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The Demography of Inequality: Income, Wealth and Consumption, 1989-2010

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Growing interest in economic inequality continues to dominate the headlines. In 2013, President Obama spoke about inequality and mobility, reiterating a theme from earlier speeches. He said: "…this increasing inequality is most pronounced in our country, and it challenges the very essence of who we are as a people." And Janet Yellen (2014), in a speech to the Boston Federal Reserve Bank, suggested that both income and wealth inequality were rising in the United States. In terms of consumption, the preferred welfare measure for most economists, Bill Gates (Gates (2014)), commenting on Piketty (2014) suggested that "It's not that we should ignore the wealth and income data. But consumption data may be even more important for understanding human welfare."

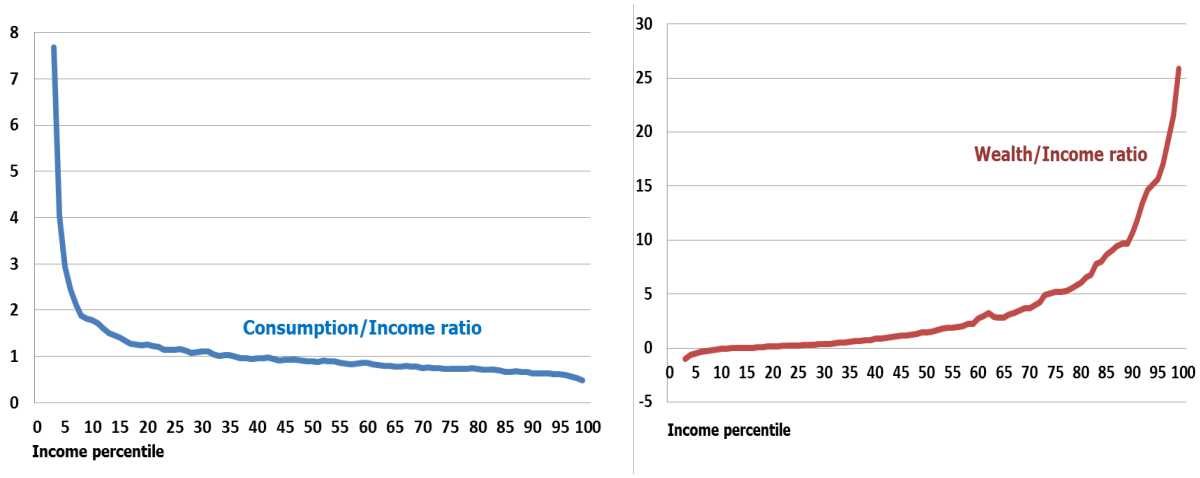
Most research shows, and Yellen (2014) stresses, there has been a large increase in income and wealth inequality. Saez and Zucman (2014) and Wolff (2014) stress that income and wealth inequality are highly related. Piketty (2014) makes this point more dramatic that the increase in income inequality yields more wealth inequality, which in turn increases income

[1] The views expressed in this research, including those related to statistical, methodological, technical, or operational issues, are solely those of the authors and do not necessarily reflect the official positions or policies of the Bureau of Economic Analysis, or the Federal Reserve Board of Governors, Stanford University or the University of Wisconsin-Madison. Financial support from the Russell Sage Foundation is much appreciated. The authors accept responsibility for all errors of omission or commission.

inequality. Fisher et al. (2014) find that consumption inequality is about 80 percent large as disposable income inequality and that the rise in consumption inequality was two-thirds that of income inequality in the United States from 1985 to 2011. Not only is there great interest in these three dimensions of inequality -- income, wealth and consumption, there is evidence that inequality is increasing in all three dimensions. And the relationship between income and wealth inequality is critical, and these two in turn determine consumption inequality.

The differences in income, consumption and wealth across the income distribution provide some insight. Figure 1 confirms other research (e.g. Fisher et al (2014)) that the average propensity to consume (APC) falls with income and is extremely high for the low-income households. Alternatively, wealth increases with income, and yields wealth to income ratios of 25 at the highest percentiles. As a result, consumption inequality is less than income inequality, and income inequality is less than wealth inequality. Figure 1 indicates that households at the bottom of the income distribution appear relatively better off using consumption because consumption exceeds income. And high income households are better off using wealth to measure relative well-being. The takeaway is that our perception of relative well-being changes depending on whether we use consumption, income, or wealth. We take this idea further and examine how our perception of relative well-being by the demographics of the population – age, family structure, education and race/ethnicity – are differentially impacted by these distributions. Then we investigate whether increasing inequality has differentially impacted these demographic groups between 1989 and 2010.

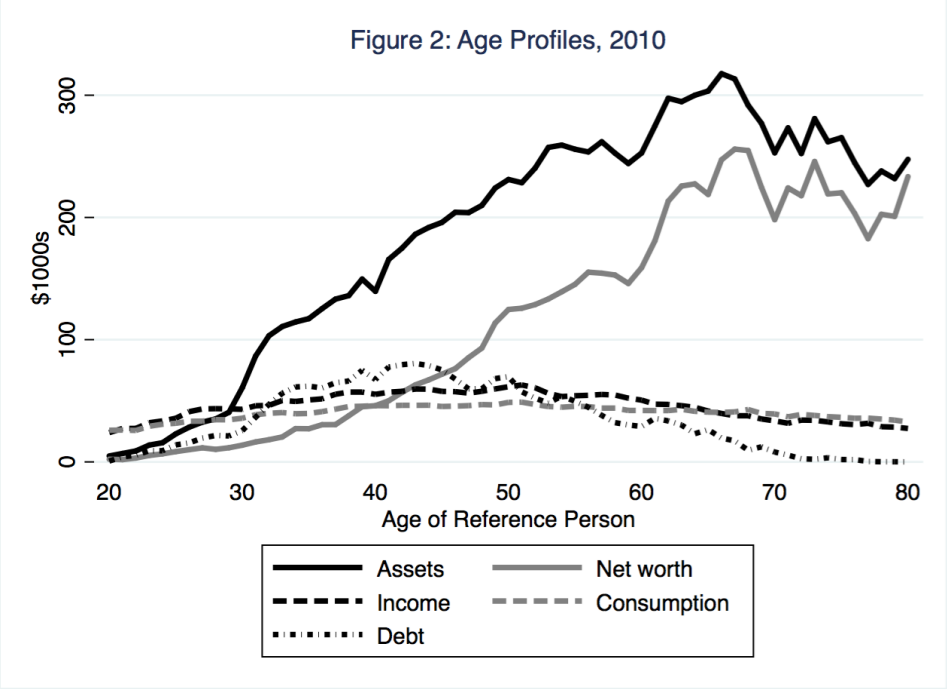
Figure 1: Consumption to Income and Wealth to Income Ratios by Percentile of Income, 2010



Many have estimated the flow value of wealth to add to income in order to incorporate wealth into a measure of economic well-being (Burkhauser, et al., 2012; Smeeding and Thompson, 2011). Regardless of the flow values, the build-up of stocks of wealth presents opportunities and advantages (or in the case of debt, disadvantages) that may in the end be more important than any flows, as Piketty (2014) argues. Wealth buildup takes place when large shares of national income go to top income families (top 3-5 percent) who have average propensities to consume (APC's) of around 0.5. Hence, with high wealth and high income, but not translated in into high consumption, the question is what happens to this income and how is economic well-being affected for these high-income and high-wealth households. None of the current analyses of inequality have fully captured the full effect of net worth (assets, debt, and wealth) on consumption and income by considering all three measures of well-being simultaneously for the same households. We know, however, that each gives a differing and important perspective on the distribution of economic well-being when considering the effects of inequality on say education, intergenerational mobility, or health.

Regardless, if the distribution of the population across the distributions of income, wealth and consumption are the same, one can summarize the demography of inequality—where various groups reside in the distribution-- by considering just one measure. But they are not the same and therefore multiple dimensions need to be considered. The most obvious demographic where income, consumption, and wealth paint a different picture is age. As shown in Figure 2, all three measures display a hump-shaped age profile, with income rising until middle age and then falling, and consumption following a similar, although less pronounced, hump-shaped pattern. With these patterns, younger ages have consumption greater than annual income (and greater than the average lifetime income), which suggests that consumption is a better proxy for unobserved permanent income. Similarly, older ages consume more than their annual income, again suggesting that consumption is a preferred measure. Net worth, assets, and debt all show a hump-shaped life-cycle pattern. While the peak for income and consumption is around age 50, the peak for net worth occurs later in life – around age 65. And debt peaks around age 42. This suggests that evaluating the differences by age for all three measures is critical in determining household's economic well-being.

Figure 2: Income, Consumption, and Wealth by Age



This paper examines the demography of the distribution of income, wealth, and consumption using data that obtains measures of both income and consumption from the same set of individuals, closely aligned with analogous income and wealth data from a different survey. This paper develops a set of inequality measures that show increases in inequality during the 1989-2010 period, using the Consumer Expenditure (CE) Survey and the Survey of Consumer Finances (SCF).[2] Our analysis addresses the demographic groups (e.g., by age and race) that are relatively worse off and whether the recent increase in inequality differentially affected different demographic groups. We also study how the results differ using income, consumption, and wealth and investigate further when the results differ depending on the resource measure. Each resource measure provides useful information by themselves and in combination with one another.

[2] We will soon extend to 2013 with both surveys and hopefully merge them formally

Methodology and Data

Given the different definitions of income and consumption in the literature, it is important to use a consistent theoretical framework to define these measures. The most comprehensive concept of income and consumption is drawn from the suggestions of Haig and Simons where income represents the capacity to consume without drawing down net worth. Economists have used the equation that income (Y) equals consumption (C) plus the change in net worth (ΔW) as the working definition of Haig-Simons income. No studies use this definition to the fullest extent because no household survey has the necessary variables to create a full measure of Haig-Simons income.[3] Our research goal is to have measures of disposable income, consumption, and net worth that are accurate and as closely linked as possible (given the data limitations) to compare the demographic characteristics of household by resource measure.

No one survey has a long time series of income, consumption, and wealth.[4] Consequently we use two surveys: the best survey for consumption, the Consumer Expenditure (CE) Survey; and, the best survey for wealth, the Survey of Consumer Finances (SCF). Both provide comparable measures of income, and we use income from the SCF for the income results in this paper. The following sections describe how we use the two surveys.

The Consumer Expenditure Survey

We use the CE Interview Survey data, to compute measures of consumption and income inequality. The CE survey has been a continuing quarterly survey since 1980. Data are collected

[3] Smeeding and Thompson (2011) discuss the Haig-Simons income measure and construct a "More Complete Income" measure that attempts to account for the realized and unrealized returns on asset income.
[4] The Panel Study of Income Dynamics also includes a comprehensive consumption measure, but only since 2005.

from consumer units[5] five times over a 13-month period. The second through fifth interviews are used to collect expenditures for the previous three months; for example, a consumer unit that is visited in April reports expenditures for January, February and March.[6] To match the data from the SCF, we begin our analysis with 1989.

Using the CE data, we construct both disposable income and consumption. Disposable income is money income (income from employment, investment, government transfers, and inter-household transfers of money) plus the value of food stamps and federal tax credits less the cost of federal and state income taxes and FICA taxes. Consumption is total spending on all goods and services for current consumption (excluding life insurance, pensions, and cash contributions) less the purchase price of vehicles and the expenditures for home-ownership plus the service flow from vehicles, the reported rental equivalence of home-ownership and the value of federal government rental assistance. As with other research on consumption, we do not include goods obtained through barter, home production, or in-kind gifts from other households or organizations. In contrast to other research, however, our measure of consumption includes all other components of consumption-expenditures that are used for current consumption, and does not exclude education, health care expenses or other durable goods.[7] The decision to include these components in consumption is motivated by our Haig-Simons definition of income. Excluding some components of consumption breaks the explicit relationship between income, consumption, and wealth.

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[5] A consumer unit comprises members of a household who are related or share at least two out of three major expenditures--housing, food, and other living expenses. A person living alone is a single consumer unit. While the terms consumer unit and households are used interchangeably in this paper, there are households consisting of more than one consumer unit; there are approximately 3 percent more consumer units than households.

[6] The first interview is used to "bound" the interview and prevent reporting of expenditures in the wrong time period. Data reported in the first interview are not released nor used in any estimation. For more information about the CE survey, along with response rates, coverage, non-sampling error, and statistical uncertainty of the estimates see Chapter 16 in the BLS Handbook of Methods, http://www.bls.gov/opub/hom/homch16.htm.

[7] The specific techniques used to create our consumption and income measures are discussed in Fisher, et al. (2012).

The CE Survey began imputing income in 2004 but did not impute previous years. We replicate the BLS methodology as closely as possible and impute all income for 1985-2010, and therefore, we do not restrict our sample by income reporter status.[8] As the households who remain in the sample for four quarters are more likely to be homeowners and older households, we follow the procedures in Sabelhaus (1993) and Fisher and Johnson (2006) to re-weight the sample to represent the quarterly sample. For after-tax income we use the National Bureau of Economic Research's (NBER) TAXSIM program (see Feenberg and Coutts (1993))[9] to estimate federal, state and FICA taxes and tax credits such as the Earned Income Tax Credit. All values are equivalized using the square root of household size (see Buhmann, et al. (1988)) and the weights are adjusted to reflect person weights. Finally, all values are adjusted to 2010 dollars using the CPI-U-RS.[10]

The Survey of Consumer Finances

We use data from the nine waves of the Federal Reserve Board's triennial Survey of Consumer Finances (SCF) conducted between 1989 and 2013. Several features of the SCF make it appropriate for addressing the questions of interest. The survey collects very detailed information about households' financial assets and liabilities, and has employed a consistent instrument and sample frame since 1989. As a survey of household finances and wealth, the SCF includes some assets that are broadly shared across the population (bank savings accounts) as well some that are held more narrowly and that are concentrated in the tails of the distribution

[8] See Fisher, et al. (2012) for a complete description of the imputation method and comparisons to the BLS imputations. We impute five implicates. We use the mean of the five implicates as our estimate of income. Using mean income lowers the level of inequality but the trend in inequality is the same if we used the five implicates and adjusted the measure for multiple imputation following Rubin (1987).

[9] http://www.nber.org/taxsim/. See online Appendix C of Fisher, Johnson, and Smeeding (2014) for a description of how taxes were estimated using TAXSIM.

[10] Others suggest that this is an over-estimate of inflation (see Meyer and Sullivan (2011) and Broda and Romalis (2009), Gordon and Dew-Becker (2009) and Johnson (2004)).

(direct ownership of bonds). To support estimates of a variety of financial characteristics as well as the overall distribution of wealth, the survey employs a dual-frame sample design.

A national area-probability (AP) sample provides good coverage of widely spread characteristics. The AP sample selects household units with equal probability from primary sampling units that are selected through a multistage selection procedure, which includes stratification by a variety of characteristics, and selection proportional to their population. Because of the concentration of assets and non-random survey response by wealth, the SCF also employs a list sample which is developed from statistical records derived from tax returns under an agreement with SOI.[11] (See Kennickell (2000) for additional details on the SCF list sample.) This list sample consists of households with a high probability of having high net worth.[12] The SCF joins the observations from the AP and list sample through weighting.[13] The weighting design adjusts each sample separately, and final weights are adjusted so that the combined sample is nationally representative of the population and assets.[14] These weights are used in all results.

The unit of analysis in the SCF is the "primary economic unit" (PEU) which refers to a financially-dependent related (by blood, marriage, or unmarried partners) group living together. This concept is distinct from either the household or family units employed by the Census

[11] See Wilson and William J. Smith (1983) and Internal Revenue Service (1992) for a description of the SOI file. The file used for each survey largely contains data from tax returns filed for the tax year two years before the year the survey takes place. See Kennickell (1998) for a detailed description of the selection of the 1998 list sample.
[12] For reasons related to cost control on the survey, the geographic distribution of the list sample is constrained to that of the area-probability sample.
[13] The evolution of the SCF weighting design is summarized in Kennickell (2000), with additional background by Kennickell and Woodburn (1992).
[14] The SCF weights were revised in 1998 to incorporate home ownership rates by race (Kennickel, 1999). Weights for earlier years were updated to reflect the revised methodology.

Bureau, but is conceptually closer to the consumer unit used in the CE data.[15] Single individuals living alone are included and simply considered a "family" of one.

The SCF contains high quality, detailed information on household assets[16] as well as incomes, and allows us to make income and unit definitions and demographic definitions in the SCF that are almost exactly those that we use in the CE. Both dataset include an income definition that is broader than the standard Census money income definition. The after-tax concept in both datasets is reported income less taxes, a version of disposable personal income.

The key linkage, then, is after tax and benefit income identically defined for both CE and SCF datasets. This allows us to take consumption from the CE and consider it alongside wealth from the SCF and then the income rankings from both datasets for a wide range of identically defined demographic variables. As the SCF captures high-income households, most of our analysis compares income and wealth distributions from the SCF and consumption from the CE.[17]

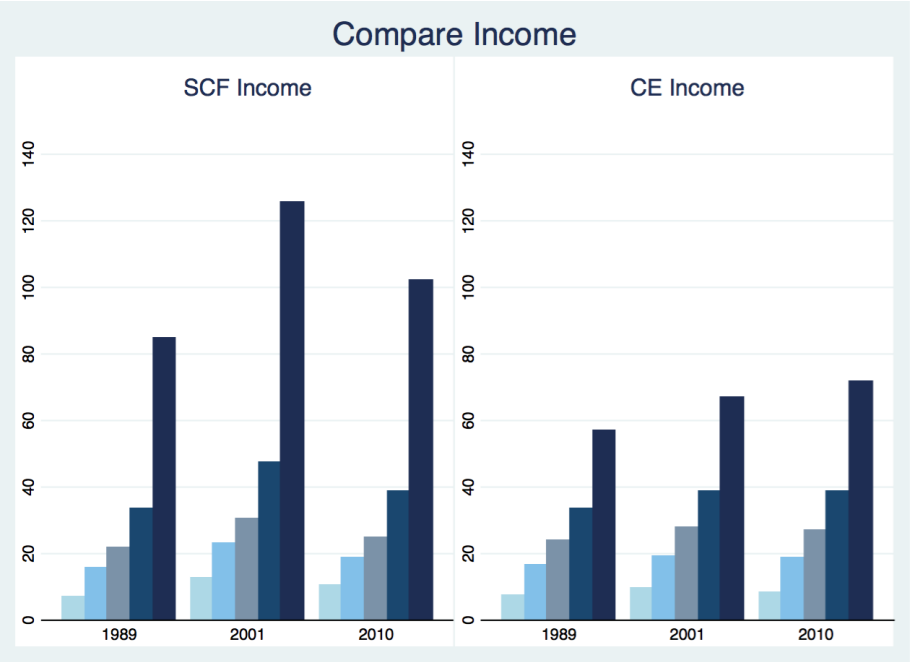
Comparing income between CE and SCF

Because consumption is coming from a different survey than income and wealth, it is a concern that the samples are different and that we cannot treat consumption as if it is coming from the same distribution of households as income and consumption. Figure 3 shows the distribution of the same income measure in the SCF and CE. Specifically, it shows the mean equivalent disposable income by income quintile for 1989, 2001, and 2010. As expected, mean income in the top quintile is considerably higher in the top quintile in the SCF because the SCF targets high income households. In the rest of the distribution, mean income by quintile is

[15] A typical question in the SCF asks the respondent to consider "you and your family living here" in providing answers.
[16] There are 16 broad asset classes, including stocks, bonds, mutual funds, home-equity, residential real estate, and business assets, as well six broad classes of debt.
[17] Future work involves imputing consumption to the SCF to have a dataset with all three measures.

similar between the two surveys, and the trends are identical. Thus we are likely missing the top very top of the income distribution in the CE, but we are similar to the SCF in the rest of the income distribution.

Figure 3: Comparing SCF and CE Income: Mean disposable income by Income Quintile



The Levels and Trends in Inequality of all three components

To illustrate the issues that are concerning to us, we begin by exploring inequality in the United States. If the purpose is to argue that inequality in the United States is rising or not, all income measures regardless of source yield the same conclusion. If the question is by how much it is rising, that depends on the series used. Figure 4 (from Johnson and Smeeding (2014)) shows four measures of income inequality from 1979 through the most recent data available for each series. The U.S. Census Bureau's money income measure includes cash incomes received on a regular basis (exclusive of certain money receipts such as capital gains) and before payments for personal income taxes, but gross of income transfers such as social security. This is the most

commonly referenced income measure and the longest series, dating back to 1967 for households, with adjustments for household size. This measure suggests the income inequality Gini for the United States increased from .39 in 1979 to .44 in 2007 and .46 in 2012.[18]

The MCI measure is a more comprehensive measure of disposable income that also includes financial flows from wealth (see Thompson and Smeeding (2012)). According to this series, the Gini increased from .32 in 1979 to .37 in 2007. This is a much lower level of inequality than in the Census Gini, and with a somewhat flatter trend since the early 1990s. The level is similar to the disposable income series from Fisher, Johnson, and Smeeding (2014) because the income measures are similar, and demonstrate that taxes and transfers lower the level of inequality. This measure from the CE increases 8.5 percent between 1985 and 2010.

The final measure shown in Figure 4 is from the U.S. Congressional Budget Office (CBO, 2013). The CBO merges CPS household survey data with tax records, so it gives us a more accurate picture of incomes at the very top of the distribution. According to this measure, the Gini for household income increased from .37 in 1979 to .49 in 2007. The CBO series with the more comprehensive income and an accurate top end suggests a steeper rise in inequality than all the other series. If the top incomes are driving inequality, then the CBO series (which already shows some rapid uptick through 2007) is the one to use for comparisons since the early 1990s. Note that while this CBO suggests the importance of capital income and capital gains, it also makes the case for why wealth is an important course of growing inequality.

[18] This series is adjusted to remove the break in series between 1992-1993 due to survey changes (see Atkinson et al. (2011)).

Figure 4: Gini coefficients for various measures

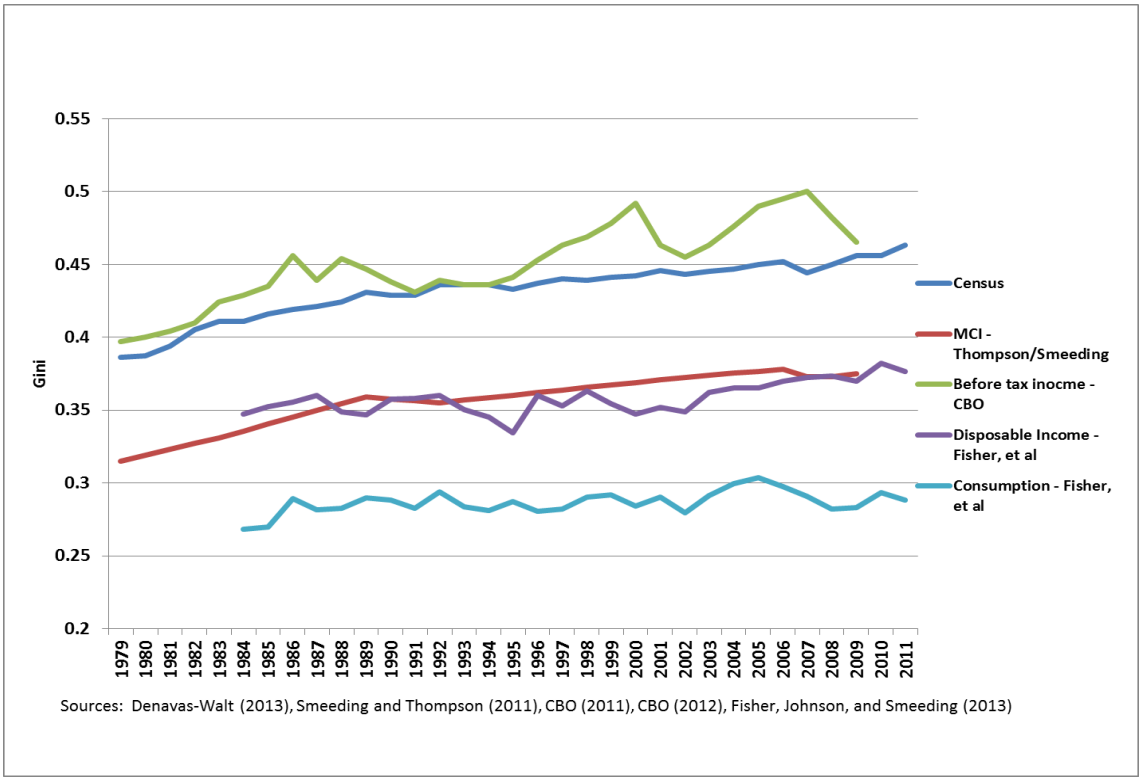
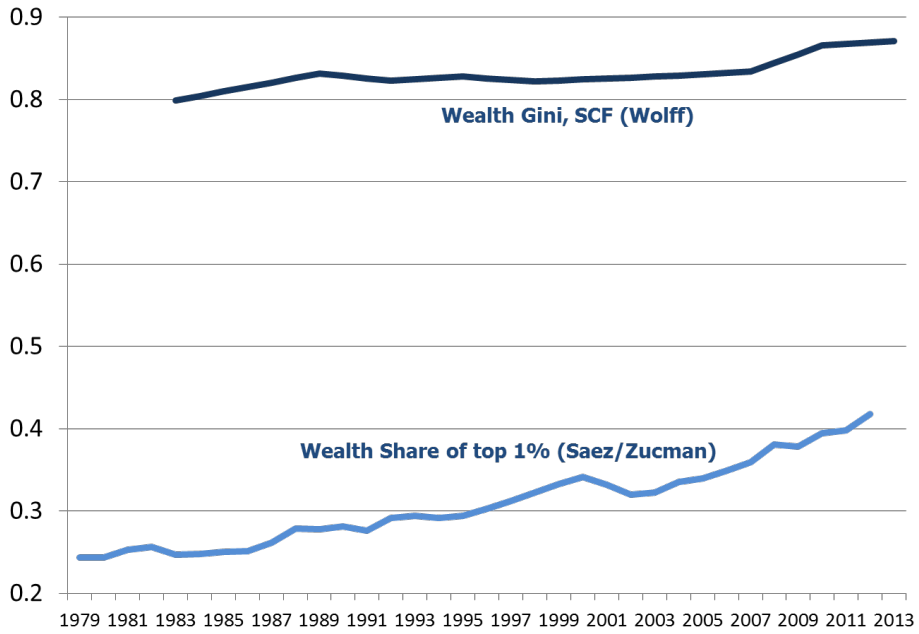


Figure 4 also shows consumption inequality from the CE. Between 1985 and 2006, it increases along with income inequality, but consumption inequality fell during the Great Recession and has only started to increase again in the last few years.

As with income and consumption, various researchers have examined inequality in wealth. Wolff (2014) reports Gini coefficients for wealth using the SCF and Saez and Zucman (2014) so the share for the top 1 percent. Figure 4 shows that both of these measures increased from 1979 to 2013.[19]

[19] Using our SCF measure, wealth inequality increased approximately 5.3 percent between 1989 and 2012, with a fairly steady increase every year since 1992.

Figure 5: Wealth inequality



In summary, all three measures of well-being matter, with wealth inequality higher than income inequality, which is higher than consumption inequality. Consumption and income inequality have diverged since 2007 (Fisher, Johnson, Smeeding, 2013), mainly due to the fall in house prices. Consumption from assets rose in the early 2000s and then fell sharply after the financial crisis (Cooper and Dynan, 2013). The role of assets, debts, and changes in net worth are the key missing element that connects these elements to produce a complete picture of economic inequality. The rise, fall, and change in wealth (net worth) over the past 25 years has been instrumental in financing consumption generally, and schooling, health care, and retirement especially.

The Demographics

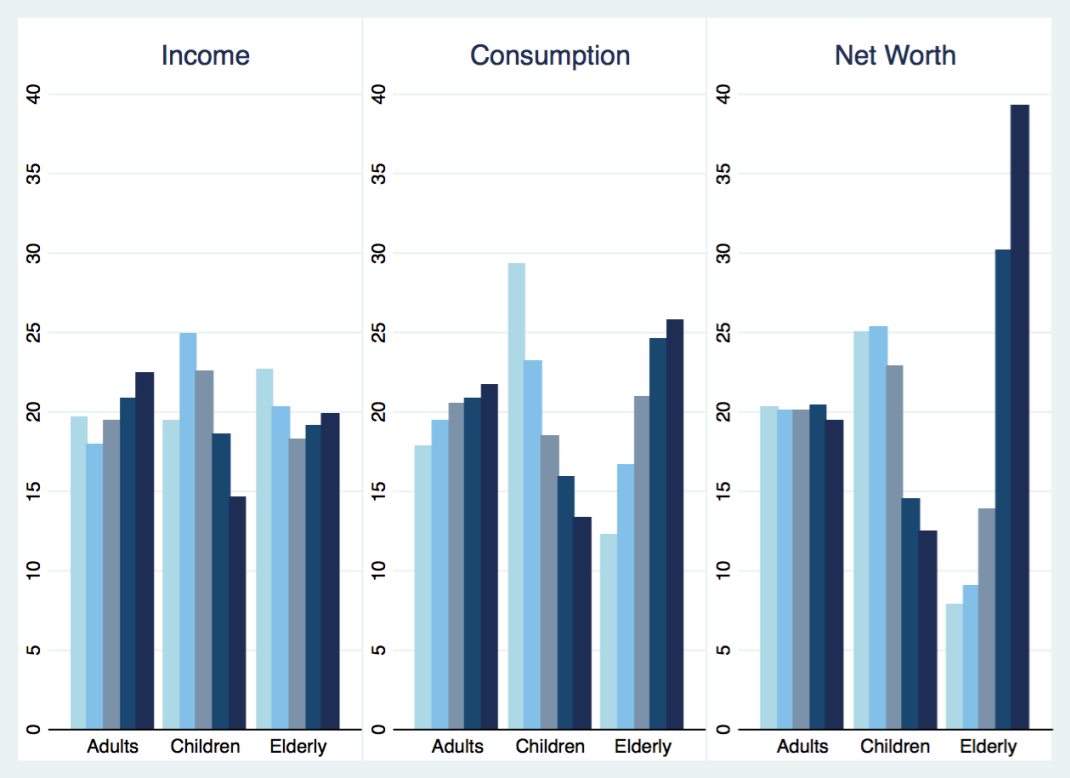
To get a better understanding of the dispersion of income, wealth and consumption, we examine the relative distributions for a variety of demographic groups. Similar to Mather and

Jarosz (2014), we focus on age, family status, race/ethnicity and educational attainment. We first focus on the three major age groups—children, adults, and the elderly. These groups are all of policy importance. Indeed public support for children vs the elderly may depend on which group is deemed better off, both today and over the past 25 years. Following Johnson, et al. (2005), we compare the distribution of the three major age groups relative to the distribution of the total population. We examine how adults (ages 18-64), the elderly (ages 65+) and children (ages 0-17) have fared relative to the total population by looking at the quintile distribution of each group relative to quintiles for the total population. We also examine differences in education, and race, along with differences by family type for children.

A comparison of one group with the total population is basically a zero-sum game, that is, if one group does relatively better than the general population, then another must do relatively worse. We create quintiles for the entire population using each economic variable -- income, wealth and consumption, and then examine the distribution of various groups within these same quintiles. As a result, for each period the quintile break points are the same for all individuals within each dataset. So, for instance, if age and household type do not influence the household's relative economic position, then we would expect that 20 percent of each age group or family type would reside in each quintile. If, however, certain age groups have fewer resources than other groups, they will be overrepresented in the bottom quintiles and underrepresented at the top. The flip side is, of course, that if certain age groups have more resources than other groups, they will be overrepresented in the top quintile and underrepresented at the bottom. We start with a simple overall comparison for the most recent year of our current data (2010). Then we turn to the trends in these and other relationships

In Figure 6, we document how the demography of income, consumption and wealth differ by age. The figure below ranks everyone so that 20 percent of all people are in each quintile by each measure. It focuses on where adults (all adults in this case), elderly, and children are located in each distribution (equivalence scale adjusted) in 2010, and all figures are weighted by people so that they represent the distribution of people in these age categories.

Figure 6: Distribution by Quintile by age group of Income, Consumption and Wealth, 2010



As a reminder, the goal is to understand how our perception of the well-being of a group changes when we use our three measures of well-being. The initial quick takeaway is that elderly in particular are located in very different parts of the distribution in terms of wealth and consumption compared to income. Older households are more likely to be in the bottom two quintiles of the income distribution, but older households are much better off in terms of consumption and wealth, suggesting that consumption from wealth (over and above medical care

consumption) is an important component of elderly well-being. While over 40 percent of elderly are in the bottom 40 percent of the income distribution, less than 16 percent of elderly are in the bottom 40 percent of the wealth distribution.

The position of children in the income distribution is more similar, but not identical to the consumption or the wealth rankings where they are over represented in the bottom 40 percent, leading perhaps to concerns about their upward mobility compared to the advantaged children who are located at the top of the wealth and consumption distribution. Children look worse off when using consumption and wealth than when using income alone.

This first snapshot is meant to be tantalizing—clearly exhibiting our primary finding that the measure of well-being matters, particularly for children and elderly. Has the elderly position changed over time? Why are children at the bottom and have they always been there? How does education race and family type figure in? The following graphs show the trends in the percentage of people for each demographic that are in each quintile over the three years highlighted (1989, 2001, and 2010). We chose these three periods in all of our figures because they correspond to our first year of data for all three sources, a middle point in our inequality data, and our last year of data. The first year, 1989, serves as a baseline to compare to future years. Then 2001 is the middle point for our inequality comparisons. We examine the whether the change in inequality affected each group differently. If the change in inequality affected each group equally, then we should expect to see little or no change in the representativeness of our demographic groups in different quintiles between 1989 and 2001 or 2010.

Trends in the Demography of Inequality by Age. Here we focus on the trends and whether increasing inequality in the three measures affected one group differentially. For this analysis, we focus on childless adults to separate the impact of children. There was a slight

compression in the consumption distribution for childless adults, which suggest that there must be increasing dispersion in the other age groups.

Figure 7 shows that the elderly are improving their position in all three measures of well-being. A lower percentage of elderly are in the bottom of the income distribution in 2010 than in 1989, and more are in the top of the income distribution. This pattern also occurs in the consumption and wealth distributions. Elderly are increasingly able to finance their consumption in ways not available to families with children or younger adults, such as spending from accumulated assets. This suggests that accumulated wealth (financial, as well as housing wealth) is an important determinant of elderly consumption. The elderly's relative position in the consumption distribution improved between 2001 and 2010 despite the fact that they likely rely on wealth more than adults and children for their consumption. The loss of wealth caused by the Great Recession would be expected to hurt the elderly more because the elderly rely on wealth for consumption more than younger ages, but the elderly's relative position in the consumption distribution actually improved over this time.[20]

As these distributions are all relative to the overall population, they yield zero-sum games. Hence, the relative improvements to the elderly must come at the expense of the younger generations. Children and their parents are overrepresented in the bottom two quintiles of disposable income, wealth and consumption. In fact, children's relative position using consumption shows much larger percentages in the lower two quintiles than that using income.[21] Over time, the relative position of all children, ignoring the type of family they live with, has diminished, especially for those in the middle of the distribution.

[20] In a series of recent articles, Gustman, Steinmeier and Tabatabai (2010,2012,2014) show that the elderly and near elderly weathered the stock market meltdown and rebound quite nicely

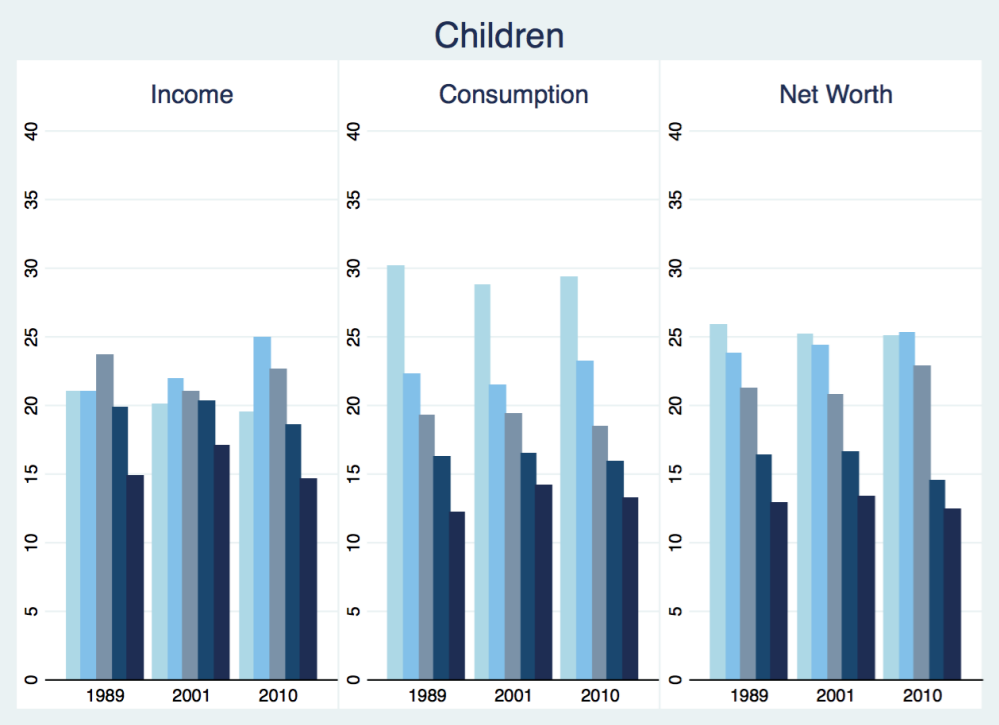
[21] This is also apparent in the CE income distributions; the CE shows 47 percent of children in the bottom two quintiles compared to 44 percent in the SCF.

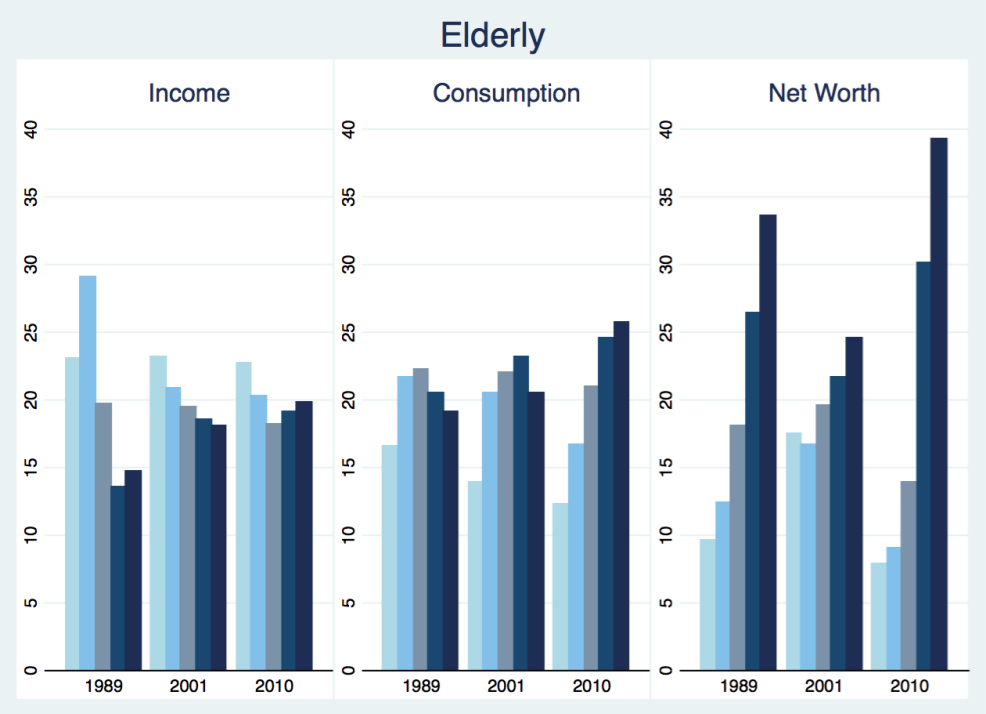
Children are therefore worst off using all three resource measures. They are worst off using consumption, following by net worth, and least badly off when ranked by income. Those who are often reminded of the relative and absolute income poverty of children, can take note that if we were using consumption or wealth to represent well-being, they would be even worse off.[22] Indeed Yellen (2014, Figure 8) shows that the mean net worth of the top 5 percent of families with children is greater than $3.0 million in 2013, compared to $500 or less for the bottom half of all families with children.

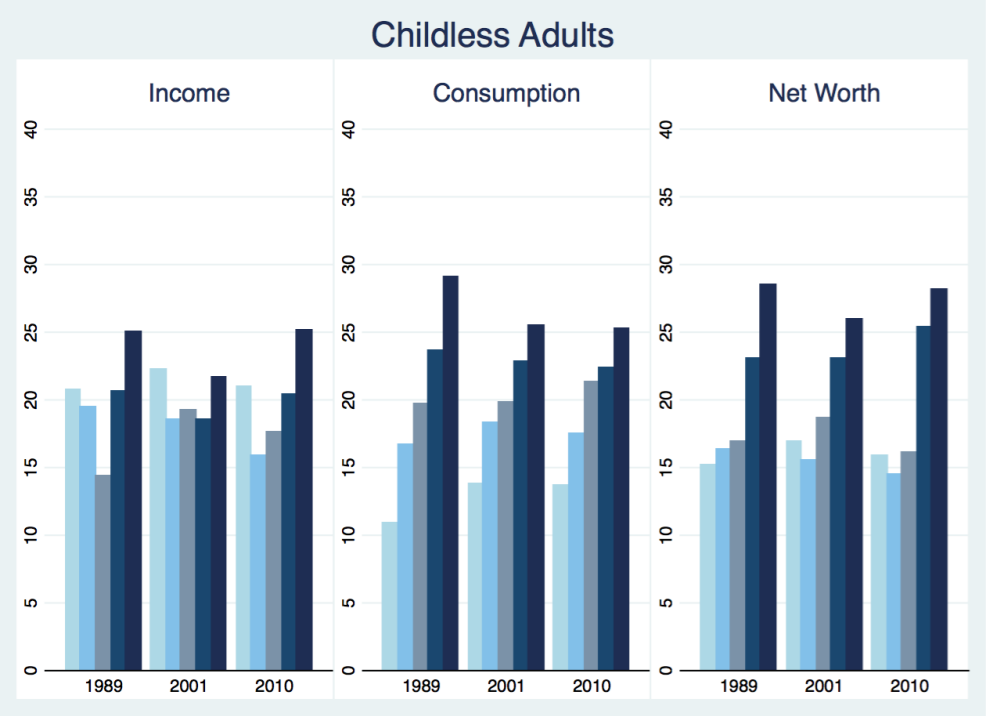
It also must be noted that these changes over time are all relative to the overall distribution. We have not yet discussed whether their absolute position in the consumption wealth or income distributions has improved or deteriorated. The evidence on this matter does not seem encouraging for children's incomes have flattened in the 2000's below their 1999 peak. Indeed low income children (in the bottom two quintiles) are now the majority of students in the US public education system (Southern Education Foundation, 2015). The current evidence also suggests that wealth position of those under 35 compared to the rest of the population have steadily declined since 1989, while those 35-44 have also suffered a lesser decline since 1989 (Wolff, 2014, figure 7). Moreover the SCF evidence above (Yellen, 2014, Figure 7) suggests a precipitous decline in mean wealth for the bottom half of the wealth distribution, which is clearly where most US children and their parents can be increasingly found.

[22] As we see below children may be getting slightly worse off over time because of increases in percent of single mother and other household units as compared to children living with married parents

Figure 7: Children, Elderly and Adults: Ranked by Income, Consumption and Net Worth: 1989-2010







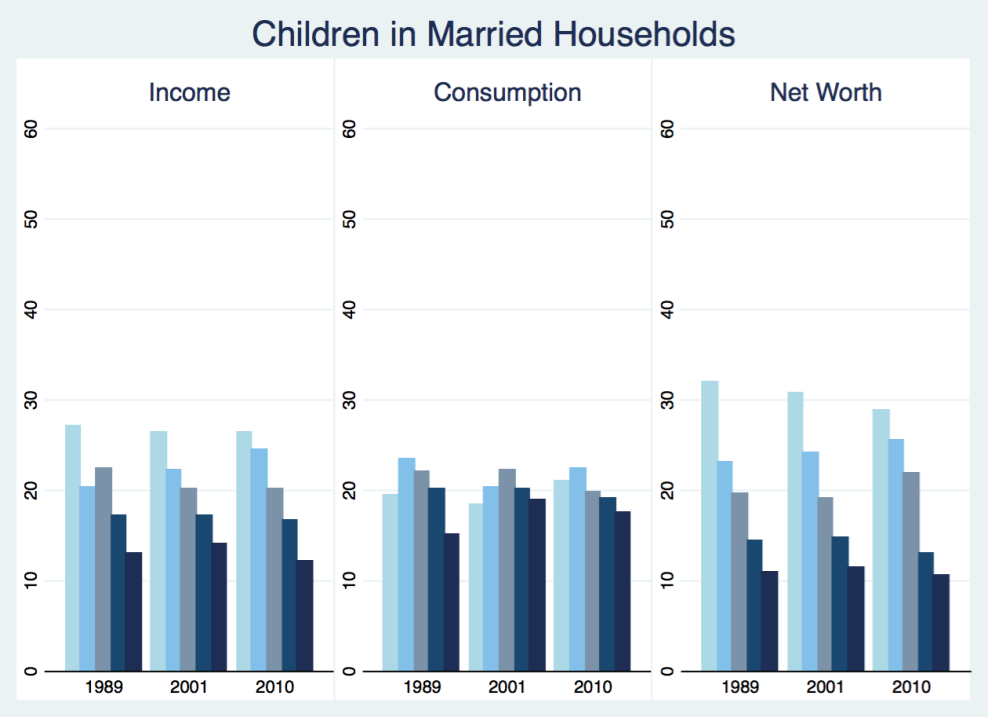
The Role of Family Type. When we disaggregate children by family type, those in married couple households are definitely better off than other family types, as expected. They are slightly overrepresented in the bottom quintile of income and wealth, and they underrepresented in the top quintile of income and wealth, but close to 20% of married children are in each quintile of the consumption distribution.

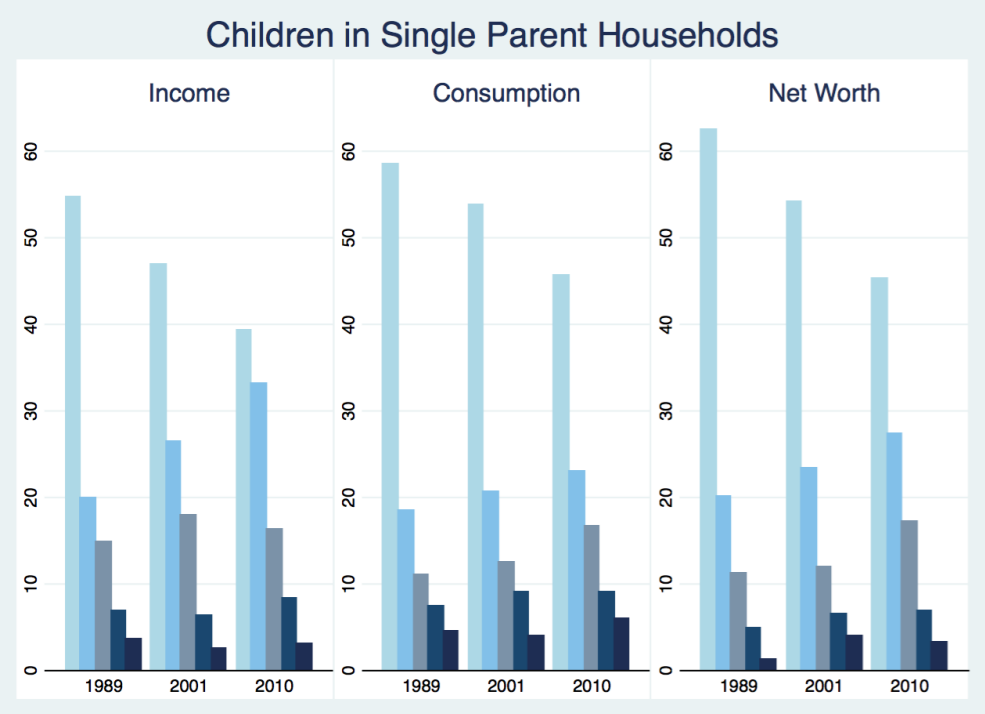
Children in single parent households are worst off by any of these distributions in Figure 8, with drops in their over exposure in the bottom quintile matching the gains in the second quintile of income. Though they do seem to be getting better over time, especially moving out of the bottom quintile, they don't seem to move very far up the respective distribution. This likely reflects the generosity of the safety net for working families, especially in 2010 (Hardy, et al, 2015; Haveman, et al, 2015). At first glance, consumption and net worth are even worse than income for children in single parent households. But they do seem to be moving up to the second and third quintiles in consumption (see also Meyer and Sullivan (2008)) and wealth. Children in

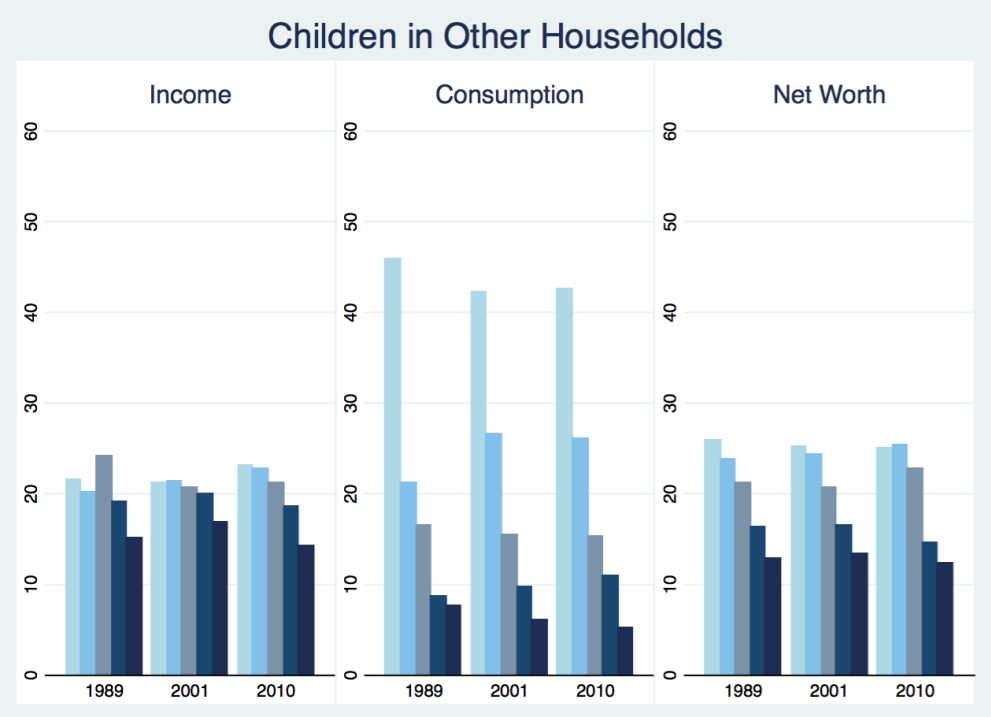
single parent units are consistently and deeply underrepresented in the two top rungs of the income, consumption and especially the net worth distributions across all three periods. The fraction of children in single parent families in the top two quintiles of income, consumption or net worth are always below 10 percent , and closer to 5 percent in the wealth distribution.

Children in other households, all those not a single parent or married couple such as those in multi-generation households or those where there is at least one non-parent adult in the household (such as cohabiting partners), are more like children in single parent households, but not as extreme in the tails. Children in other households appear better off using net worth and income than consumption, possibly because of co-residence with an elder grandparent. They do not seem to be improving or worsening over time.

Figure 8: Children by Family Type: Ranked by Income, Consumption and Net Worth: 1989-2010




Children in Single Parent Households
Income
Consumption
Net Worth
0
10
20
30
40
50
60
1989
2001
2010


Children in Other Households
Income
Consumption
Net Worth
0
10
20
30
40
50
60
1989
2001
2010

The Roles of Race/Ethnicity and Education. We present two additional ways to disaggregate our groups: race and educational status of the head.[23] Non-Hispanic whites of all ages are consistently and increasingly overrepresented in the top quintiles of income consumption and wealth (Figure 9). There has been little change in the relative position of whites since 1989. In contrast, non-Hispanic blacks are more or less equally worse off using all three resource measures. While they do seem to be improving slightly over time in all three measures, blacks are hugely overrepresented in the bottom two quintiles of each distribution, with an average of 60 percent of all blacks in each of the bottom two quintiles regardless of the measure employed. In short, no one measure shows a good outcome for black households. Other races are not terribly different from expectations, falling between blacks and whites, but more like blacks than whites in every respect. Hispanics are worse off using all three resource measures, but with the greatest improvement in their net worth situation by 2010. Ratios of black to white wealth have also plummeted over the periods we observe here (Wolff, 2014, Figure 5).

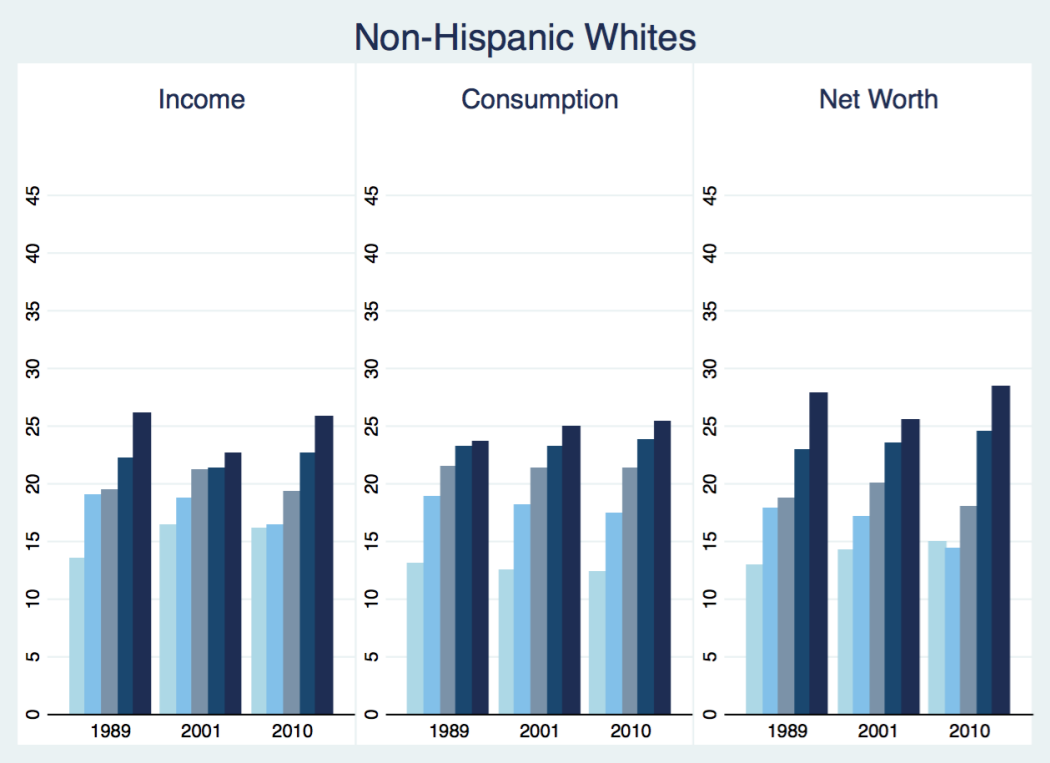
The overall race and ethnicity picture here is troubling in one important respect. Perhaps most important, the racial and ethnic make-up of today's children is changing rapidly. In 2011, for the first time, less than half of the children born in America were born to two white Anglo-American partners. Hispanic and multiracial populations are expected to double in size over the next 40 years, as the result of immigration, higher birth rates among minority populations already here and more interracial marriages (Frey, 2014). While these changes will challenge the nation's legal, political and economic systems, they are already beginning to affect the youngest of the emerging majority who are just now entering our school systems and appear

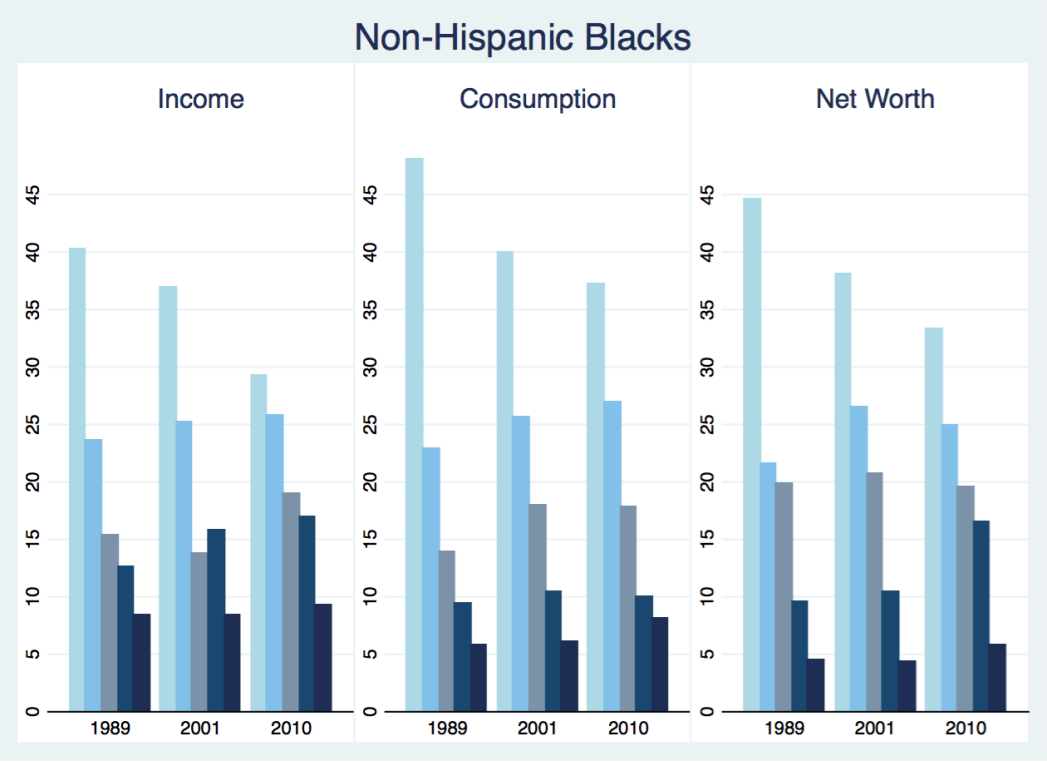
[23] The SCF only provides the race and education of the household head, while the CE has the race and education of everyone in the household. For the consumption results using the CE, we use the race and education of the head following the SCF.

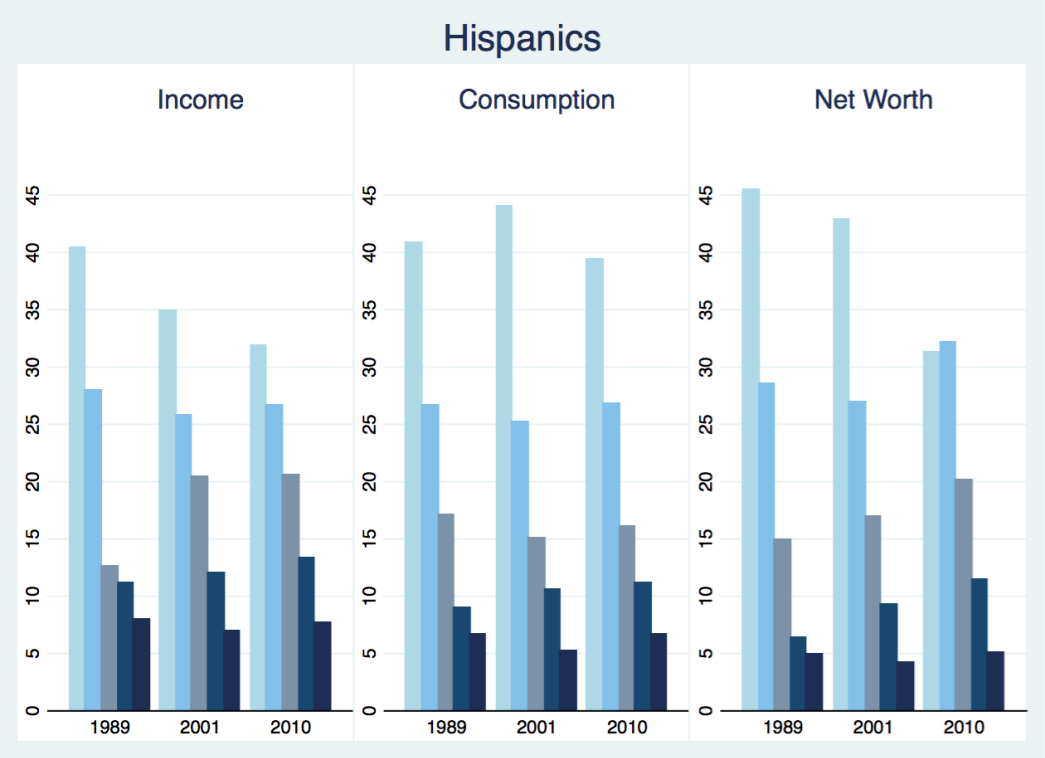
disadvantaged in terms of income, but also consumption and wealth. The majority growing ethnic and racial make-up of students in the US public education system are also likely driving the public school low income results mentioned above (Southern Education Foundation, 2015) The combination of this explosion with the diminishing of the white Anglo baby boomers will produce generational competition in future decades over both public resources and governmental priorities (see Brownstein and Taylor, 2013).

Shapiro, et al (2013) examines black and white wealth using the PSID, and find that the total wealth gap between white and black families nearly triples in 25 years, increasing from $85,000 in 1984 to $236,500 in 2009. See also Suarez and Thomspon (2015). The Great Recession was particularly devastating to the young black middle class as they were the ones who bought homes at the top of the market in the 2000-2006 period and often with sub-prime loans. Differences especially in housing wealth and home ownership, but also income unemployment, inheritance, and financial transfers all help explain this gap.

Figure 9: Racial and Ethnic Groups Ranked by Income, Consumption and Net Worth: 1989-2010.







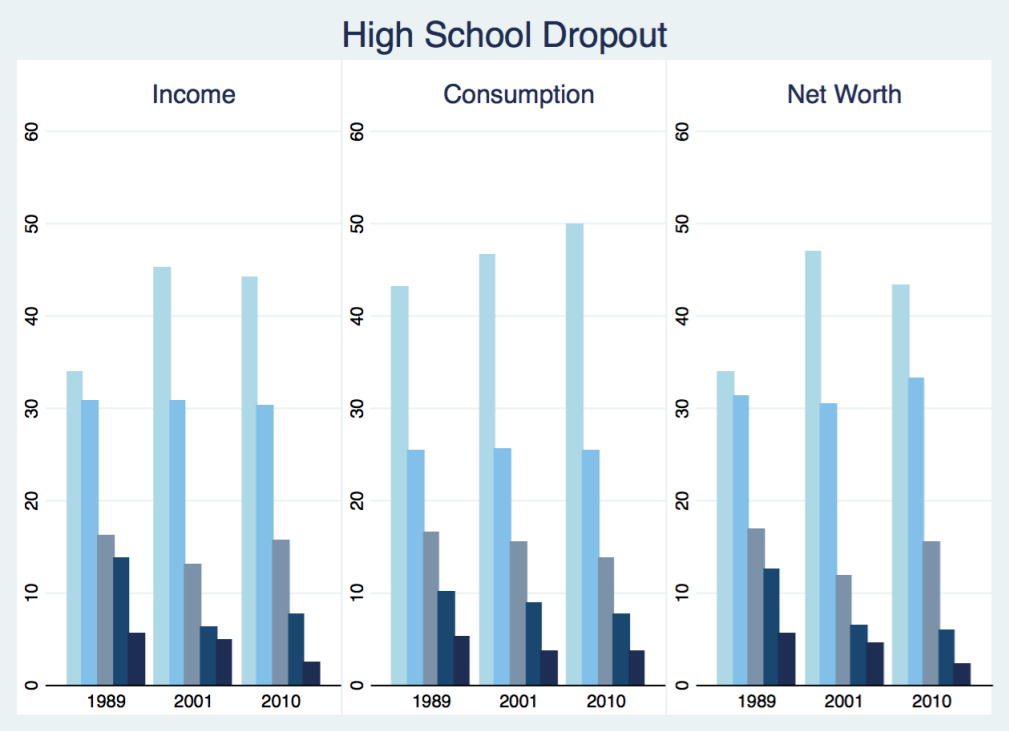
Perhaps the most interesting results are found when we rank according to educational attainment of the householder. High school dropouts are worst off using all three measures, and their position has become worse between 1989 and 2010. No one measure is noticeably better or worse than the others, but they are definitely concentrated at the bottom of all three distributions. The good news is that they are shrinking as a percent of the population. High School dropouts look worse over time by all three measures, being less likely to be in the top quintile (and more in the bottom) in the later years than in the earlier ones.

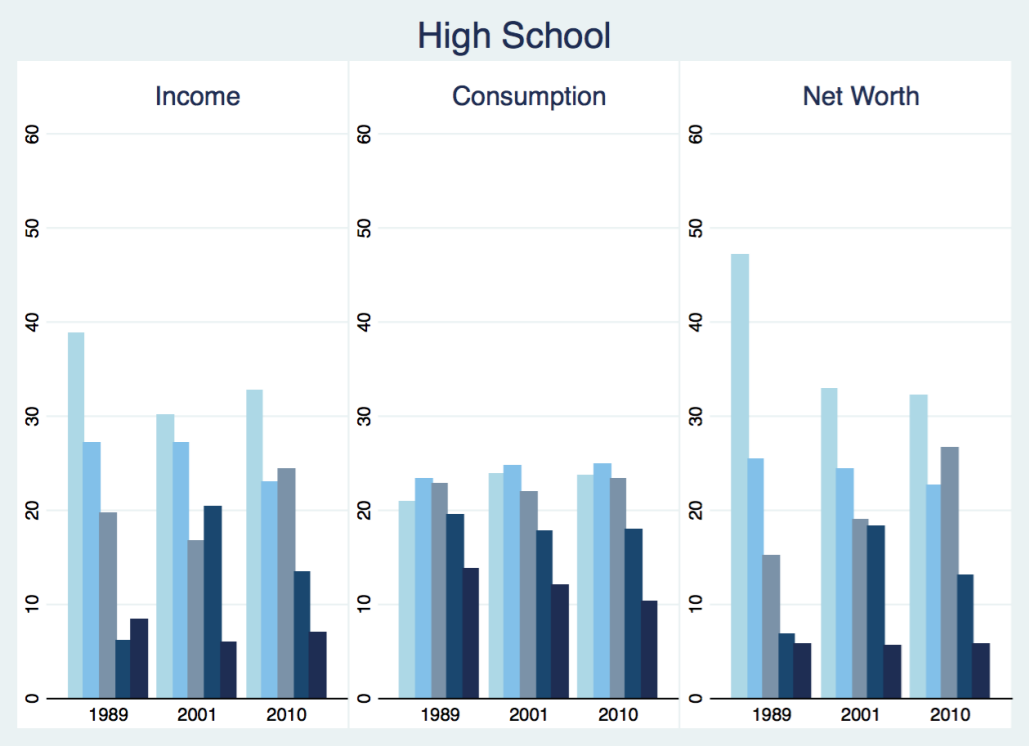
High school graduates (terminal) are more likely to be in the three middle quintiles and less likely in the extremes, except for net worth. For net worth, high school grads are more likely to be in the bottom two quintiles and very few are in the top two quintiles. Relative to a terminal high school degree, some college (but less than a four year degree) gets you out of the bottom two quintiles to the middle of the distributions but not many are in the top quintile, and the percent in the top quintile is decreasing over time for all three measures.

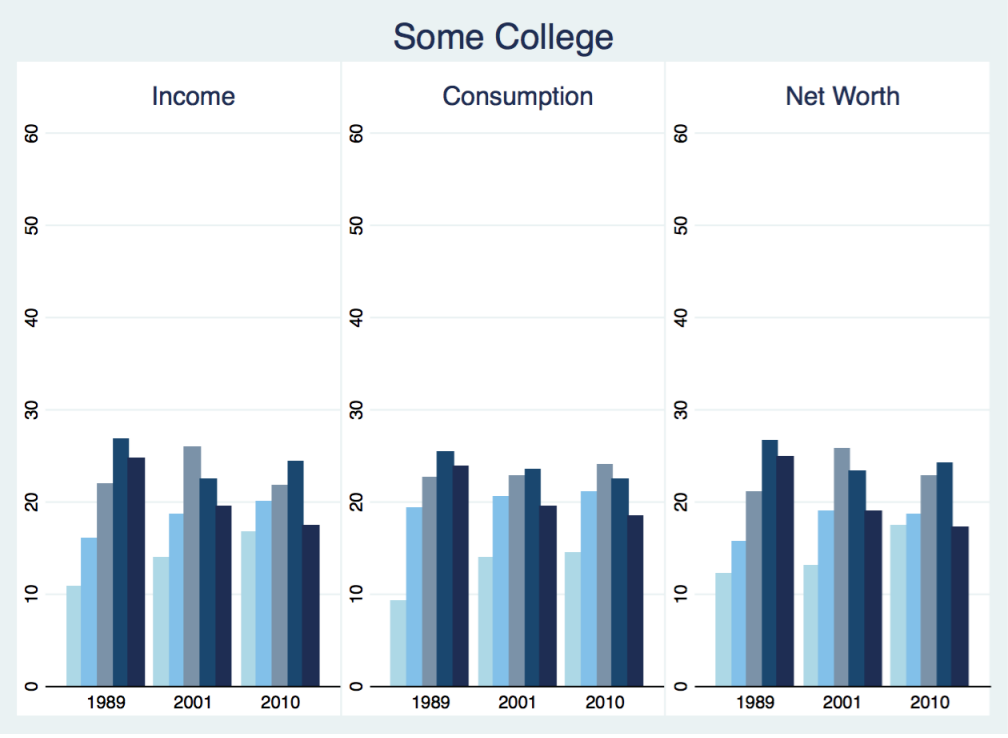
College grads (including those with higher degrees) are disproportionately found in the top quintiles and much less likely to be in the bottom three quintiles under any of the measures. While a college degree doesn't quite guarantee a well-being floor, it is increasingly correlated with being in the top two quintiles in any of the distributions where we consistently found between 65 and 75 percent of all college graduates. The patterns here are the same for all three measures.

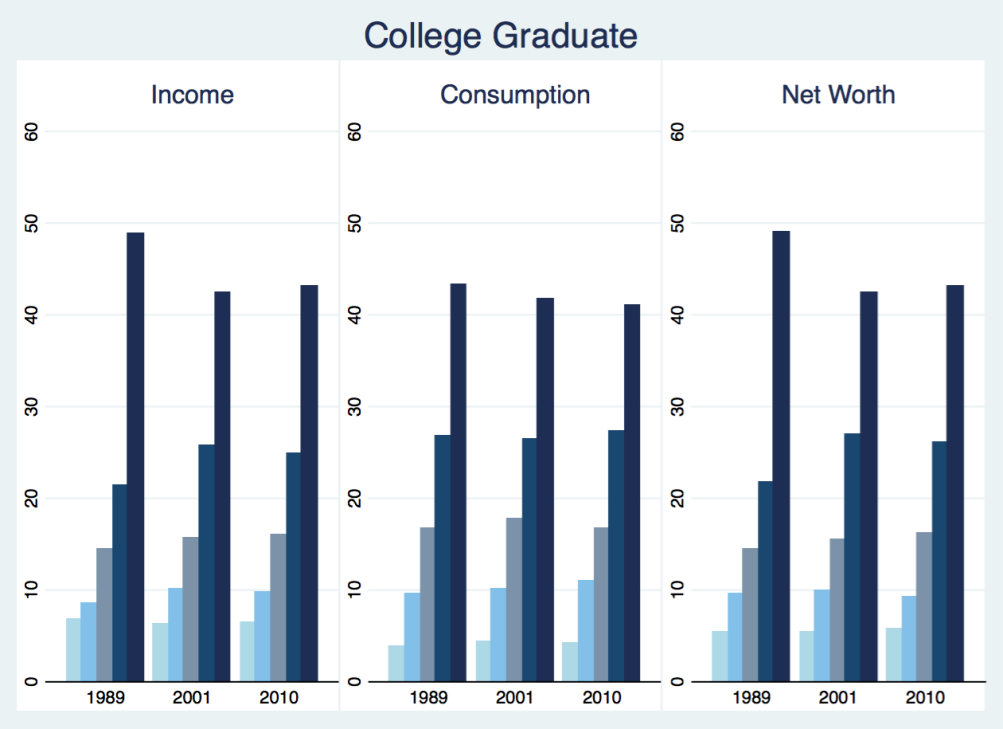
These patterns are all consistent with a world where wages for most education groups, other than those with college and advanced degrees have declined since 1989 or at best have become flat since the Great Recession (Autor (2014)).

Figure 10: Education Groups Ranked by Income, Consumption and Net Worth 1989-2010




High School
Income
Consumption
Net Worth
0
10
20
30
40
50
60
1989
2001
2010


Some College
Income
Consumption
Net Worth
0
10
20
30
40
50
60
1989
2001
2010



By evaluating income, consumption and wealth, we can be confident about the levels and trends in well-being when all three agree. As we have shown, there are certain populations that are economically vulnerable – children in single parent families, people without a high school degree and blacks. Considering the relative consumption and wealth positions of African Americans (blacks) makes their economic status even worse than when we consider income alone. Ranking children family status we find even more skewed results; children who are being raised by single parents are predominately in the bottom 40 percent in each distribution. Perhaps the most differential rankings have to do with the educational status of adults; high school dropouts are most heavily clustered in the bottom 40 percent of each distribution.

Transition matrices

Not only are children more likely to be in the bottom quintiles for income, consumption and wealth, they are also more likely to be in the bottom quintiles of the joint distributions.

Figure 11 shows the transition matrices for income and consumption and income and wealth for children and the elderly.[24] For example, these figures show the percentage of children in the bottom (or any) income quintile who are also in the bottom (or any) consumption quintile (on the left) and in the bottom (or any) wealth quintile (on the right). Over 70 percent of all children in the bottom income quintile are also in the bottom consumption quintile, and over half are in the bottom wealth quintile. This implies that 40 percent of children are in the bottom two quintiles for both income and consumption and 32 percent for income and wealth. Alternatively, only 9 percent of children are in the top quintiles of both income and consumption and income and wealth.

Elderly, on the other hand, are much less likely to be in the bottom two quintiles of both income and consumption or income and wealth. Only 22 percent are in the bottom 40 percent for both income and consumption, and only 13 percent for both income and wealth.

[24] We use the SCF for the income and wealth transition matrices, and we use the CE for the income and consumption transition matrices.

Figure 11: Percentage of Children and Elderly by Income and Consumption quintiles, and Income and Wealth Quintiles, 2010

Regression results

As shown above, family status is an important factor in determining whether children or the elderly in the top or bottom quintiles. But family status is also correlated with other demographic characteristics that are correlated with being in the bottom quintiles, such as education and race. To determine the separate impacts of these demographic factors on the relative position of children and the elderly, we use regressions determining the probability of being in the bottom and top quintiles (see Appendix Table). The dependent variable equals one if the child (or elderly) is in the bottom quintile of a given distribution, such as income. The independent variables include the age of the household head, family size, race, education, and family status. In some regressions we also include dummy variables indicating quintile of our other resource measure. For the SCF when presence in the bottom income quintile is the dependent variable, this means we have four dummy variables indicating position in the wealth quintile as independent variables.

These regressions confirm the graphical results above, but highlight the importance of marital status for children in the bottom quintile. Being in a single parent household has the largest coefficient for being in the bottom quintile of income, consumption, and wealth. The same holds when we look at the bottom two quintiles of the respective distributions. This result does not mean that other demographic characteristics are not important. Having a household head that did not complete high school or that is black also make children more likely to be in the bottom quintiles.

At the top of the distribution, college graduation has the largest marginal impact for children being in the top quintile, while high school dropouts are the largest impact for being in the bottom quintile.

For the elderly, education and family status are also important correlates with being in the bottom quintile, with those with less than a high school degree and those that are not married having the largest marginal impact on being in the bottom quintile. Similarly, being a college graduate has the largest positive impact on being in the top 20 percent of the consumption distribution of top 5% of the income and wealth distributions.

Going beyond the cross-section

The only way to evaluate the joint impacts of income, consumption and wealth is to use one dataset with all three. This could be the PSID or an augmented SCF with consumption imputations.[25] In addition, only the longitudinal nature of the PSID allows for evaluations of mobility. Preliminary work with the PSID shows correlations between all three measures. Of the 30 percent in the bottom two quintiles of income and consumption, two-thirds (or 20 percent) are also in the bottom two quintiles of the wealth distributions. Similarly, at the top end, of the 12.6 percent who are in the top quintile for income and consumption, 60 percent (or 7.6 percent) are also in the top wealth quintile. And using the above regression analysis shows that these triple vulnerable people are more likely to be children in single parent families, black, or high school dropouts.

The results shown above have important implications with respect to equality of opportunity and upward intergenerational mobility in both absolute and relative terms (Smeeding, 2014). Children are over represented in the bottom half of all distributions, but more so in terms of consumption and wealth, which could affect their future upward mobility. The effects of race and ethnicity as well as family type and educational status of parents reinforce both the relative and absolute position of children. By considering all three measures of well-being for kids we know that each gives a differing and important perspective on the distribution

[25] Current research includes imputing consumption (from the CE) to the SCF.

of economic well-being, and likely a different outcome when considering the effects of inequality on intergenerational mobility.

For instance, recent work by Pfeffer, et al. (2014) and Yellen (2014) show that since 2001, and with wealth measured in early 2013, wealth inequality had increased and income inequality with it. And financial wealth has increased by 20 percent since the time of both surveys. In particular, Pfeffer and Hällsten (2012) establish that the impact of parental wealth on children partly goes through its insurance effects for children (think of the "private family safety net" described above). Reeves (2013) and Smeeding (2014) refer to this as the "glass floor" effect. Wealthy families (parents and grandparents) pay college tuition including graduate school leaving their graduating children and grandchildren debt free after graduation. They subsidize rent and provide apprenticeship funds for children to move to high income growth areas without jobs. Often they provide jobs directly in family run businesses (Bingley, et al, 2011; Corak, 2012; Corak and Piraino, 2011; Stinson and Wignall, 2014; Yellen, 2014). And they pass on home ownership subsidies to capture upswing in real estate by co-signing low interest mortgages for children who do not qualify for best rates.

Another important component of mobility is the inter vivos transfers and bequests. Yellen (2014) shows that about half of all top 5 percent wealth households have ever received an inheritance with the average value of more than $1.0 million. In comparison, only 10 percent of the bottom half of the wealth distribution have ever received an inheritance, and amongst those who have received such, the mean value is $60,000. It is only using a panel data set such as the PSID, which includes all three measures, and will allow us to evaluate the impacts of inequality on mobility. This is the direction of future research.

Conclusions

Inequality differentially affects different groups and the index by which we view inequality can matter quite a lot. Children and the elderly are worse off than non-elderly adults in income terms, but only children and their parents are increasingly and disproportionately found in the lower reaches of the wealth and consumption. And sometimes all lenses show the same picture, as children in single parent households, blacks, and those with a high school education are worse off in terms of all resource measures - income, wealth or consumption.

And there is a definite age pattern as well. The relative positions of children and elderly can and do differ when using consumption or net worth instead of income. For example, the elderly are in a worse relative position than children using income, but the elderly are in a much better relative position than children using consumption and especially wealth. Even starker, children are worse off using consumption than they are using income, while the elderly are considerably better off using consumption than income. Intergenerational patterns of asset transfer in vivos, inheritances, and bequests reinforce these patterns for the children and grandchildren of the high wealth elderly. Thus, the relatively poor position of the elderly in the income distribution is not as concerning because they are relatively well off in the consumption and wealth distributions.

We also found that income inequality and consumption inequality increased between 1989 and 2010, and wealth inequality from 2000-2010 and beyond, but that levels still matter. These changes in inequality have differentially affected some groups. The consumption of blacks and children in single parent units has improved marginally relative to whites over this period, although more than 60 percent of blacks and 65 percent of children in single parent families are still in the bottom two consumption quintiles. The relative position of children in married households using income, wealth or consumption has improved marginally as well, even

if this is the best off group of children that we show. Because these improvements must be zero-sum when we are looking at relative changes, not absolute changes, the other groups are doing worse. The relative position of adults using consumption has worsened over the last 25 years.

But the picture we paint here remains incomplete. Joint distributions of income and wealth and income and consumption will show how factors reinforce or offset one another. This includes using the CE data to impute consumption to the SCF, and using the complete measures of all three in the PSID. With these data, further multivariate analysis using quantile regression will show how the economic position of say children in any of these three dimensions of well-being is enhanced or deteriorated by parental education, race or marital status.

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