of the top wealth percentile over years 1983-2019, compared to only 2.7 percent before. The main difference is that the percentage gain from the appreciation of stocks, businesses, and bonds collectively is now 11.7, compared to 7.3 before. IG is now $767,800 in contrast to $291,100 in the base case, and NIG is $540,100 rather than $63,500. What happens to the P99/P50 ratio? Despite the enormous increase in the wealth of the top percentile, inflation still reduces wealth inequality, though a little less than before. The P99/P50 ratio now declines by 39.4, instead of 42.8.

Results based on the 30-year bond rate for 30 years (Panel II) are even stronger than those based on the 20-year bond rate. The percentage gain in mean wealth over years 1983-2019 from the appreciation of stocks, businesses, and bonds rises from 8.7 (for the 20-year bond rate) to 11.7, IG from $48,200 to $57,900, and NIG from $5,600 to $15,300 on the basis of mean SCF income. IG for median wealth rises a bit from $43,000 to $44,900 and NIG from $14,900 to $16,400 on the basis of median SCF income. However, for the top wealth percentile, the percentage gain in mean wealth from the appreciation of stocks, businesses, and bonds pops up from 11.7 to 15.3, IG from $767,800 to $1,156,600, and NIG from $58,800 to $101,200. The P99/P50 ratio now falls by 37.4 rather than 39.4.

In the third alternative scenario, I again use the 10-year bond rate held for 10 years but now include accrued interest on liquid assets (Panel III). This now leads to 5.5 percent gain in the value of liquid assets, compared to -17.2 percent change in the base case scenario (no accrued interest on liquid assets). IG for mean wealth now rockets up from $39,000 to $85,900 and NIG switches from -$3,600 to $43,300 on the basis of mean SCF income. Likewise, the percentage advance in the value of liquid assets in the case of median wealth changes over from -26.7 to 8.5, IG from $42,700 to $971,500, and NIG from $14,300 to $43,100 for median SCF income. Results are just as robust for the top wealth percentile. The increase in the value of liquid assets flips from -9.1 to 2.9 percent, IG cascades from $291,100 to $1,574,700, and NIG from $63,500 to $1,347,000. Accruing interest on liquid assets favors the middle class relative to the rich and inflation is still wealth equalizing. The P99/P50 ratio now goes down by 51.0 instead of 42.8.

In sum, in the three alternative scenarios, NIG is now positive and its value rises relative to the base case (10-year bond rates, with no accrued interest). Wealth inequality still goes down in the alternative scenarios and the declines are all greater than in the base case.

Appendix Table 1. Percentage Change of Real Asset Values over Period

	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
1. Bond Value							
a) 10-year bond rate[a]: Base Case	20.5	16.6	3.4	2.0	9.9	2.2	66.3
b) 20-year bond rate[b]	37.3	19.2	11.2	-4.7	26.5	6.3	133.3
c) 30-year bond rate[c]	45.4	28.3	13.9	-12.1	22.6	5.0	140.7
2. Present Value of Future Profits							
a) 10-year bond rate[a]: Base Case	11.0	8.3	1.6	1.0	4.6	1.0	30.3
b) 20-year bond rate[b]	24.3	11.3	6.2	-2.6	13.6	3.2	67.7
c) 30-year bond rate[c]	33.2	18.2	8.3	-7.2	18.1	7.5	101.0
3. Liquid Assets							
a) No interest[d]: Base Case	-22.6	-37.9	-17.1	-5.2	-10.3	-6.5	-144.8
b) Federal funds rate[e]	36.8	33.5	1.5	-2.9	-9.3	-1.5	60.8

Asset values are deflated by the CPI-U-RS.

a. Based on US Treasury Securities (Constant Maturity): 10-year real bond rate for 10-year period

b. Based on US Treasury Securities (Constant Maturity): 20-year real bond rate for 20-year period

c. Based on US Treasury Securities (Constant Maturity): 30-year real bond rate for 30-year period

d. It is assumed that no interest accrues over time.

e. It is assumed that interest at the Federal funds rate accrues over time.

Inflation Appendix Table 2: The Inflation Tax on Mean and Median Net Worth And the Mean Wealth of the Top One Percent of the Wealth Distribution Using Alternative Real and Nominal Bond Rates

(Dollar figures are in 1000s, 2019 dollars)

	Period						
Wealth Component	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016	2016-2019	1983-2019
I. 20-Year bond rates for 20 years							
A. Mean values							
1. Mean net worth							
1. %Change from asset price changes							
a. Liquid assets	-4.6	-5.8	-1.5	-0.4	-0.9	-0.5	-17.2
b. Debt	3.7	6.1	2.8	1.0	1.8	1.0	23.7
c. Stocks, businesses, and bonds	-2.8	5.0	-0.8	6.2	0.4	2.6	8.7
d. Total %Change from inflation	-3.7	5.2	0.5	6.7	1.4	3.0	15.2
e. IG: Inflation gain in dollars	-11.8	19.4	2.5	44.6	7.6	21.7	48.2
2. Mean SCF income							
IT: Inflation tax in dollars	5.4	7.1	10.3	6.4	6.9	6.6	42.6
3. NIG: Net inflation gain	-17.2	12.3	-7.7	38.3	0.7	15.1	5.6
Percent of mean SCF income[a]	-23.5	14.3	-7.7	39.4	0.7	14.4	6.4
4. Mean CPS income							
IT: Inflation tax in dollars	0.4	10.3	10.1	4.2	6.4	5.4	36.8
5. NIG: Net inflation gain	-12.2	9.1	-7.5	40.5	1.2	16.2	11.5
Percent of mean CPS income[a]	-18.0	11.5	-9.0	49.7	1.4	17.4	14.3
B. Median Values							
1. Median net worth							
1. %Change from asset price changes							
a. Liquid assets	-6.3	-8.4	-2.6	-0.7	-1.4	-0.9	-26.7
b. Debt	8.9	16.7	9.1	3.4	6.6	3.8	75.9
c. Stocks, businesses, and bonds	-1.1	646.3	-240.8	1706.3	136.4	877.1	767.8
d. Total %Change from inflation	1.6	10.7	5.9	6.6	5.0	4.2	53.0
e. IG: Inflation gain in dollars	1.3	9.5	6.3	8.3	3.5	3.5	43.3
2. Median SCF income							
IT: Inflation tax in dollars	3.5	7.5	6.6	3.0	4.5	3.4	28.4
3. NIG: Net inflation gain	-2.2	2.1	-0.3	5.3	-0.9	0.1	14.9
Percent of median SCF income[a]	-24.8	17.0	-13.3	73.7	2.2	28.9	21.8
4. Median CPS income							
IT: Inflation tax in dollars	1.4	9.9	7.0	3.2	4.8	3.9	30.2
5. NIG: Net inflation gain	-0.2	-0.4	-0.7	5.1	-1.2	-0.4	13.1
Percent of median CPS income[a]	-0.3	-0.6	-1.2	8.5	-2.0	-0.6	21.8
C. Mean values for the top one percent of the wealth distribution							
Mean wealth of NW99100							
1. %Change from asset price changes							
a. Liquid assets	-2.0	-2.7	-0.9	-0.3	-0.6	-0.3	-9.1
b. Debt	0.9	0.9	0.4	0.2	0.3	0.2	4.5
c. Stocks, businesses, and bonds	-4.3	6.7	-0.9	7.6	1.0	3.3	11.7

d. Total %Change from inflation	**-5.4**	**5.0**	**-1.3**	**7.5**	**0.7**	**3.1**	**7.2**
e. IG: Inflation gain in dollars	**-575.8**	**646.3**	**-240.8**	**1706.3**	**136.4**	**877.1**	**767.8**
2. Mean SCF Income Top 1% of Wealth							
IT: Inflation tax in dollars	**-271.2**	**74.6**	**112.6**	**144.7**	**47.3**	**119.6**	**227.7**
3. NIG: Net inflation gain	**-304.6**	**571.7**	**-353.4**	**1561.6**	**89.1**	**757.5**	**540.1**
Percent of group SCF income[a]	**-44.0**	**48.2**	**-23.5**	**113.5**	**5.8**	**44.5**	**58.8**
D. Ratio of the Mean Wealth of the Top One Percent to Median Wealth							
1. Change in the actual ratio	**15.1**	**26.3**	**8.0**	**91.5**	**65.8**	**-64.3**	**142.4**
2. Change in the ratio from asset price changes	**-9.0**	**-7.6**	**-11.8**	**1.5**	**-11.1**	**-3.4**	**-39.4**
3. Percentage decomposition							
a. From asset price changes	**-59.3**	**-29.0**	**-146.8**	**1.7**	**-16.9**	**5.2**	**-27.7**
b. Residual	**159.3**	**129.0**	**246.8**	**98.3**	**116.9**	**94.8**	**127.7**
II. 30-Year bond rates for 30 years							
A. Mean values							
1. Mean net worth							
1. %Change from asset price changes							
a. Liquid assets	**-4.6**	**-5.8**	**-1.5**	**-0.4**	**-0.9**	**-0.5**	**-17.2**
b. Debt	**3.7**	**6.1**	**2.8**	**1.0**	**1.8**	**1.0**	**23.7**
c. Stocks, businesses, and bonds	**-4.8**	**6.0**	**-1.3**	**8.8**	**2.1**	**4.4**	**11.7**
d. Total %Change from inflation	**-5.7**	**6.3**	**0.0**	**9.4**	**3.0**	**4.8**	**18.2**
e. IG: Inflation gain in dollars	**-18.0**	**23.3**	**-0.2**	**62.0**	**17.0**	**34.1**	**57.9**
2. Mean SCF income							
IT: Inflation tax in dollars	**5.4**	**7.1**	**10.3**	**6.4**	**6.9**	**6.6**	**42.6**
3. NIG: Net inflation gain	**-23.4**	**16.2**	**-10.4**	**55.6**	**10.1**	**27.6**	**15.3**
Percent of mean SCF income[a]	**-32.0**	**18.9**	**-10.4**	**57.3**	**10.2**	**26.2**	**17.4**
4. Mean CPS income							
IT: Inflation tax in dollars	**0.4**	**10.3**	**10.1**	**4.2**	**6.4**	**5.4**	**36.8**
5. NIG: Net inflation gain	**-18.4**	**13.0**	**-10.3**	**57.8**	**10.6**	**28.7**	**21.1**
Percent of mean CPS income[a]	**-27.3**	**16.5**	**-12.2**	**71.0**	**12.6**	**30.7**	**26.4**
B. Median Values							
1. Median net worth							
1. %Change from asset price changes							
a. Liquid assets	**-6.3**	**-8.4**	**-2.6**	**-0.7**	**-1.4**	**-0.9**	**-26.7**
b. Debt	**8.9**	**16.7**	**9.1**	**3.4**	**6.6**	**3.8**	**75.9**
c. Stocks, businesses, and bonds	**-1.7**	**2.8**	**-0.9**	**5.5**	**1.3**	**2.2**	**5.7**
d. Total %Change from inflation	**0.9**	**11.2**	**5.6**	**8.2**	**6.5**	**5.1**	**54.9**
e. IG: Inflation gain in dollars	**0.7**	**9.9**	**6.0**	**10.3**	**4.6**	**4.3**	**44.9**
2. Median SCF income							
IT: Inflation tax in dollars	**3.5**	**7.5**	**6.6**	**3.0**	**4.5**	**3.4**	**28.4**
3. NIG: Net inflation gain	**-2.8**	**2.4**	**-0.6**	**7.4**	**0.1**	**0.9**	**16.4**
Percent of median SCF income[a]	**-5.7**	**4.6**	**-1.1**	**13.4**	**0.3**	**1.5**	**31.3**
4. Median CPS income							
IT: Inflation tax in dollars	**1.4**	**9.9**	**7.0**	**3.2**	**4.8**	**3.9**	**30.2**
5. NIG: Net inflation gain	**-0.7**	**0.0**	**-1.1**	**7.1**	**-0.1**	**0.4**	**14.6**
Percent of median CPS income[a]	**-1.3**	**0.0**	**-1.8**	**11.9**	**-0.2**	**0.6**	**24.4**

C. Mean values for the top one percent of the wealth distribution							
Mean wealth of NW99100							
1. %Change from asset price changes							
a. Liquid assets	**-2.0**	**-2.7**	**-0.9**	**-0.3**	**-0.6**	**-0.3**	**-9.1**
b. Debt	**0.9**	**0.9**	**0.4**	**0.2**	**0.3**	**0.2**	**4.5**
c. Stocks, businesses, and bonds	**-7.4**	**8.2**	**-1.5**	**10.8**	**2.5**	**5.3**	**15.3**
d. Total %Change from inflation	**-8.4**	**6.4**	**-1.9**	**10.7**	**2.2**	**5.2**	**10.8**
e. IG: Inflation gain in dollars	**-902.0**	**835.4**	**-349.5**	**2444.9**	**431.0**	**1458.6**	**1156.6**
2. Mean SCF Income Top 1% of Wealth							
IT: Inflation tax in dollars	**-271.2**	**74.6**	**112.6**	**144.7**	**47.3**	**119.6**	**227.7**
3. NIG: Net inflation gain	**-630.8**	**760.7**	**-462.1**	**2300.2**	**383.7**	**1339.0**	**929.0**
Percent of group SCF income[a]	**-91.1**	**64.2**	**-30.8**	**167.2**	**25.0**	**78.7**	**101.2**
D. Ratio of the Mean Wealth of the Top One Percent to Median Wealth							
1. Change in the actual ratio	**15.1**	**26.3**	**8.0**	**91.5**	**65.8**	**-64.3**	**142.4**
2. Change in the ratio from asset price changes	**-12.1**	**-6.2**	**-12.3**	**4.2**	**-10.9**	**0.2**	**-37.4**
3. Percentage decomposition							
a. From asset price changes	**-80.2**	**-23.8**	**-152.7**	**4.6**	**-16.6**	**-0.3**	**-26.3**
b. Residual	**180.2**	**123.8**	**252.7**	**95.4**	**116.6**	**100.3**	**126.3**
III. 10-Year bond rates for 10 years plus federal funds rate							
A. Mean values							
1. Mean net worth							
1. %Change from asset price changes							
a. Liquid assets	**7.5**	**5.1**	**0.1**	**-0.2**	**-0.8**	**-0.1**	**5.5**
b. Debt	**3.7**	**6.1**	**2.8**	**1.0**	**1.8**	**1.0**	**23.7**
c. Stocks, businesses, and bonds	**-0.9**	**2.9**	**-0.1**	**3.4**	**1.0**	**1.8**	**5.7**
d. Total %Change from inflation	**37.1**	**14.1**	**2.8**	**4.2**	**2.0**	**2.7**	**35.0**
e. IG: Inflation gain in dollars	**25.2**	**22.1**	**0.9**	**-2.0**	**1.6**	**0.4**	**85.9**
2. Mean SCF income							
IT: Inflation tax in dollars	**5.4**	**7.1**	**10.3**	**6.4**	**6.9**	**6.6**	**42.6**
3. NIG: Net inflation gain	**19.8**	**15.0**	**-9.3**	**-8.4**	**-5.3**	**-6.1**	**43.3**
Percent of mean SCF income[a]	**27.0**	**17.5**	**-9.3**	**-8.7**	**-5.3**	**-5.8**	**49.4**
4. Mean CPS income							
IT: Inflation tax in dollars	**0.4**	**10.3**	**10.1**	**4.2**	**6.4**	**5.4**	**36.8**
6. NIG: Net inflation gain	**24.8**	**11.8**	**-9.1**	**-6.2**	**-4.8**	**-5.0**	**49.2**
Percent of mean CPS income[a]	**36.8**	**15.0**	**-10.9**	**-7.6**	**-5.7**	**-5.4**	**61.4**
B. Median values							
1. Median net worth							
1. %Change from asset price changes							
a. Liquid assets	**-6.3**	**-8.4**	**-2.6**	**-0.7**	**-1.4**	**-0.9**	**8.5**
b. Debt	**8.9**	**16.7**	**9.1**	**3.4**	**6.6**	**3.8**	**75.9**
c. Stocks, businesses, and bonds	**-0.4**	**1.5**	**-0.1**	**2.3**	**0.7**	**1.2**	**3.1**
d. Total %Change from inflation	**2.3**	**9.8**	**6.5**	**5.0**	**5.9**	**4.1**	**87.5**
e. IG: Inflation gain in dollars	**1.8**	**8.7**	**6.9**	**6.3**	**4.2**	**3.4**	**71.5**
2. Median SCF income							
IT: Inflation tax in dollars	**3.5**	**7.5**	**6.6**	**3.0**	**4.5**	**3.4**	**28.4**

3. NIG: Net inflation gain	-1.7	1.3	0.3	3.3	-0.3	0.0	43.1
Percent of median SCF income[a]	-3.4	2.4	0.5	6.1	-0.6	0.1	82.0
4. Median CPS income							
IT: Inflation tax in dollars	1.4	9.9	7.0	3.2	4.8	3.9	30.2
5. NIG: Net inflation gain	0.4	-1.2	-0.2	3.1	-0.6	-0.4	41.2
Percent of median CPS income[a]	0.7	-2.0	-0.3	5.1	-1.0	-0.6	68.8
C. Mean values for the top one percent of the wealth distribution							
Mean wealth of NW99100							
1. %Change from asset price changes							
a. Liquid assets	3.2	2.4	0.1	-0.2	-0.5	-0.1	2.9
b. Debt	0.9	0.9	0.4	0.2	0.3	0.2	4.5
c. Stocks, businesses, and bonds	-1.4	3.9	-0.1	4.1	1.2	2.0	7.3
d. Total %Change from inflation	2.7	7.2	0.4	4.1	1.0	2.1	14.7
e. IG: Inflation gain in dollars	290.6	938.6	78.1	934.3	183.8	593.6	1574.7
2. Mean SCF Income Top 1% of Wealth							
IT: Inflation tax in dollars	-271.2	74.6	112.6	144.7	47.3	119.6	227.7
3. NIG: Net inflation gain	561.8	864.0	-34.5	789.6	136.5	474.0	1347.0
Percent of group SCF income[a]	81.2	72.9	-2.3	57.4	8.9	27.9	146.7
D. Ratio of the Mean Wealth of the Top One Percent to Median Wealth							
1. Change in the actual ratio	15.1	26.3	8.0	91.5	65.8	-64.3	142.4
2. Change in the ratio from asset price changes	0.6	-3.5	-9.8	-1.5	-12.6	-6.6	-51.0
3. Percentage decomposition							
a. From asset price changes	3.8	-13.2	-121.9	-1.7	-19.2	10.2	-35.8
b. Residual	96.2	113.2	221.9	101.7	119.2	89.8	135.8

Source: author's computations from the SCF. Asset price change data are from Appendix Table 1.

Households are classified into wealth class according to their net worth.

Wealth and income figures are deflated using the Consumer Price Index CPI-U-RS.

a. Mean value over the period