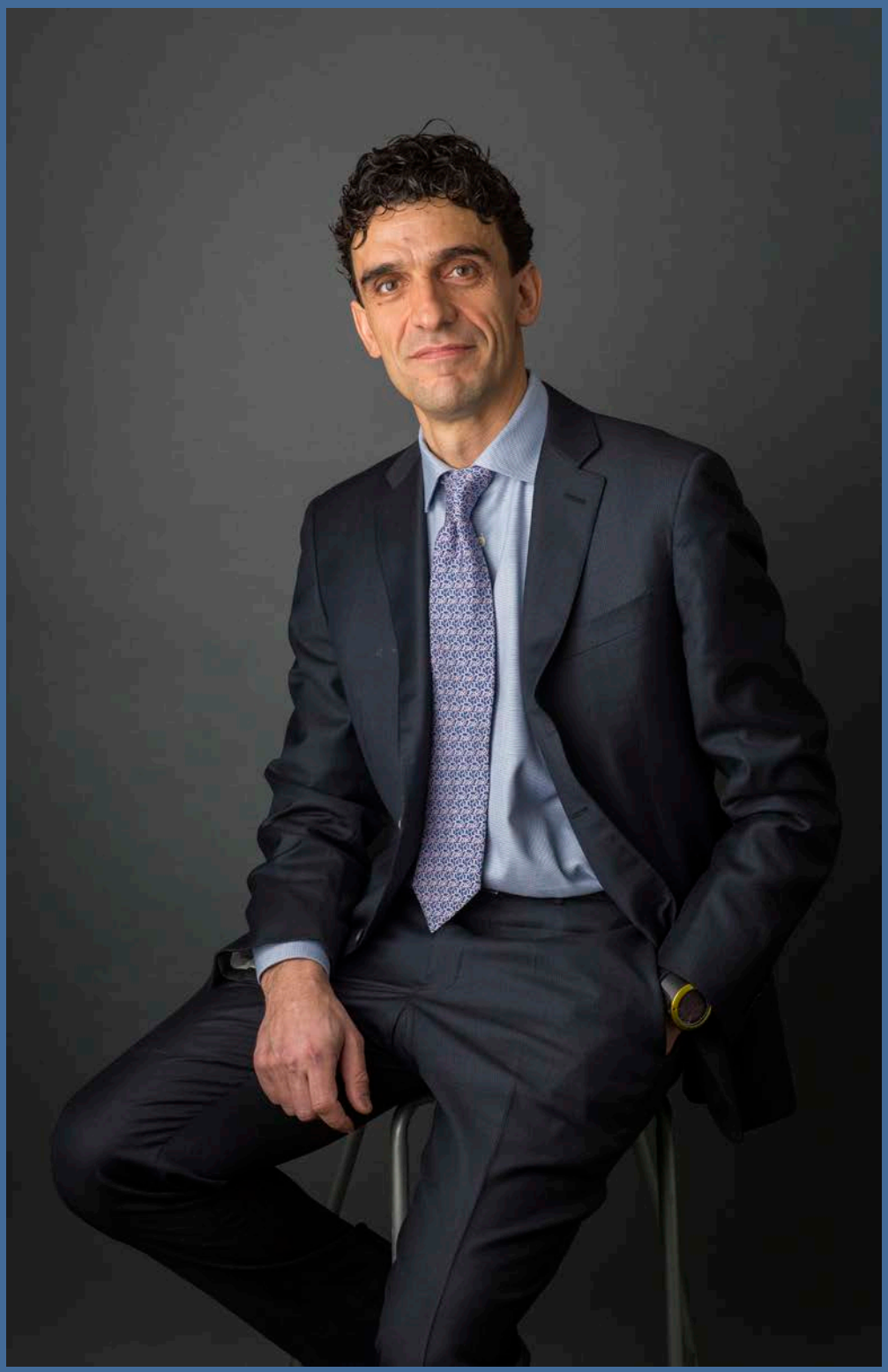

NIEDORF VISUALS

INEQUALITY, RECESSIONS AND RECOVERIES

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I BELIEVE THIS IS THE DEFINING CHALLENGE OF OUR TIME: MAKING SURE OUR ECONOMY WORKS FOR EVERY WORKING AMERICAN.

—PRESIDENT OBAMA

DEC. 4, 2013

INCOME INEQUALITY is at the center of recent economic and political debate in the United States. President Obama spoke recently of "a dangerous and growing inequality and lack of upward mobility" and stated that "making sure our economy works for every working American" is "the defining challenge of our time."[1]

There are at least two reasons for the prominence of inequality in political and economic discourse today: First, a widespread perception that U.S. income inequality is at a historical high. Second, a sense that this unprecedented inequality is—somehow—associated with the persistent fragility of the U.S. economy since the Great Recession of 2007-09.

Establishing a clear link between high inequality and weak recovery has been extremely difficult, and established economists disagree fundamentally on the direction of causality. Some scholars believe high inequality is a prime *reason* for the slow recovery, while others believe that increased inequality is a *consequence* of the slow recovery, which they contend is due instead to various structural changes.[2]

This essay hopes to contribute to this debate with a careful examination of a few empirical issues regarding inequality during and after the Great Recession:

- How does the current level of inequality compare with inequality over the past 45 years? Is it indeed true that U.S. inequality is at a historical high? How important are taxes and public transfers in shaping the evolution of inequality?
- How does the path of inequality during recovery from the Great Recession of 2007-09 differ from patterns seen in previous U.S. recoveries?
- How do current patterns of inequality relate to the distribution of expenditures across U.S. households? And how do they relate to the well-being of potentially vulnerable households?

INEQUALITY IN THE UNITED STATES: 1967-2012

The analysis begins with a look at patterns of U.S. income inequality from 1967 to 2012, a 45-year span that includes, of course, the Great Recession and subsequent recovery. Our data source is the March supplement to the Current Population Survey (CPS), an annual survey of about 60,000 households selected to represent the U.S. civilian noninstitutional population.[3]

Because of current interest in the Great Recession and recovery, which mostly affected households active in labor markets, the analysis selects all those households with at least one member between the ages of 22 and 60 years—an age group that comprises the greatest portion of the labor force. These households constitute about 80 percent of the total.[4]

The author thanks Doug Clement and Kei-Mu Yi for very useful comments and Simone Civale for excellent research assistance.

Two key indicators of inequality are reported: the 50/20 ratio, which summarizes inequality at the bottom levels of U.S. household income, and the 95/50 ratio, which looks at inequality at the top of the income range.[5]

These two ratios measure—albeit in simplified fashion—two key dimensions of the income gap. The 50/20 ratio captures the gap between the middle and poorest sections of the distribution; a high value for this ratio signals that the poorest fraction of the population is far from the average, and it could be a worrisome signal for policymakers since it indicates that a large number of households are in serious economic distress.

The 95/50 ratio, in contrast, measures the gap between the high echelons of the income spectrum and the median. An increasing value for this ratio indicates growing economic differences between "average," or "middle-class," households, on one hand, and those with significantly greater income, on the other. Significant movements in this ratio might lead to lower social cohesion and greater political tension, and could be affecting social mobility.

The focus is on two measures of income. The first is labeled *market income*, which includes wages, salaries, business and farm income, interest, dividends, rents and private transfers (such as alimony and child support), of all household members. This is a measure of income that would be available to the household, absent any government intervention.

The second is labeled *disposable income;* it includes market income, but adds in all government transfers (such as Social Security, unemployment insurance and welfare) and subtracts tax liabilities.[6] This is a measure of resources actually available to household members for spending. Differences in inequality between *market* income and *disposable* income capture the direct effect of government policies on resource distribution. Figures 1 and 2 report the evolution, from 1967 to 2012, of the 95/50 ratio (inequality at the top) and the 50/20 ratio (inequality at the bottom) for these two measures of household resources.

INEQUALITY AT THE TOP

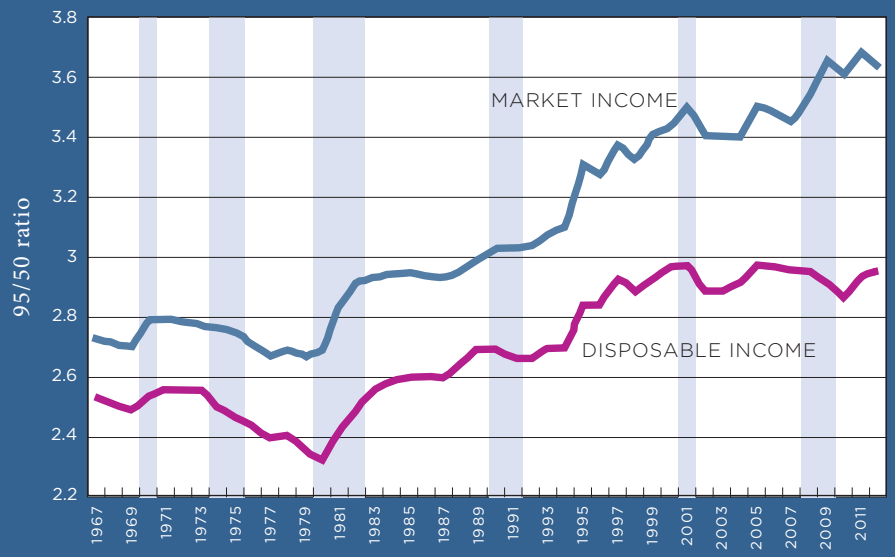
This analysis first examines trends in income inequality at the top, the 95/50, and focuses initially on *market* income. The blue line in Figure 1 shows that since the early 1980s, there has been a sharp increase in market income inequality at the top. That is to say, market income for the high part of the U.S. household distribution (the 95) has been growing much faster than market income for the middle (the 50).

More concretely, the median market income (in constant 2012 dollars) for a household of two adults and two children was around $68,000 in 1980, rising to $74,000 by 2012—an unimpressive growth rate of around 9 percent over the entire period.

The same measure of income for the 95th percentile went from around $180,000 in 1980 to $270,000 in 2012—greater than 50 percent growth during the same period. This dramatic difference between low growth in market income for the middle class and far greater growth for upper-class households is well-known and is a central reason inequality trends are so promi-

FIGURE 1

INEQUALITY AT THE TOP HAS BEEN GROWING SINCE THE EARLY 1980S, BUT LATELY TAXES AND TRANSFERS HAVE MODERATED ITS GROWTH



Note: Shaded areas represent years that contain at least one quarter classified as recession by the National Bureau of Economic Research.

Source: Author's calculation on data from Current Population Survey, U.S. Census Bureau

nent in current public discussion.

Less well-known are the dynamics of *disposable* income at the top, depicted by the red line in Figure 1. This line shows that over the 1980-96 period, disposable income inequality and market income inequality tracked quite closely.

After 1996, however, the two series started diverging: *Market* income inequality *kept increasing* at a steady pace, but *disposable* income inequality *remained roughly flat.* Indeed, over 1996-2012, market income of the top grew a total of 8 percent, while market income of the middle actually fell a total of 3 percent. Over the same period, however, disposable income of the top and the median displayed more similar growth rates of 8 percent and 5 percent, respectively.

This all suggests that despite increasing inequality in *market* income since the early 1980s, substantial government redistribution beginning in the mid-1990s, through taxes and transfers, has kept inequality levels in *disposable* household income quite stable. Interestingly, a big part of this redistribution appears to have taken place exactly during the Great Recession. Figure 1 displays this in the gap between the blue and the red lines; the market-disposable gap begins to open up in 2007 and has stayed at historical highs ever since.

Overall, the picture shows that there is always redistribution between the top and the mid-

DESPITE INCREASING INEQUALITY IN *MARKET* INCOME SINCE THE EARLY 1980S, SUBSTANTIAL GOVERNMENT REDISTRIBUTION BEGINNING IN THE MID-1990S, THROUGH TAXES AND TRANSFERS, HAS KEPT INEQUALITY LEVELS IN *DISPOSABLE* HOUSEHOLD INCOME QUITE STABLE.

dle (the blue line is always above the red one) and that this redistribution has been increasing over time, especially after 1996 (the gap between the blue and the red lines is increasing).

Moreover, the data suggest that although inequality at the top in *market* income is currently at its historical high, inequality in *disposable* income has actually been flat or slightly falling over the past 15 years. This is because government redistribution between the top and the middle (the distance between the blue and the red lines) is also at its historical high.

INEQUALITY AT THE BOTTOM

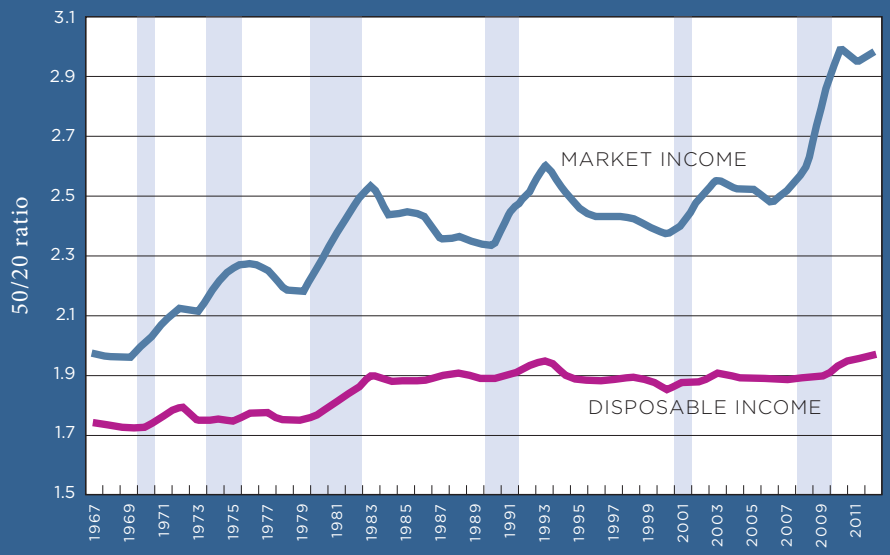
Shifting now to inequality at the bottom of the income range, focus first on *market* income inequality, represented by the blue line in Figure 2. The line shows strong cyclicality, meaning that in every economic recession during this period, the 50/20 ratio increased. Why? Recall that the defining feature of a recession is a sharp increase in the fraction of households with members facing job losses. These households experience large drops in earnings, while households whose earners keep their jobs experience little change in earnings during the recession. This implies that earnings (and thus market income) at the bottom fall relative to the median, and so the gap between median and bottom rises.

Possibly the most remarkable feature of the figure is that during the Great Recession, market income of the bottom of the distribution took, relative to the median, an unprecedented hit—a shock from which, so far, there are no signs of recovery. The 50/20 ratio—that is, inequality at the bottom of the distribution—in market income is still, three years after the recession's end, very close to its historical high.

Moving now to the inequality in *disposable* income (the red line), it is apparent that this measure of inequality is also cyclical: rising during recessions, declining in recoveries. But cyclicality in disposable income inequality is far less dramatic than it is for market income. This suggests that government programs, such as unemployment benefits, partially shield the bottom part of the income distribution from the loss of resources experienced during recessions.

FIGURE 2

INEQUALITY AT THE BOTTOM HAS JUMPED FOR MARKET INCOME, NOT FOR DISPOSABLE INCOME



Note: Shaded areas represent years that contain at least one quarter classified as recession by the National Bureau of Economic Research.

Source: Author's calculation on data from Current Population Survey, U.S. Census Bureau

THE IMPACT OF LONG-TERM UNEMPLOYMENT

One important question that Figure 2 raises is, *why* has the fall in market income of the bottom part of the distribution been so large? After all, peak unemployment during the Great Recession was not higher than the 1980-82 recession peak. Yet the income of the 20th percentile of the distribution dropped from around $33,000 in 2006 to about $25,000 in 2012, a fall of over 25 percent!

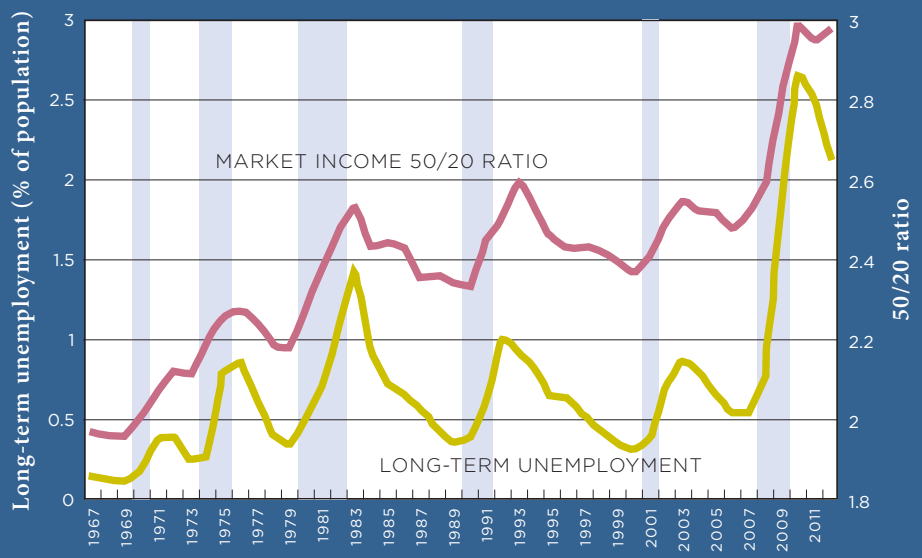
As a consequence, in 2012, the market income (in real terms) of the 20th percentile is the lowest it has ever been in the 45-year span of this analysis, 1967-2012.

To better understand this, the analysis compares the fraction of the population that is long-term unemployed (more than 27 weeks) to the 50/20 ratio in market income (the blue line from Figure 2). Note, in Figure 3, how the two lines track each other closely—they spike at the same time and decline over similar periods. Both data series display an unprecedented peak in the Great Recession, and both are still, three years out of the recession, well above their respective pre-2007 peaks.

The figure suggests that the dramatic income decline for the bottom part of the distribution

FIGURE 3

LONG-TERM UNEMPLOYMENT TRACKS INEQUALITY AT THE BOTTOM



Note: Shaded areas represent years that contain at least one quarter classified as recession by the National Bureau of Economic Research.

Source: Author's calculation on data from Current Population Survey, U.S. Census Bureau and Bureau of Labor Statistics

is not simply related to unemployment in its broadest sense, but more directly to long-term unemployment. Why is that the case? High rates of long-term unemployment mean that many households experience extended periods of time with little or no labor income, and this has a large impact on the yearly income of households at the bottom of the distribution.

THE ROLE OF TAXES AND TRANSFERS

The data presented thus far suggest that taxes and transfers have played an important role in preventing inequality in disposable income from rising during the Great Recession. As discussed above, many households experience income losses during recessions. These losses simultaneously reduce tax liabilities of the households involved and, furthermore, trigger government transfers, such as unemployment insurance benefits, to these households. Lower taxes and increased benefits during recessions thus imply that disposable income of the households suffering income losses will not fall as much as market income declines. Therefore, inequality in disposable income will not go up as much as inequality in market income.

Which of these policies, transfers or taxes, had the greatest impact on reducing inequality in disposable income during the Great Recession? And is it the mere fact that these policies were

ALTHOUGH INEQUALITY AT THE TOP IN *MARKET* INCOME IS CURRENTLY AT ITS HISTORICAL HIGH, INEQUALITY IN *DISPOSABLE* INCOME HAS ACTUALLY BEEN FLAT OR SLIGHTLY FALLING OVER THE PAST 15 YEARS. THIS IS BECAUSE GOVERNMENT REDISTRIBUTION BETWEEN THE TOP AND THE MIDDLE IS ALSO AT ITS HISTORICAL HIGH.

in place, or the fact that policy changes were implemented *during* the Great Recession, that has caused the increase in redistribution?

Figure 4 shows the impact of taxes, of transfers and of changes in tax codes implemented after 2006 on disposable income inequality. The left panel shows this impact at the top (the 95/50); the right panel shows the impact at the bottom (the 50/20).[7]

Several features are worth mentioning.

First, relative to transfer programs, the tax system is responsible for the largest inequality reduction, both at the top and at the bottom, and it plays a bigger role in reducing inequality at the bottom than at the top. This is because the U.S. tax system is very progressive at low levels of income, due to the Earned Income Tax Credit (EITC). This implies that households that fall, say, from the middle to the bottom of the distribution experience large reductions in tax liabilities.

Second, though their overall impact is smaller than that of taxes, transfers also play a larger role in reducing inequality at the bottom than at the top, and this is also due to the fact that the transfers that increased during the Great Recession were mostly received by lower-income households.

Finally, tax code changes play a bigger role in reducing inequality at the top than at the bottom. This is not surprising since eligibility for the tax rebate included in the 2008 stimulus plan was set at a high income point. This meant that both median- and bottom-income households (the 50 and the 20) but not the top (the 95) received the rebate; hence, the policy reduced inequality between the top and the middle but not between the middle and the bottom.

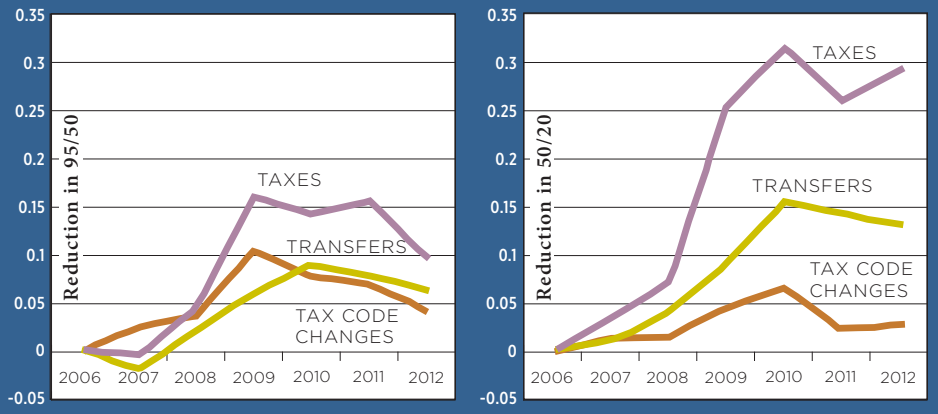
ASSESSING LONG-RUN TRENDS

One clear conclusion from this discussion is that inequality in market income at both the top and the bottom has been trending up and is, indeed, close to its postwar high. But the top and bottom trends have very different natures.

Inequality at the top has increased steadily through recessions and recoveries, suggesting

FIGURE 4

TAXES DIMINISHED INEQUALITY MORE THAN TRANSFERS; BOTH HAD GREATER IMPACT AT LOWER INCOME LEVELS



Note: A positive value indicates reduction in inequality—a value of 0.3, for example, means that a given policy is responsible for a reduction of 0.3 in the inequality index relative to its 2006 value.

Source: Author's calculation on data from Current Population Survey, U.S. Census Bureau

that structural changes in the economy have amplified the difference in returns to labor between the top and the middle.[8]

Market income inequality at the bottom has instead increased mainly during recessions, not recoveries, and is now at its historical high mainly because of a historically high level of long-term unemployment.

Disposable income trends tell a different story. At the top, inequality in disposable income appears stable over the past 15 years, due mostly to more highly redistributive U.S. tax policies since the mid-1990s. At the bottom, disposable income inequality also appears stable over the 1983-2009 period, due to transfers that have supported income of households in the bottom part of the distribution.

However, in the last two years of the sample—the 2010-to-2012 period of recovery since the Great Recession—inequality at the bottom has been increasing, and it is now as high as it has ever been over the past half century. This will be an important trend to monitor in coming years.

INEQUALITY IN RECESSIONS AND RECOVERIES: TWO CYCLES COMPARED

During the postwar period in the United States, the two largest business cycles were undoubtedly the 1980-82 recession and recovery, and the Great Recession of 2007-09 and its recovery.

IN THE 2010-TO-2012 PERIOD OF RECOVERY SINCE THE GREAT RECESSION, INEQUALITY AT THE BOTTOM HAS BEEN INCREASING, AND IT IS NOW AS HIGH AS IT HAS EVER BEEN OVER THE PAST HALF CENTURY. THIS WILL BE AN IMPORTANT TREND TO MONITOR IN COMING YEARS.

In both recessions, unemployment peaked at around 10 percent, but unemployment since the 2007-09 recession has displayed a slower recovery. In 1985, five years after the start of the 1980-82 recession, unemployment had fallen from 10 percent to 7.2 percent, while in 2012, five years after the start of the Great Recession, unemployment was still quite high, at 8.1 percent. This section assesses how the two business cycles compare in terms of household resources and their distribution.

Table 1 compares market income and disposable income for three points of the distribution (bottom 20 percent, median and top 95 percent) at three points in time: before the recessions (1979 and 2006), at the peak of the recessions (1982 and 2009) and three years into the recoveries (1985 and 2012).

MARKET INCOME

The first three columns of panels A and C show that the two recessions had similar impacts on the distribution of market income. The top was little affected (1 percent less market income in 1982, 4 percent less in 2009), the middle was affected significantly (down 10 percent in 1982 and 9 percent in 2009) and the bottom took the biggest hit (minus 20 percent in both recessions). Consequently, inequality in market income rose significantly, both at the bottom and at the top.

But the fourth and fifth columns of each panel show an important difference between the two recovery periods. In the post-2009 recovery, all three points of the market income distribution experienced further decline, with the bottom experiencing the largest fall. In marked contrast, the post-1982 recovery benefited all three points of the distribution similarly, with income increases of about 10 percent.

So, the two cycles display remarkably similar patterns for the evolution of inequality in market income during the recession, but not during the recovery phase. After the 1980-82 recession, market income grew and inequality stabilized, while after the 2009 recession, most incomes have stagnated, with the bottom of the distribution continuing to lose ground relative to the median.

TABLE 1

INCOME DISTRIBUTION IN TWO RECESSIONS AND RECOVERIES

2007–09 RECESSION AND RECOVERY

A. MARKET INCOME

	2006	2009	2006–09 Change	2012	2009–12 Change	Overall Change
95th Percentile	$289.7	$277.8	-4%	$270.2	-3%	-7%
Median	$ 83.2	$ 76.0	-9%	$ 74.5	-2%	-11%
20th Percentile	$ 33.6	$ 26.9	-20%	$ 25.0	-7%	-26%

B. DISPOSABLE INCOME

95th Percentile	$220.1	$ 211.8	-4%	$208.6	-2%	-5%
Median	$ 74.2	$ 72.6	-2%	$ 70.6	-3%	-5%
20th Percentile	$ 39.4	$ 38.4	-3%	$ 35.9	-6%	-9%

1980–82 RECESSION AND RECOVERY

C. MARKET INCOME

	1979	1982	1979–82 Change	1985	1982–85 Change	Overall Change
95th Percentile	$191.8	$189.6	-1%	$209.5	11%	9%
Median	$ 71.9	$ 65.0	-10%	$ 71.1	9%	-1%
20th Percentile	$ 33.1	$ 26.3	-20%	$ 29.1	11%	-12%

D. DISPOSABLE INCOME

95th Percentile	$150.7	$141.9	-7%	$157.2	11%	4%
Median	$ 64.0	$ 56.8	-11%	$ 60.4	6%	-6%
20th Percentile	$ 36.7	$ 30.8	-16%	$ 32.2	5%	-12%

Note: All figures are in thousands of 2012 dollars and refer to income of a household with two adults and two children.

Source: Author's calculation on data from Current Population Survey, U.S. Census Bureau

THE TWO CYCLES DISPLAY REMARKABLY SIMILAR PATTERNS FOR THE EVOLUTION OF INEQUALITY IN MARKET INCOME DURING THE RECESSION, BUT NOT DURING THE RECOVERY PHASE. AFTER THE 1980-82 RECESSION, MARKET INCOME GREW AND INEQUALITY STABILIZED, WHILE AFTER THE 2009 RECESSION, MOST INCOMES HAVE STAGNATED, WITH THE BOTTOM OF THE DISTRIBUTION CONTINUING TO LOSE GROUND RELATIVE TO THE MEDIAN.

DISPOSABLE INCOME

The two recessions differed even more dramatically in the evolution of disposable income (panels B and D). In the first phase of the 2007-09 recession, disposable income of all three points of the distribution fell by about the same amount (4 percent for the top, 2 percent for the median, 3 percent for the bottom), suggesting that government redistribution policies significantly softened the blow of the recession for the middle and the bottom.

In the 1980 recession, government redistribution had far less impact: Disposable income of the median declined by 11 percent, the same drop as in its market income, and disposable income of the bottom fell 16 percent, slightly less than the fall in its market income (20 percent). The lesson: Government redistribution through taxes and transfers kept disposable income inequality in the Great Recession basically stable, while this did not happen in the earlier recession, when inequality went up significantly.[9]

During the post-2009 recovery, disposable income of all sections of the distribution is still well below prerecession levels. But disposable income of the bottom has fallen further behind (-6 percent) relative to the median and the top (-3 percent and -2 percent), suggesting that government redistribution policies, while mitigating inequality, have not completely prevented the dramatic fall in the bottom of market income distribution from affecting the distribution of disposable income.

During the post-1982 recovery, by contrast, government policies induced more disposable income dispersion than that arising from market income. Comparison of column 5 in panels C and D of Table 1 shows that, even though during the recovery all segments of the distribution experienced similar recovery rates in market income (around 10 percent), the distribution of

disposable income grew more unequal. The top experienced faster growth (11 percent) than the bottom (5 percent) or the median (6 percent).

Overall, two main differences between these business cycles are highlighted.

The first central difference concerns *market* income: The Great Recession has been followed by a diffused *decline* or *stagnation* in market income, while the 1980-82 recession was followed by robust *growth* (over 10 percent) throughout the market income ranges.

The second key difference relates to *disposable* income. Throughout the early 1980s recession and recovery, the distribution of disposable income of U.S. households grew significantly more unequal, both at the top and at the bottom. In contrast, during the 2007-12 cycle, the disposable income distribution has been more stable because government policies have supported the income of median and bottom households.

From a policy perspective, a worrisome feature of the recent business cycle is that the bottom part of the disposable income distribution is still, six years since the start of the Great Recession, 9 percent below the prerecession level (see the entry in panel B's bottom row, last column). But perhaps an even more disturbing fact is that nearly the entire distribution is still 5 percent below the prerecession level (last column of panel B), suggesting a generalized stagnation of resources available to the majority of U.S. households.

HOUSEHOLD EXPENDITURES DURING AND SINCE THE GREAT RECESSION

This section moves beyond the concept of income and looks at the distribution of expenditures. There are two reasons to do so. First, spending could be a better gauge of true economic well-being than current income because it may best reflect (more closely than income flows) the *lifetime* resources available to a household. Expenditures respond to changes in household wealth and future income prospects, variations not captured by current income flows. Since asset prices and labor market prospects declined significantly during the Great Recession, expenditure patterns might therefore give us better information on the recession's true distributional impact.

A second reason is the argument made by many that weak spending by low- and middle-income households in particular has been an important factor in the weak recovery since 2009.[10] A close look at the distribution of expenditures can clarify the degree to which these two groups account for overall spending declines.

Our analysis is based on household-level data from the Consumer Expenditure (CE) survey.[11] Quarterly data are grouped into top, middle and bottom expenditure groups, similar to the income analysis.[12] For each group, average total quarterly expenditures are computed.[13]

The top panel of Figure 5 reports the average real expenditures (in 2012 dollars) of households in the bottom part of the disposable income distribution. Not surprisingly, expenditures fell during the Great Recession, and similar to the pattern of disposable income, they are still, in the first quarter of 2013, about 10 percent below their prerecession level.

TWO MAIN DIFFERENCES BETWEEN THESE BUSINESS CYCLES ARE HIGHLIGHTED.

THE FIRST CONCERNS *MARKET* INCOME: THE GREAT RECESSION HAS BEEN FOLLOWED BY A DIFFUSED *DECLINE* OR *STAGNATION,* WHILE THE 1980-82 RECESSION WAS FOLLOWED BY ROBUST *GROWTH.*

THE SECOND DIFFERENCE RELATES TO *DISPOSABLE* INCOME. THROUGHOUT THE EARLY 1980S RECESSION AND RECOVERY, THE DISTRIBUTION OF DISPOSABLE INCOME OF U.S. HOUSEHOLDS GREW SIGNIFICANTLY MORE UNEQUAL.

IN CONTRAST, DURING THE 2007–12 CYCLE, THE DISPOSABLE INCOME DISTRIBUTION HAS BEEN MORE STABLE BECAUSE GOVERNMENT POLICIES HAVE SUPPORTED THE INCOME OF MEDIAN AND BOTTOM HOUSEHOLDS.

NEARLY THE ENTIRE DISTRIBUTION IS STILL 5 PERCENT BELOW THE PRERECESSION LEVEL, SUGGESTING A GENERALIZED STAGNATION OF RESOURCES AVAILABLE TO THE MAJORITY OF U.S. HOUSEHOLDS.

The bottom panel shows average consumption expenditures for the middle and the top as a ratio of the average expenditures of the group immediately below. Both ratios are bigger than 1, showing, as expected, that the middle spends more than the bottom and that the top has higher expenditures than the middle.

But one remarkable feature of the figure is that the gap across the three groups—that is, inequality in consumption expenditures—is stable across the Great Recession and recovery.[14]

In sum, the figure certainly displays stagnation of U.S. spending over the past six years, but it also suggests that the stagnation is accounted for by *all* segments of the income distribution, *including* the top 5 percent.[15] In essence, then, it appears to contradict the argument that spending declines by the least well-off have contributed disproportionately to the weak economic recovery.

RECESSION'S IMPACT ON INDIVIDUAL HOUSEHOLD DYNAMICS

So far, the analysis has focused on repeated cross-sections of the U.S. household income distribution—that is, "snapshots" of the nation's resource distribution at different points in time.

These snapshots are important indicators of economic disparity, but they do not tell us how *individual* households are faring over time, which is important information, particularly during times of instability, like the Great Recession.

This is because the households in a given group of the income distribution change every year. For example, when the market income of the bottom 20 percent of the population falls, the identity of households that actually experienced the income drop is unknown, and thus an assessment of the consequences of that decreased income on a specific household's well-being cannot be made. The use of panel data—data sets that collect information from the same set of families for many years—can overcome this problem. Unlike cross-sectional data with broad categories whose members change when their characteristics change, panel data allow us to understand how individual households are faring.

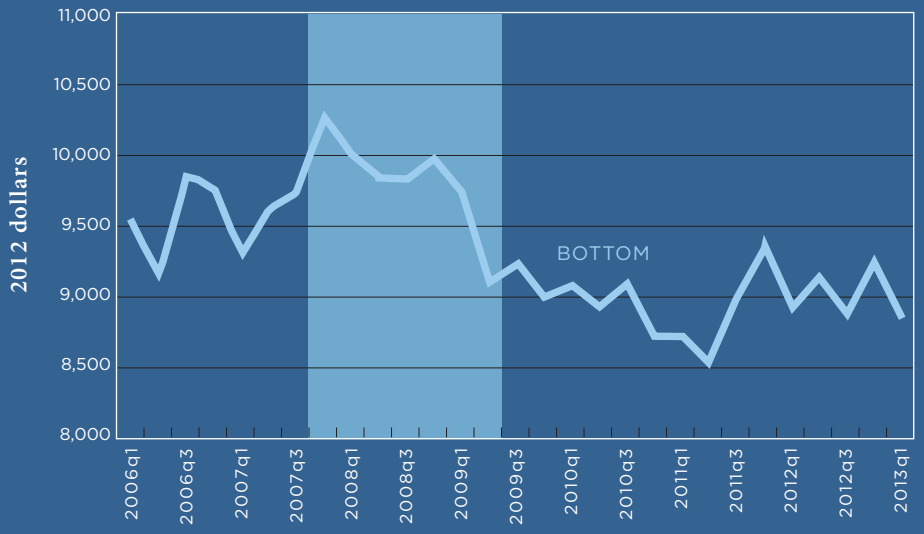
This section uses data from the Panel Study of Income Dynamics (PSID), the longest-running representative household panel study in the United States.[16] To study the impact of the Great Recession on individual households, a group of households that are particularly vulnerable to recessionary shocks is selected: households whose head was unemployed when surveyed and that also reported a drop in market income (relative to the previous survey) of at least 10 percent. For these "vulnerable" households, several economic statistics are reported (see Table 2).

Starting with the second column, notice how the group of vulnerable households was only 2.3 percent of the sample in 2006 (before the start of the 2007-09 recession), but it more than doubled in size by the end of the recession in 2010. The third column shows how the size of the drop in market income of this vulnerable group increased over time, from -46.1 percent pre-

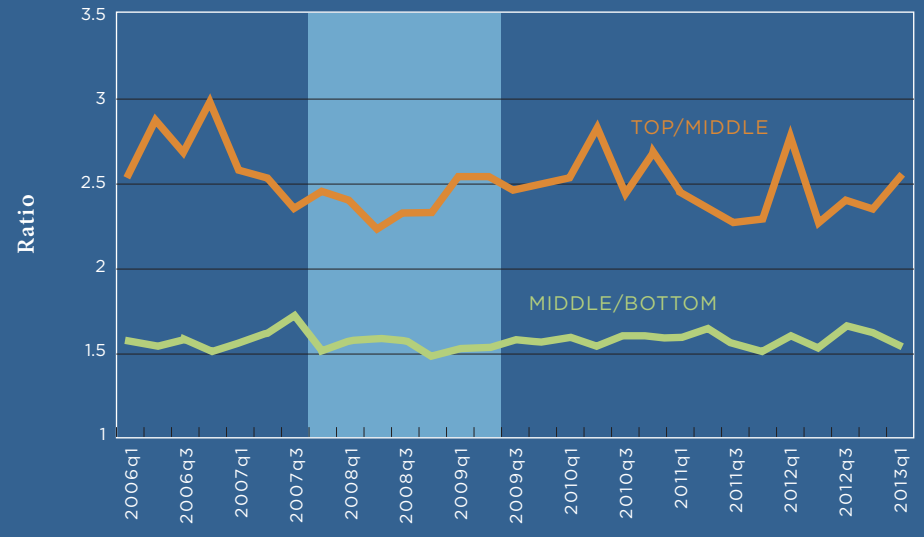
FIGURE 5

HOUSEHOLD EXPENDITURES DURING THE GREAT RECESSION AND RECOVERY

Expenditures of bottom 20% of disposable income distribution



Relative expenditures of top, middle and bottom of disposable income distribution



Notes: Shaded areas represent quarters classified as recession by the National Bureau of Economic Research.

See endnote 12 for exact definitions of top, middle and botttom.

Source: Author's calculation on data from Consumer Expenditure Survey, Bureau of Labor Statistics

TABLE 2

VULNERABLE HOUSEHOLDS DURING THE GREAT RECESSION

Unemployed head of household, and at least 10% market income decline

		% Change			Level (2012 $)
Year	% of Sample	Market Income	Disposable Income	Expenditures	Last Disposable Income
2006	**2.3%**	**-46.1%**	**-35.9%**	**-4.2%**	**$35,000**
2008	**3.6%**	**-44.6%**	**-21.2%**	**-9.2%**	**$45,000**
2010	**5.1%**	**-57.4%**	**-25.6%**	**-15.5%**	**$51,000**

Source: Author's calculation on data from the Panel Study of Income Dynamics

recession to -57.4 percent at the end of the recession. In sum, the vulnerable group grew larger (not surprisingly, with increased unemployment) and was also hit by bigger income shocks.

The next columns show how *disposable* income also dropped, but by much less than market income, suggesting that government redistribution reduced the resource losses of vulnerable households. Notice also how, over the course of the recession, the size of disposable income shocks is reduced (-35.9 percent to -25.6 percent), despite the increase in the size of market income shocks. This shows once again the growing role of government redistribution policy during the Great Recession.

Perhaps the most interesting finding here is the response of expenditures. The next-to-last column shows that in 2006, a 35.9 percent drop in disposable income resulted in a mere 4.2 percent decline in expenditures. As noted in Perri and Steinberg (2012), one possible reason for the small response of expenditure to income drop is that the wealth of U.S. households was high in 2006, so even vulnerable households could borrow or run down their assets (e.g., not fully maintain their houses or cars) to keep their expenditures relatively smooth despite the income drop.

In 2010, however, a smaller 25.6 percent drop in disposable income was associated with a much more significant 15.5 percent drop in spending, suggesting that after the Great Recession, U.S. households no longer had a wealth buffer against income shocks. It is also conceivable that the increasing duration of unemployment over the course of the recession for U.S. households made job loss appear to be more permanent, on average; this perception would induce households to reduce expenditures more, as a precaution, in response to an unemployment spell.

CONCLUSIONS

This analysis has shown that inequality in market income among U.S. households is, in the aftermath of the Great Recession, at its postwar highs, at both the bottom and the top of the distribution. The increase in inequality at the bottom seems tightly linked to the very large increase in long-term unemployment, which has depressed income for the bottom.

The analysis has also shown that, exactly during the Great Recession, the redistributive scope and impact of government tax and transfer policies have increased to historic highs, again at both the bottom and the top, so that over the past five years, disparities in disposable income have not grown as much as disparities in market income.

The Great Recession and its aftermath were then compared with the 1980-82 recession and recovery: The recent recession has had a bigger impact on average income growth but, because of the stronger role played by government redistribution policies, a smaller impact on income inequality.

After the 1980-82 recession, incomes of U.S. households recovered quickly but in an uneven fashion, with the top recovering much faster than the bottom. In contrast, the Great Recession has left U.S. households only marginally more unequal—due to the mitigating effect of redistribution policies—but uniformly poorer.

Generalized stagnation during and since the Great Recession is apparent also in the distribution of expenditures, which fell uniformly for all income levels.

The final part of this report followed households through time to ask whether redistribution shielded *individual* households from adverse shocks to market resources. The answer is no. As the Great Recession and its recovery progressed, there was more redistribution, but households appear to have lost their ability to self-insure against shocks, declines in disposable income have been more frequent and these declines have adversely affected households' spending and, hence, their standard of living.

Obviously, the data and analysis conducted here do not tell us whether current U.S. redistribution through taxes and transfers is too high or too low. They tell us that the disposable income of the bottom 20 percent is now, relative to the rest of U.S. society, at its lowest level in the past 45 years. Yet they also tell us that the U.S. system of taxes and transfers currently does much more redistribution across households than ever before in that same period.

These facts might prove useful to policymakers in the difficult decisions that lie ahead in the design, implementation and evaluation of economic policies, such as fiscal expenditures, tax reforms and possible changes to long-term unemployment benefits and other transfer programs, in their efforts to revitalize economic growth and ensure its broad diffusion across U.S. households.

APPENDIX

INEQUALITY AT THE VERY TOP OF THE INCOME DISTRIBUTION

An important caveat is that the measures of income inequality at the top presented in Figure 1 are conceptually different from measures that focus on inequality at the very top of the distribution, such as those computed by Piketty and Saez (2003), and very often cited in the popular press. There are three key differences. The first is that Piketty and Saez focus on inequality in income of "tax units," while this analysis focuses on inequality of size-adjusted household income.[17] As explained by Burkhauser, Larrimore and Simon (2012), using tax units instead of households tends to give a bleaker picture of the performance of the middle class relative to the top. This is because, over the period considered here, there has been a significant increase in the fraction of households in which adult members live together (and share resources) but are not married. Treating adult members of these households as separate tax units tends to overstate the true increase in inequality of resources.

The second difference is that Piketty and Saez focus on differences between tax units at extremely high income levels (e.g., the top 0.1 percent) and the rest of the population. "Top coding" restrictions in the CPS data—meaning that these data are grouped in a broad "$X thousand and above" category that doesn't specify an exact dollar figure for that top household—prevent analysis of these differences. Therefore, the focus here is only on the differences between the top 5 percent and the median—also a relevant measure of income polarization in a population.

The last difference is that Piketty and Saez focus on *market* income, while this analysis looks at both market income *and* disposable (post-government-policy) income, which includes taxes and transfers. Although transfers do not play a very important role in redistribution of resources at the top, taxes definitely do, and, as discussed here, they have done so increasingly since the Great Recession.

ENDNOTES

[1] See the president's remarks at whitehouse.gov/the-press-office/2013/12/04/remarks-president-economic-mobility.

[2] See Stiglitz (2013) for an example of the former. Taylor (2013) is representative of the opposite perspective.

[3] This term, defined by the Bureau of Labor Statistics, refers to "persons 16 years of age and older residing in the 50 states and the District of Columbia, who are not inmates of institutions (e.g., penal and mental facilities, homes for the aged), and who are not on active duty in the Armed Forces."

[4] To account for different household sizes, this analysis divides both measures of household income by the number of adult equivalents in the household. Following the commonly used OECD scale, the number of adult equivalents in a household is a weighted sum of household members in which the first adult is given a weight of 1, each additional adult has a weight of 0.7 and each member under the age of 17 has a weight of 0.5.

[5] To understand the meaning of 20, 50 and 95, list the dollar incomes of all U.S. households from lowest to highest. The 20 refers to the income of the household that is higher than 20 percent of all households. Similarly, the 50 is the income of the household that is higher than 50 percent of households (i.e., the median income), and the 95 is the income of that household that exceeds 95 percent of all U.S. households.

[6] The CPS does not provide data for tax liabilities for all years in the sample. Therefore, tax liabilities are here computed for each household using TAXSIM, a widely used tax simulation program provided by the National Bureau of Economic Research. In years for which tax liabilities from the CPS are available, summary measures of tax liabilities in the CPS are very similar to the measures computed using TAXSIM.

[7] The figure is derived by first computing disposable income *excluding* all government transfers. The difference between inequality in *disposable* income with and without transfers pinpoints the separate impact of transfers. The difference between disposable income inequality without transfers (but after taxes) and *market* income inequality (which examines income before taxes) isolates the role of the tax system. Second, disposable income is computed using an *alternative tax policy*. In particular, the 2006 tax code is used to compute tax liabilities by households from the 2007 start of the Great Recession up through the end of 2012. Several changes to the U.S. tax code after 2006 likely affected disposable income inequality. Possibly the most significant was the tax rebate included in the stimulus plan of 2008, which rebated $600 (for a single person) or $1,200 (for a married couple filing jointly) to households with income below $75,000 ($150,000 for couples filing jointly). The difference between *actual* inequality in disposable income and in disposable income calculated using the 2006 tax code identifies the inequality impact of tax code changes since the recession's start. To highlight the change of the impact of the policies during the Great Recession, their impact is set at 0 in 2006.

[8] For the early part of the sample, researchers (see, e.g., Krusell et al. 2000) have assessed an important role of increasing returns to education, possibly due to skill-biased technical change—that is, greater use of technologies that require more worker education and training. For later periods, researchers have suggested the disappearance of routine jobs as a reason for the poor performance of middle part of the distribution (see, e.g., Jaimovich and Siu 2012).

[9] In terms of policies, perhaps the most important difference between the two recessions is the EITC, which was not present during the 1980-82 period.

[10] See, for example, Stiglitz (2013) and Cynamon and Fazzari (2014).

[11] The CE is a survey of households selected as representative of the U.S. population. Each quarter the survey reports, for the cross-section of households interviewed (about 6,000), detailed demographic characteristics for all household members, detailed information on consumption expenditures for the three-month period preceding the interview and information on income, hours worked and taxes paid over a yearly period. The focus here is on a sample that starts in the first quarter of 2006 (before the start of the Great Recession) and ends in the first quarter of 2013, the most recent available from the CE.

[12] The "top" is households with disposable income above the 95th percentile of the distribution; the "middle" is households with disposable income between the 45th and 55th percentile and the "bottom" is households with disposable income below the 20th percentile. (All income figures are household-size adjusted.)

[13] Specifically, this analysis includes expenditures on nondurable goods and services (food and beverages, utilities and fuels, education, medical supplies, clothing and personal care, reading, transportation, entertainment and shelter services) and on durables (transportation equipment, housing, furniture, jewelry and durable entertainment goods).

[14] This result is robust to different ways of dividing the three groups. When the analysis divides the sample using market income or consumption expenditures, a fall in overall expenditures is still observed, but with stability of inequality in expenditures.

[15] All segments here means all households represented in the CE survey. Ultra-high-income households are not well-represented in the survey, so little is known about how their expenditure patterns compare with the rest of society.

[16] The PSID data sets provide a wide variety of information on income, employment and expenditures for many households that are followed at a biannual frequency. The analysis concentrates on the years 2004, 2006, 2008 and 2010 to study the impact of the Great Recession on individual households. As for the CPS data set, the analysis selects only households that have at least one member between the ages of 21 and 60. Inequality statistics computed on the PSID are similar to those computed on the CPS and CE data (see Heathcote, Perri and Violante 2010). We use the PSID in this section not because it has a different coverage, but simply because it has the panel dimension that CPS and CE lack.

[17] A household with two nonmarried members living together is entered as a single unit in CPS data, but as two units in the Piketty-Saez data.

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