

Was JFK wrong? Does Rising Productivity No Longer Lead to Substantial Middle Class Income Gains?

BY STEPHEN J. ROSE | DECEMBER 2014

Piketty and Saez and other advocates of the message that productivity no longer benefits average American workers are wrong. Lower and middle class workers have gained and are likely to continue to gain going forward from increases in productivity.

The runaway success of Thomas Piketty's *Capital in the Twenty-First Century* has increased the discussion of growing income inequality and what, if anything, should be done to reduce it. In addition to the book, Piketty has worked with Emanuel Saez in producing a series of computations on changing American incomes.¹ Their claims are stark and widely cited to the point where they have become the received wisdom: between 1979 and 2007 (the last year before the onset of the Great Recession), over 91 percent of income gains due to productivity growth since 1979 has been captured by the wealthiest 10 percent of the population. This left just 9 percent of the economy's expanded output for the bottom 90 percent of the population who only managed a meager real income growth of 5 percent while GDP per person for all Americans, including the top 10 percent, was rising 74 percent.²

Why does this matter? Because if it's actually true that productivity no longer benefits most workers, then why should elected officials do the hard work of advancing pro-productivity policies like corporate tax reform, investment in science and technology, and the development of sector-based productivity strategies. Better to concentrate their efforts on policies to redistribute gains to the bottom 90 percent.

In a previous 2007 ITIF paper *Does Productivity Growth Still Benefit Working Americans? Unraveling the Income Growth Mystery to Determine How Much Median Income Growth Trail Productivity Growth*, I argued against the finding that middle class income growth

had stagnated and showed that when properly measured real median income had increased by 32 percent from 1979 to 2005 despite a rise of income inequality. In this paper, I will use newly released data from the Congressional Budget Office (CBO) that show that real median income in fact grew substantially from 1979 through 2007 (from 30 to 49 percent depending on the definitions of income used), while at the same time real productivity growth grew less slowly than official government estimates.³

Further I will show that the bottom 90 percent in the CBO approach got not the 9 percent of growth found in the Piketty and Saez (P&S) data but got between 42 and 47 percent of growth, depending on the definition of income and the price deflator used. Consequently, the bottom 90 percent did not get their proportional share of growth and thus income inequality rose substantially. As a result, it would be a mistake to conclude, as P&S do, that they didn't benefit substantially from productivity growth and innovation in the form of more and better technology (e.g., computers, cell phones, broadband Internet etc.), longer lives, bigger and better equipped homes, and more recreational options. In other words, Piketty and Saez and other advocates of the message that productivity no longer benefits average American workers are wrong. Lower and middle class workers have gained and are likely to continue to gain going forward from increases in productivity. Therefore, it would be a major mistake for U.S. economic policy to abandon growth in favor of an agenda principally focused on redistribution of a fixed "pie."

And most Americans seem to know about this gain. Both the General Social Science Survey and Pew Research Center have asked repeatedly the following question—"compared to your parents at a similar age, is your standard of living higher/the same/or worse?"⁴ In the years close to 2007, approximately 65 percent in both surveys said better, 20 percent the same, and 15 percent worse. Many commentators seem so tilted to finding negative news that they don't see the obvious gains in living standards of most Americans.⁵

This remarkable disparity of results is obviously based on different data sources and concepts of income and households. In 2010 for example, the average income of tax filers was \$54,190 in the P&S data and \$92,200 (79 percent higher) in the CBO approach. Part of the discrepancy has to do with the fact that CBO (which uses a combination of the Census' Current Population Survey and IRS tax records) has 119 million households while P&S (who rely solely on IRS records and excludes monetary income from government social benefit programs) has 156 million tax filers. This 37 million difference in the number of economic units is due to the fact that many secondary earners in households file separately to avoid the higher marginal tax rates that come with joint filing. In fact, most of the extra filers have very low incomes: while approximately one-quarter of CBO households have incomes under \$30,000, one-half of tax filers are below this level.⁶

A second problem with the argument that the middle class received no gains over time involves the issue of what does the statement "no income gains" mean? One common sense understanding of this phrase is that specific individuals saw no improvements of their standard of living over time. But this is not true as there is a strong 'life cycle' effect: individuals enter the labor market in search of a career somewhere between 18 and their

late 20s. As they age, they find their best niche and tend to get raises. In fact, the average incomes of individuals tend to rise steadily through their mid-fifties.

So the phrase “stagnating income” does not apply to the experiences of real people but to “similarly-situated” people. This cumbersome phrase means that accurate comparisons involve comparing slots along the income ladder at different points in time. The most common comparison is to look at the median value (half have more and half have less) adjusted for inflation in multiple years. There is always a group of families in the middle of the distribution; it is just not the same families. One should think of this comparison as the “group” comparison—i.e., comparing the median (or another rung on the income ladder) over a specified number of years.

In other words, at any specific time, the economy is composed of people of varying ages and income. The people in the lowest rungs of the income ladder are often young people and older people with lots of assets, fewer expenses, and large government subsidies through Medicare, Social Security, and sometimes Medicaid. If we look 10, 20, or 30 years later, there has been a large changing of places (think of what happens on a crowded escalator with the same number of people at each level even though it is different people). Younger people are no longer on the bottom, but have moved up to a higher place on the income ladder; some old people have died and been replaced by people who were formerly in their prime-earning years; and new independent young people who were part of families now populate the lower rungs of the income ladder.

This means that comparing the income gains of the bottom three quintiles in 1979 and 2007 has little to do with the path of real families. Instead it is a commentary on the overall structure of the economy in that it compares low income people in 1979 to low income people in 2007 even though they aren't the same people. In this context, “not getting a fair share of productivity growth” means that poor people today aren't as better off as they would be if productivity growth were more evenly shared. Real people in 1979 followed the life cycle pattern of improving their status if they started off as young adults, improving their lot at a slower rate if they were 30-45, and moving towards retirement and lower monetary income if they were 46-59. For example, the median income of those 20-31 in 1979 and married was \$51,800 (2007 dollars), while 28 years later in 2007, the median of those 48 to 59 and married was \$87,200.⁷

Because so much of the results revolve around methodological and definitional issues, the empirical analyses won't be presented until Part III. Instead Part I will address the question of what precise form economic growth takes in the modern era by going through each major consumer category and showing how it has changed over time. In Part II, the three data sources used will be reviewed to show how they are constructed, how they define income, and how changes over time are measured. Those who aren't interested about knowing all of the technical details may want to skip these sections, although it might be harder to understand the quantitative comparisons without understanding the methodological differences.

The Part III of this paper will present the incomes of middle class people from 1979 to 2007 because this is the metric that is often used by many people. I will show that the

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CBO income study shows much greater middle class income growth than is found in Piketty and Saez numbers. I will decompose the reasons for this added growth and argue that the CBO numbers are much more compatible with the discussion of economic growth discussed in first part. Similarly, in Part IV, the CBO growth rates translate into the bottom 90 percent not getting 9 percent of available growth as found in P&S but over half of the growth—still not a proportional share but considerably more than the P&S data would have us believe.

The Part V will address how individual incomes change over to show the sizable gains that people experience as they age. Three different ways of computing this gain will be presented with each of them showing income gains over a lifetime being around 40 percent. Finally, Part VI will track how earnings vary over a life time.

The conclusion will address why negative news about income growth has such traction in today's world despite the long-term history of productivity growth benefiting most households. This is particularly true today as the Great Recession has undermined some of our economic optimism of because of its depth and length. Going forward, if we want to see even more robust gains in median income for Americans we will need smart, proactive policies to promote productivity growth and innovation.

PART I: WHAT IS ECONOMIC GROWTH

A lot of this paper will be comparing different levels of economic growth over time so it is important to have a clear sense of what we are talking about. In 1958 in *The Affluent Society*, John Kenneth Galbraith argued that for the first time we had conquered the problem of providing necessities to the entire population.⁸ He projected that, within 50 years, the need for work would decrease and that more time would be freed for the pursuit of higher needs. While this projection has certainly yet to come true, his distinction between absolute and relative needs is important to understanding growth today.

The problem is that most people think that growth is something that is very consequential and accomplishes a great deal—e.g., conquering hunger, providing health care, or getting a good education. While it is true that many people at the bottom of the income scale are barely making do, most people don't have problems with the necessities and economic growth today takes the form of better and more diverse products, a wider array of services, and more recreation.

In conversations with friends, when I cite such things as computers, cell phones, social media, gaming consoles, HDTVs, high-priced coffee and other baubles, the responses are usually that these items are the frills and not the important part of economic growth. They are mistaking the problems of low-income people which are based on a high level of inequality with the potential of the economy to produce a cornucopia of consumer goods and services. Since the top 40 percent of the income distribution is responsible for nearly two-thirds of consumer spending, then it should not be surprising to see that growth mainly takes the form of more discretionary items for this sector of the population.

Let me now go over each major consumer category and show what growth means inside that category for both average Americans and for consumption of that category of the

richest 25 percent of the population—those who set the standard to which the rest aspire to.

Food and Drink

Despite spending a much smaller share of our budgets on food across the income ladder, we have shifted dramatically to spending nearly half our food dollars to eating out or buying prepared foods rather than preparing food at home (which is a much cheaper alternative). We have access to fresh fruits and vegetables year round and wide variety of choices of every type of commodity. And we can and do consume greater quantities of meats, poultry, fish, and seafood.

The main difference of the consumption of wealthy households in this area is their frequenting high-end, sit-down restaurants where it is common to spend over \$40 a person for a meal and bottle of wine. The newspapers and local magazines in every major metropolitan area have regular columns and annual lists on the best restaurants in town. While there is a space for “cheap eats,” much attention is directed to “foodies” who are willing to spend much more per meal.

A middle-brow commodity that has grown by leaps and bounds since its founding in 1971 is the Starbucks coffee chain, which now has nearly 12,000 stores in America (and another 9,000 around the world). Before the coffee craze took off, most consumers spent between the equivalent of 50 cents and one dollar for a cup of coffee. Now, a cup of Americano goes for nearly \$3 and other options can run to close to \$6 a serving. The mass consumption of this kind of coffee is a sign of economic growth because otherwise people would be spending their money on bargain coffee.

Housing

We live in bigger homes and apartments with fewer cases of multigenerational crowding and one bathroom units. Other advances include much better appliances and more amenities (e.g., air conditioning, central heating, better insulation, WIFI, multiple car garages and outdoor patios). In the 2000s there was a dramatic increase in home ownership that has since disappeared because of the crazy lending policies of big financial institutions that had learned how to make complex securities based on home mortgages. While this was a house of cards that was destined to fail in a big way, this doesn't offset the long-run trend to better housing.

For wealthy consumers, the operative word is bigger with the rise of “McMansions”—homes with 5,000 square feet of space or more. In addition, the rise of “gourmet kitchens,” huge bathrooms with Jacuzzis and specialty showers, paneling, “window treatments,” and expensive furniture are often included options. Once again, media outlets follow the local housing market with weekly write-ups of display homes in special sections filled with relevant advertising. Surprisingly, high-end appliances companies such as Thermador and Bosch have regular full-page advertising in the national edition of the *New York Times*.

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Transportation

Relative to every other industrialized country, Americans have many more cars per household and drive them many more miles. Mainly, this is due to our lower population density and suburban enclaves with more single homes scattered further from urban centers. With a paucity of public transportation, many households are forced to have one auto per adult. Pressure is also put on the government to keep gas taxes low and maintain a wide network of large highways and arteries (we have many more four- and six-lane roads in our suburbs than exist in any other countries). The result is an auto culture in which most people jump in the car for the daily tasks and prize the autonomy that this personal mode of transportation provides. The downside of the single car culture is heavy traffic during rush hours and flare-ups of delays at other times as well.

Not only do we drive more than they do in other countries, our cars are much bigger and have gotten bigger over time (e.g., the remarkable prevalence of SUVs and light trucks). As for added amenities, virtually all have automatic transmission and air conditioning, are more fuel efficient, more powerful, and more filled with technologies like navigational tools, entertainment options, and rear view cameras. The “entry luxury” market is quite large with alternatives from around the world—e.g., Acura, Audi, BMW, Infiniti, Lexus, Mercedes, and Volvos to name just a few. And all of these brands advertise widely.

Clothing

People used to have relatively few clothes but now have homes with many closets to accommodate multiple outfits, shoes, and other choices. While it is quite easy to provide adequate protection from the elements at a relatively low cost, variety and style change rapidly and there is now specialty clothing for activities like running, biking, yoga, etc. Nowhere is this more evident in the “high performance” that keeps cold weather and rain out while being relatively light and easy to move in. Since most of the spending in this area is discretionary, branding has become very important and the cost of items of clothing, shoes, and accessories varies from tens to hundreds to thousands of dollars.

Health Care

While I agree with most analysts that our system is tremendously overpriced (providing us average care at best), it should be noted that we are living longer and healthier despite bad eating habits, limited exercise, and the problem of obesity. Much of this difference is based on advances in treating a variety of chronic diseases and disorders that in the past used to be considered fatal and incurable. Our medical knowledge is increasing significantly with the advances in genetics and other technologies but obviously it still has a long way to go. Given that much of economic growth has gone into spending more on health care, this is often missed in income analyses because the vast majority of health care costs are paid for by insurance (with the majority of the premiums paid for by companies) and by the government through Medicare, Medicaid, and government-run health care facilities. Finally, the advantage of the rich in this area is not as dramatically different as it is in other areas—they have better insurance, often have access to better specialty treatment, especially in cases involving substance abuse, depression and mental illness.

Education

There are so many stories about what is wrong with American education that the progress is often underappreciated. The Department of Education annually publishes *The Digest of Educational Statistics* tracking all aspects of education and how they have changed over time. Here are some numbers that document the progress we have made: a) in terms of high school completion, the “status dropout rate” was 15 percent in 1980 and 7 percent in 2011; for African-Americans, the gain was from 28 to 7 percent and for Hispanic youth it was from 34 to 14 percent; for young people living in households in the bottom income quartile, the decline was from 28 to 13 percent; b) in 1972, 31 percent of high school graduates enrolled in college in the first year following graduation: today that number is 68 percent; among students from low-income families, the gains in this metric went from 31 to 54 percent; and while African-Americans and Hispanics trailed White students by a considerable amount in 1972, this gap shrunk to just a couple of percentage points in 2011; c) in terms of degrees awarded: in the academic year that ended in 2000, there were 556,000 AAs awarded, 1,238,000 BAs, and 582,000 graduate degrees; by 2011, the numbers shot up to 942,000 AAs, 1,716,000 BAs, and 893,000 graduate degrees.

Of course, this does not mean that low-income and minority students have opportunities equal to children from wealthier families. Research shows that the wealthy have cascading advantages that are evident by entry into kindergarten—for example, in terms of larger vocabularies, exposure to more sources of information and culture than those from low-income households. Children from high-income families are likely to go to better schools in elementary and secondary schools and to be provided with tutors should they need them. By high school completion, they score much better on college entrance exams and are much more likely to enter highly selective colleges. At all grade levels, children from rich families tend to go to private schools where the classes are smaller and academic options greater.

Recreation and Personal and Business Services Consumed by Individuals

By definition, these are almost all entirely discretionary expenditures. Many people may be surprised to find out that these activities add up to more spending than health care. The Bureau of Economic Analysis (BEA) of the Commerce Department estimates that tourism alone is responsible for \$800 billion a year, with an approximately equal amount spent on recreational activities without travelling away from home. And the increase in foreign travel by Americans is another indicator increases in income. Also surprising is that spending on business services is worth another \$1 trillion and includes banking, brokerage, real estate, insurance, and other spending to manage one’s accounts. Nearly half of this spending is not paid for directly but are “imputed”—e.g., those free checking accounts still require people and machines to produce and the non-payment of interest offsets the cost of the a service that BEA estimates was worth over \$200 billion in 2013.

Obviously, there are vast differences in the quality and amount of spending in these areas by wealthy households relative to those with less income. For those with substantial discretionary income, the options are legion—travel to anywhere around the world from trips to the classic countries of Western Europe, to adventure travel to deserts, mountains, and undeveloped areas, to resorts catering to golfers, gamblers, or families, plus much

more. Middle income people also have many options which revolve around shorter travel distances and destinations in North America or Caribbean islands.

But the real advance in the last several decades is the cheapening of electronic gadgets. Currently, HDTVs with the accompanying extra cable reception costs are in three-quarters of households, while over 80 percent of individuals 18-64 are in a household with a computer and who has access to the Internet through some device. Today, 68 percent of households subscribe to cable television service, up from 20 percent in 1980; and another third pay more for streaming services with 21 percent of households subscribing to Netflix. But the most prized electronic possession is the cell phone which permits instant access to friends and families: 91 percent of households have at least one cell phone and 65 percent have at least one smart phone. In particular, the combination of computers, cell phones, and social media are at the center of many people's daily life, especially those under the age of 30.

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In conclusion, the majority of people think that they live better than their parents because they do and they can't imagine doing without the new products and services that didn't exist 30 years ago. It should be noted that we really don't have a good way to account for the improvement of standard associated with these new products. Finally, there are many things that are free and greatly underpriced because of advertising.⁹ The main resources that keep the Internet economy and all mass media going is the desire of companies to pay to gain access to consumers to pitch their products or services.

Our economic accounts are based on cash transactions and the use of paid workers.¹⁰ Commentators have tried to come up with a broader definition of economic value and have proposed including the "contribution" of housework to the total output of society. Others have tried to come up with some "sustainability" adjustment to reflect the using up of raw materials or the long-term costs of global pollution. Others have proposed developing a shadow price for the economic value of the entertainment we get for activities we use and view for which we don't pay anywhere near the full price; if this were done economic and income growth would be higher.

Finally, there is the issue of using part of productivity dividend to work less rather than consume more (which wouldn't show up as income on our economic accounts). Over the last many decades, the young and the old are working less—in my book *Rebound*, I note that someone born in 1880 and lived to retirement age was likely to have spent 70 percent of their life working; by contrast someone born in 1950 who lived to retirement age would only spend 52 percent of their years working. But in both cases, their consumption in non-working years would have to be supported by savings in their working years. Consequently, letting the young spend most of their time through age 20 not working full-time and letting a higher percentage of the old stop working at 65 while they are expected to live nearly another 20 years (17.7 years for men and 20.3 years for women) is using the benefits of productivity to free people not to work.

PART II: SOURCES, METHODS, AND INCOME CONCEPTS

While many people think that all data about individuals are easily aggregated to get a complete picture of the American economic landscape, this is not the case. Most of the data that are commonly cited in mass media are based on government surveys of a small sample of the 300 million plus people that live in our country. For example, the monthly unemployment rate that garners much attention and moves the stock market is based the Census Bureau's monthly Consumer Population Survey (CPS) covering about less than 90,000 workers and unemployed. Similarly, the annual poverty rate is determined by the annual March Socioeconomic supplement that asks detailed questions about incomes and earnings over the past year for 80,000 households.

In this paper, three different sources, which differ in terms of their coverage and definitions of income, will be compared. Since these differences are so important to the findings, it is necessary to understand the strengths and weakness of each source.

First, the most widely used source to study incomes is the March Annual Socioeconomic Supplement of the monthly CPS.¹¹ Conducted since 1968, this relatively large survey (between 60,000 and 100,000 households) has collected detailed information on the composition of households and the various types of income. But its focus is on cash incomes so it excludes the value of vouchers (Supplemental Nutrition Assistance/food stamps, subsidized housing), health benefits provided by governments and employer-paid insurance, and capital gains.

Another problem is “mismeasurement”—i.e., people don't accurately report the values of different forms of income. With respect to earnings, the overestimates seem to balance out the underestimates. However, for many sources of income the total receipts reported by CPS responders is considerably less than the totals found from the corresponding values reported in the Bureau of Economic Analysis' National Income and Product Accounts. In particular, the following sources are underreported by at least 50 percent: welfare payments, pension and retirement income, and capital income (interest payments, dividends, rents, and royalties).¹² Consequently, CPS income can be thought of as “pre-tax, post-cash-transfer income”, which underestimates incomes among the poor and the rich.

Finally, the CPS does not have good data on the richest one percent of Americans. On the one hand, a survey with this size will not have that many cases of extreme income. But more importantly, the Census Bureau goes to great lengths to ensure that no particularly person could be identified on the basis of the CPS record. Consequently, it has used various techniques to hide the true values of the wealthiest households.

The Congressional Budget Office (CBO) income series represents the second data source and combines IRS records with CPS information. In addition, they try to come close to the pure economic definition of resources consumed or gained.¹³ The CBO counts as personal income capital gains (see Box 1), all transfer payments, plus employer contributions for medical and retirement benefits and for Social Security and Medicare taxes. Consequently, they report on many kinds of income: market income including labor income, capital income, private retirement income, capital gains, and employer spending on workers;

before-tax income which add transfer payments; and finally after-tax income which subtracts all federal taxes (income, payroll, sales, and corporate).¹⁴

Box 1: Using Capital Gains as Part of Income

Economists believe that the best definition of yearly income should reflect total use of economic resources (either through market transactions, employer benefits, or government services and vouchers) plus change in wealth (e.g., savings or appreciation of financial and business assets). The CBO is able to get good estimates for each household on economic resources consumed but not good estimates for change in wealth. Therefore, they use reported capital gains on IRS forms as a proxy for change in wealth.

IRS-reported capital gains are a far cry from yearly change in personal wealth. First, a lot of wealth gains aren't reported because: 1) they are embedded in homes that are sold with a capital gain of less than the \$500,000 capital gain exclusion available to couples; 2) they are in tax-preferred retirement accounts or company pension plans; 3) business owners incorporate under the Sub-chapter S provisions; and 4) they are assets that are parts of estates which are either untaxed or are excluded in determining the value of assets in taxed estates. Further, capital gains are "lumpy"—instead of being added in small amounts yearly, they appear only when an asset is sold and can be the result of many years of untaxed capital gains. Consequently realized capital gains can catapult the income of the person taking them into a much higher income level for the single year that they report them. As a result, the capital gains amongst the wealthiest 10 percent groups are disproportionately high and the change in wealth as represented by capital gains for the 40 to 90 percent of the income ladder are underrepresented.

Parenthetically, economists also believe that, because of yearly fluctuations of income and because of the life cycle pattern of low incomes when young then rise through age 60 until falling with retirement, the best measure of well-being is "permanent income"—an average of incomes over a life time. While there are some data sources that do cover many information on the same people (called "longitudinal panels"), they have few cases and can shed only limited light on permanent income.

The income data is adjusted for household size (dividing by the square root of the number of people in the household) and arrayed into income quintiles (with the top quintile divided into 81st–90th percentile, 91st–95th percentile, 96th–99th percentile, and top one percent). Because of the use of IRS tax records and fine divisions into groups, the raw CBO data are not made available to the public (which is the case for the CPS data).

Finally, the Piketty and Saez (P&S) American data are part of a much larger project studying income distribution in many countries using tax records. Because the IRS reports a lot of summary data by the size of adjusted gross income, P&S with fairly simple mathematical techniques can get detailed information on very wealthy filers down to the top one-hundredth of one percent of the distribution.¹⁵ While some misreporting exists (e.g., tips and money from illegal activities), it is not considered as big a problem as CPS

underreporting, and obviously this is not a sample but a large universe of filers. P&S have decided that they are interested in tracking the movements of “market income” and purposively exclude all cash and non-cash transfers from government social benefit programs and employer benefits (even though some of these data are available through the IRS).

As noted, there are more income units in P&S than in CPS.¹⁶ In some cases, this is a reasonable procedure in that roommates share certain living expenses but should be considered as independent “one-person families.”¹⁷ But Piketty and Saez’ procedure creates many phantom families because it splits up cohabitators and treats families which file more than one income tax form as being more than one family. Of course, the reason that they file separate is to allow lower-income members to be taxed at a lower rate.

The exclusion of transfer payments would make more sense if the analysis of income was limited to people in their prime-earning years. But many elderly don’t have market income precisely because they have Social Security income.¹⁸ In fact, Bosworth, Burtless, and Anders (2007) show that many elderly households consume as many resources as households headed by adults in their 50s once the CPS is adjusted for underreporting and once the value of Social Security and Medicare are included.¹⁹ So these households have modest or high CBO income and no or low P&S income.

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In addition to the distortion of the income distribution (11 percent of P&S have zero income in 2012 and 25 percent had at most \$10,000), the change in inequality is significantly skewed by the fact that the share of elderly people is rising. Consequently, while tax records have unique advantages in terms of understanding what is happening at the highest rungs of our income ladder they suffer from many problems in tracking the incomes in the bottom half of the income distribution.

Of the three sources, only the CPS provides access to the individual records of the respondents (which are anonymized) which allows individual researchers to slice and dice the numbers as they see fit. The CBO has allocated the various forms of income, transfers, and taxes to individual CPS records but these expanded CPS files are not available publicly. Instead, P&S and CBO provide tables about the distribution of income: for P&S, the first division is 0-90th percentile followed by various gradations of the top ten percent; By contrast, CBO’s data is organized by income quintiles with the top quintile divided into various sub-components including a series on the top one percent.

Although the CPS is widely used, most of the attention in this paper will be comparing the differing results presented by P&S and the CBO. In my earlier paper, my estimate of 33 percent median income growth between 1979 and 2007 was based on adjustments that are very similar to the CBO approach (which has access to the better data in IRS matching records. There are three important methodological choices that the CBO uses that account for 20 percentage points of extra growth for middle class families over these years.

First, adjusting for inflation is very difficult in that new goods are appearing, the quality of goods is getting higher, and people substitute a lower-price alternative when their price of the current consumption good rises. Various government agencies have spent a lot of effort

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to get this right and they have changed their methods several times over the last 30 years. The most common adjustment uses the Consumer Price Index, which is computed on the basis of urban consumers (CPI-U but often shortened to just CPI).²⁰ But the Bureau of Labor Statistics (BLS) in its reporting of historical statistics doesn't use the official CPI but instead uses the CPI-U-RS (where RS stands for research series). This metric shows less inflation and therefore more real growth.

Finally, there is the "chained" consumer price index (C-CPI-U) which shows even less inflation and may be adopted as the official price deflator in the next few years.²¹ The chained CPI is close to the price deflator used by the BEA in constructing the National Income and Product Accounts—the Personal Consumer Expenditures deflator or PCE.

The second methodological issue involves the shrinking size of households and families, which is driven by four factors—declining number of three-generation households, older children leaving home to live alone or with roommates, fewer children per couples, and more single parent households due to rising divorce and the decline of the stigma of single women raising children alone. In my updated *Social Stratification in the United States* (forthcoming 2015), I report that the share of adults who live in "husband-wife" couples (including cohabitators who technically aren't married) declined from 76 to 68 percent from 1979 to 2013.

Consequently, income per household has to support fewer numbers of people, meaning that the same number of dollar goes further and income growth per household is greater using size-adjusted incomes. Because defining the poverty threshold is so important, there is a large literature on how to equate living standards of different sized households. In general, it only takes half the income of a single person living alone to equal the living standards of a family of 4 (i.e., a single person living alone with an income of \$50,000 has the "equivalent" income of family of four with a combined income of \$100,000).²² Because of the shift to smaller households, the CBO reports that incomes that are size-adjusted have an additional 8 percentage points more income growth over the period from 1979 to 2007.

The logic of this source of income growth is that part of the added available production is used for greater autonomy—elderly people not burdening their children and young people moving out to have greater personal freedoms.²³ In terms of decreasing number of children, some commentators have argued that this factor should not be used because it is driven by families having fewer children because of tough economic times. While it is certainly true that some people make this decision, the decline in number of children per family has been occurring for decades here and in every advanced industrial country. In fact, the decline was more pronounced in Western European countries during times of their highest economic prosperity.

Third, the P&S data have many more low-income living units because it is based on tax filers without government transfers. By contrast, CBO (which is based on the CPS) reports income data on the basis of all those that live in the same housing units and only count as families groups of people who are married or with children. Thus, single people are either classified as primary individuals if they are the head or the household or secondary individuals if they are a roommate or boarder. In a few cases, there is more than one family

The high growth in median income growth in the CBO is much more consistent with the discussion in Part I on rising consumption across the board than the paltry 5 percent growth in the bottom 90 percent found in the P&S data.

in the same household—these “sub-families” can either be related to the head of the household or not related. In most cases, this is a single family, sometimes with children, or a single individual living alone. In other cases, two or more single individuals can share living quarters but function autonomously in all other circumstances.

The CBO differs from CPS, however, in that incomes are “person- rather than household-weighted.” This may seem esoteric but it does have a significant effect on reported median incomes. Consider the following group—a married couple with three children with total income of \$67,000 and four single people each with an income of \$35,000. These five households if treated simply as households have a median income of \$35,000. However, there are 9 persons in this group and, if we allocate the whole income to each person, then the median becomes \$67,000. But with one more twist, if each of these households is size-adjusted to family of 4 people, then the four single people and the family all have reported incomes of \$60,000. CBO uses both person-weighting and size-adjustments-- the person adjustment leads to a higher median value while the size adjustment takes away some of this advantage. In general the size adjustment will be bigger—in this simple example, the mean income value is much higher when both adjustments are used.²⁴

PART III: CHANGES IN MIDDLE CLASS INCOMES

The first thing to note is the vast differences of median incomes across the three data sets. This is particularly striking with respect to the bottom quintile. Although P&S don’t report data on this group, estimates can be made using the same raw IRS Statistics of Income tables that they used (including an adjustment for the number of non-filers who are all presumed to have no market income). Consequently, the average incomes of the bottom income quintiles in 2007 were about \$2,000 in the P&S approach, just under \$12,000 in CPS, and \$24,000 using CBO data. In terms of medians, the respective income levels were \$30,000, \$52,650, and \$77,200.

The strongest evidence for the stagnating middle class incomes argument is based on two widely cited numbers from P&S: 60 percent of the income growth between 1979 and 2007 went to the top one percent and the average income of the bottom 90 percent grew by just 5 percent.²⁵ These data look worse when we expand the time horizon to 2010 (the last year of CBO data) when the real income change of the average of the bottom 90 percent from 1979 is depressing minus 8 percent.²⁶ Although the numbers through 2010 don’t get a lot of attention, they indicate middle class income decline rather than just stagnation.

By contrast, the CBO paints a remarkably different picture with much higher levels of growth, as the real after-tax median income adjusted for changes in family size grew by 50 percent from 1979 through 2007 (and 46 percent to 2010).²⁷ The high growth in median income growth in the CBO is much more consistent with the discussion in Part I on rising consumption across the board than the paltry 5 percent growth in the bottom 90 percent found in the P&S data.

Some researchers (e.g., Bernstein (2014) say that much of the difference in income between P&S and CBO is due to rising transfer payments.²⁸ He goes on to argue that if growth is dependent of transfer payments, then this is another indictment of the poor performance of

the economy. This position is based on the premise that working people are getting the extra transfer payments because of low income and unemployment.

But this is a misreading of what happens within income groups. For example, the CBO middle income quintile based on before-tax income grew from \$52,500 in 1997 to \$65,400 in 2010 in 2010 dollars, while average market incomes have inched up (\$48,000 to \$49,600) and transfer payments grew from \$4,500 per household in 1979 to \$15,300 in 2010. Thus, it appears that all of the growth was due to increasing transfer payments.

Appearances can be deceiving, and these data don't mean that non-elderly working families had over \$15,000 in transfers. The way to understand these numbers is to think of the households in the middle quintile as being composed of two groups—the elderly and the non-elderly. The share of the elderly households rose from 15 percent in 1979 to 24 percent in 2007 while transfer payments received by these households more than doubled from \$15,700 to \$32,700.²⁹ By contrast, the non-elderly households in the middle income quintile got less than 10 percent of their before-tax income from transfers and only one-fifth of their income growth was due to increased transfers. So the 40 percent income growth of these households was mainly due to gains in market income and most of that were gains in labor income.

Surprisingly, transfer payments can be found throughout the entire income distribution. On the one hand, elderly households who were in the top income of all households in 2010 had average market incomes of \$220,000 and \$43,000 of transfer payments. For households with children and in the top income quintile, their incomes averaged \$383,000 with \$3,100 in transfer incomes. Even the non-elderly without children in the top income quintile received \$3,300 dollars of transfer income. These examples show that simple identification of government transfer payments with low-income households is wrong because there are many elderly households throughout the income ladder who receive high levels of transfer income. And even among the non-elderly, there are households who receive survivorship benefits, Social Security (elderly with children, perhaps grandchildren, in the household), unemployment insurance, or children's health benefits.

In terms of the elderly, the rise in the value of their benefits has changed dramatically their place on the income ladder. The average amount of transfer income for each childless household headed by someone 65 or older rose from \$14,500 to 31,200 from 1979 to 2010. As a result, elderly households went from being 36 percent of households in the lowest quintile in before-tax income to only 15 percent despite the fact that the share of elderly households rose. Their share of households in the top quintile was equal to the share of households and they were slightly overrepresented in the fourth highest quintile.

This means that not only are more people living longer (and many more to come with the aging of the baby boom), but their consumption levels have risen substantially. Consequently, this means that a core contributor of why income growth for prime age workers has not been as fast as in times past is this political choice to provide more resources to elderly non-workers. In fact, many people think that we have been too generous and want to reduce the growth of elderly benefits and use the money to either

assist low and moderate income young people or expand public goods (e.g., infrastructure, science spending, etc.).

In terms of taxes, many things are happening. On the one hand, the overall tax rate on all incomes declines from 22.0 percent in 1979 to 20.3 percent in 2007 to 18.1 percent in 2010 (this includes the special tax breaks on Social Security payments to stimulate the economy during the Great Recession). But this declining average actually bucks the trend of a greater share of income being accrued by the wealthy—since the wealthy have a higher average tax rate, this movement should have led to an overall higher rate actually paid.

A core contributor of why income growth for prime age workers has not been as fast as in times past is this political choice to provide more resources to elderly non-workers.

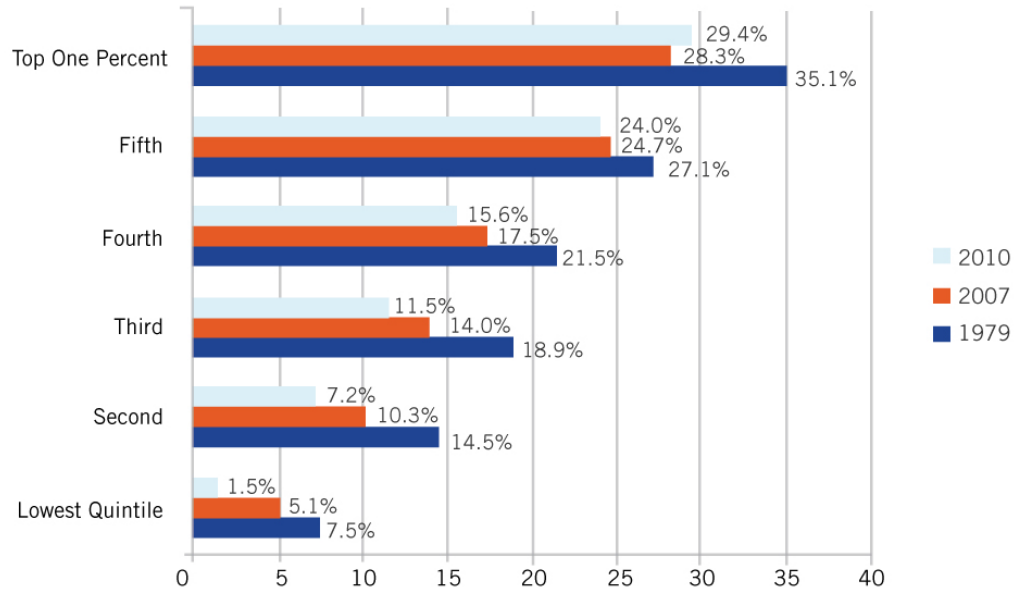


Figure 1: Declining Tax Rates Across All Incomes

As a result, the declines in tax rates within income quintiles were substantial (see Figure 1): from 1997 to 2007, there were substantial declines in the tax rates of all of the income quintiles and top one percent (reflecting mainly the many rate reductions passed during the first years of George W. Bush’s administration and the consequent indifference to high budget deficits). Between 2007 and 2010, tax rates declined again for all groups but the top one percent. In the latter year, households in the lowest income quintile paid hardly any taxes at all (just 1.5 percent versus the 7.5 percent in 1997). As can also be seen, the rates were quite low in the second and third income quintiles and even modest (15.6%) for households in the fourth income quintile.

These movements meant that the share of federal taxes paid by the top one percent rose from 14 percent in 1979 to 27 percent in 2007 and 24 percent in 2010. Concurrently, the share of total taxes paid by the top income quintile as a group went from 55 percent in 1979 to 68 percent in 2007 and 69 percent in 2010. Obviously the increase in the share of the top one percent was driven mainly by the massive increases in their before-tax incomes: \$515,000 (2010 dollars) in 1979 to \$1.93 million in 2007 to \$1.42 million in 2010.

The tax issue is important because the CBO has a separate series of analysis based on after-tax incomes. And because of the progressive incidence of taxes, this shifts more growth

away from the wealthy and to the bottom 60 percent of the income scale. At the median, the growth of after-tax income is 8 percentage points higher than the before-tax income growth rate. By contrast, if the tax rates had continued at their 1979 levels, then the after-tax growth using size-adjusted incomes wouldn't have been 50 percent but would have been 42 percent. Of course this extra 8 percentage points resulted in greater government debt which has to be paid off in the future. While some of these future payments will flow to foreign debt holders, the domestic consequences may lead to rising inequality as the interest on bonds goes to higher income people while taxes are paid by all people.

PART IV: WHO BENEFITED FROM GROWTH

Much has been made of repeated findings from P&S about the outsized shares of growth going to the top one percent—Mishel and Bivens, Stiglitz (2012), and others, note that, in the P&S approach, 59 percent of growth from 1979 to 2007 went to the richest one percent and 91 percent went to the top ten percent (leaving only 9 percent of growth for the bottom 90 percent of the income ladder).³⁰ By contrast, in the CBO approach, the bottom 90 percent U.S. households actually received 43 percent of growth, not 9 percent; and this share rises to 47 percent in after-tax income!³¹ This obviously is not a trivial difference.

The difference between P&S and CBO can be broken down into several components (see earlier discussion of methods and definitions of income):

- The inclusion of transfer payments adds over \$30,000 per elderly household and perhaps a bit over \$10,000 a year for poor households: this provides positive and rising income for tens of millions of households where P&S tax filers have very low amounts of market income;
- The use of households rather than tax filers: this decreases the number of low income living units in P&S by over 30 million;
- The inclusion of employer provided payments for health care, retirement, and the employer's share of FICA: this increases market income for middle-income non-elderly households with children by nearly \$12,000 in 2007. Also, these employer payments increased by over \$4,000 from 1979, which is responsible for 17 percent of the \$25,000 increase in before-tax income over this period;
- The adjustment by CBO for changes in household size and person-weighting adds approximately 10 percentage points (the equivalent of an extra \$6,000 in income) to the growth of the median relative to not making this adjustment; and
- The use by CBO of CPE to adjust for inflation rather than CPI-U-RS, which increases growth by about 10 percentage points.

While slightly less than half of CBO income growth goes to the bottom 90 percent, these gains aren't equally distributed within this group, and Figure 2 gives the full accounting of where the growth of after-tax income went. The top bar in the chart shows that the 81st-90th percentile group received a little more than their proportional share. In absolute terms, this group's income rose 57 percent from \$70,500 in 1979 to \$110,900 in 2007. Thus these "upper middle class" families experienced substantial income growth leaving them with a significant amount of disposal income at the end of the period.

The middle class did not get a proportional share of the growth but it is not the chasm of 74 percent GDP growth and 5 percent income growth.

Continuing down the income ladder, the fourth quintile (61st to 80th percentile) received slightly less than its proportional share. Yet their after-tax incomes rose a hefty 49 percent per household, \$55,700 in 1979 to \$82,100 in 2007. By contrast, the bottom three income quintiles received relatively small shares of after-tax income growth over these years because they had low incomes to start with. In terms of growth rates, they did much better. While the average income growth of all households over these years was 72 percent, the growth rates for these three quintiles were 38 percent for the second and third, and 45 percent for the bottom quintile (Figure 2).³²

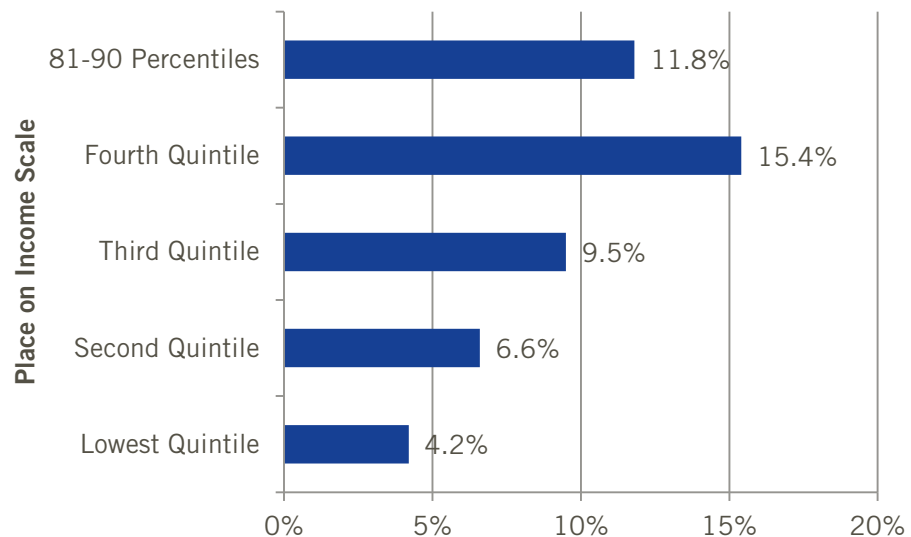


Figure 2: Share of After-Tax Income Growth 1979 to 2010, Bottom 90 Percent

Finally, to understand how unequal the growth has been many people compare middle-income growth to the change in some economic aggregate, usually the 74 percent gain in real GDP per capita over the 1979 to 2007 period. Thus, P&S’s 5 percent income gain per filer in bottom 90 percent of the income ladder looks quite puny when stacked up against this number.

Because GDP includes the high productivity investment sector, it is probably best to compare middle income growth to the growth of National Income per person and use the PCE price deflator. Using this approach, CBO median before-tax income grew by 42 percent versus a National Income growth per person rate of 67 percent. Moreover, there are reasons to believe that overall economic growth and rises in productivity are overstated, in part because U.S. manufacturing output growth appeared to overstated by almost 30 percent in the 2000s, and this meant that overall U.S. productivity growth was also overstated.³³ Once again, the middle class did not get a proportional share of the growth but it is not the chasm of 74 percent GDP growth and 5 percent income growth.

PART V: INDIVIDUAL INCOME GROWTH/LIFE CYCLE GAINS

So far, all of the discussion about growth has compared the status of “similar places” in the income ladder at different points of time. Further the share of growth is that of similar places and not real people.³⁴ We can estimate what happens to real people using three techniques. The first approach, called “cohort” analysis, compares the incomes of 35-44

years old 10 years ago to the incomes of 45-54 years old today. Using the simplifying assumption that people stay in the same relative position, we can compare similar points in the income ladder (e.g., the 25th, 50th, and 75th percentile) to compute income change (which is almost always positive for non-elderly adults). Second, “synthetic cohort” analysis uses a single year of data and looks at incomes of people of different ages and assumes that the incomes of young people today were similar to young people in the past and therefore the income differences between people of different ages today can be used as a proxy for what happens as people age: in other words, the incomes of those 35-44 today can be used as the standard for the incomes of what 45-54 years today were 10 years. The advantage of this approach is that you only need a single data source that has a lot of cases.

Age	Median Income
21	\$21,000
25	\$43,000
29	\$54,000
37	\$70,000
47	\$78,000
56	\$70,000
60	\$66,000
64	\$60,000

Table 1: 2012 Family Incomes by Age

The third approach requires a data source that has information on the same people over long periods of time—called a “longitudinal panel.” The first such study is the Panel Study on Income Dynamics started in 1968 and is still going today.³⁵ While this source has relatively few cases that span decades, it is “weighted” to be a representative sample and provides information on specific people as they age. Further, because it is a true trend analysis, individual trajectories can be grouped into those who didn’t have income gains over time, those with small gains, and those with large gains. As will be shown, these three approaches show similar results.

Figure 3 is from the seventh edition of my *Social Stratification in the United States* and shows the full distribution of non-dependent adults at different ages by size-adjusted family of three equivalents, with a single adult household treated as a family of one in 2012.³⁶ As is apparent, incomes (pre-tax, post-transfer, and size-adjusted for to the equivalent family of three income level) of 45-64 year olds are highest throughout the distribution and they have significantly higher incomes than all other ages at the 90th, 95th, and 99th percentiles within each age group. By contrast, those with those with the lowest incomes are 18-24 year olds just starting out on their own. Those who are over 65 are in the middle of the pack with monetary incomes much significantly below the line of the 45-64 year olds.

Looking at the median income value for each year after age 21 reveals early explosive income gains through age 37 and then modest gains through age 48 ending in declines starting at age 60. As Table 1 shows, 21 year-olds (who are out on their own) have typical incomes of \$21,000 (some may still be in school). Yet, by age 28, median income has rise to \$54,000 (basically rising by 150%). Gains are still substantial through age 37 when incomes now reach \$70,000. There still are improvements until the ages 47 to 53 when family income reaches their peak.

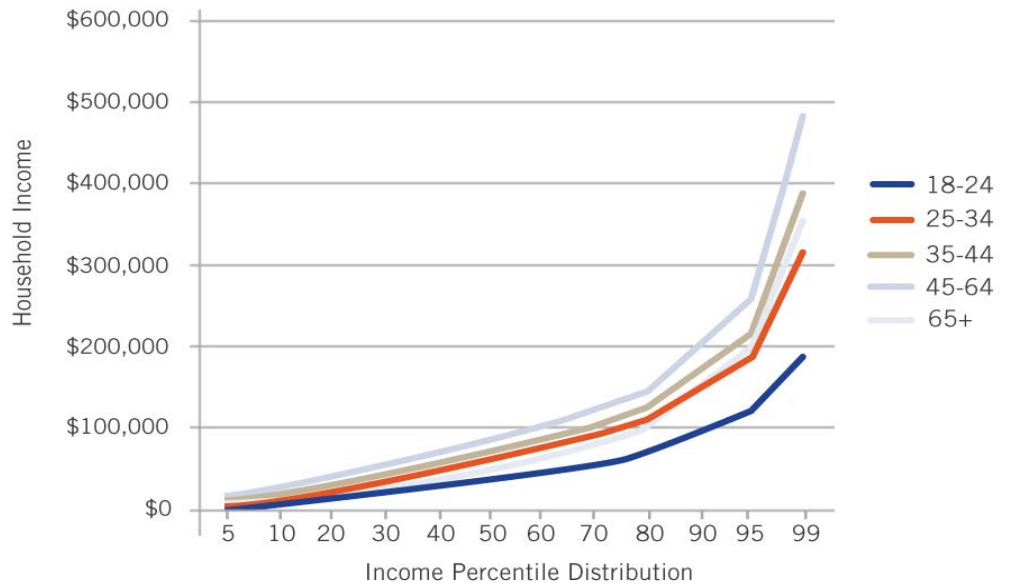


Figure 3: Incomes Rise with Age and Decline Modestly with Retirement

In addition to age, being married is another key factor in determining one's standard of living. Those who are married can pool incomes from the husband, wife, and perhaps, even older children. Furthermore, in recent years, more highly-educated and higher earning people were likely to be married versus less-educated and lower earners. For example, the median income of married couples was \$77,900 versus: \$53,100 for single men, \$49,700 for male householders with dependents (almost entirely children), \$40,600 for single women, and \$34,500 for female householders with dependents (all of these dollar figures are in family of three equivalents).

Figure 4 shows another way to depict how incomes rise with age. While married people in their 20s have median incomes of just under \$52,000, the comparable incomes for older married couples are \$77,000 for 30-44 year-olds, and \$90,000 for those who are 45-59. Although the median household income of the entire population was just a tad over \$50,000, the median of married couples aged 45-59 is nearly twice that level (and just over 70 percent of 45-59 year-olds are married).

While there is no standard of what constitutes 'comfortable' living, the BLS in the 1970s came up with income thresholds of low, medium, and high budgets to supplement the poverty line. The high budget was meant to define a minimum income level that permitted

a family to consume a varied level of high quality consumer goods. The BLS's high budget (meant to be the minimum to get into the upper middle class) equaled 425 percent of the poverty line.³⁷ Given that the 2012 poverty line was \$19,090, this means the high budget in 2013 would be a tad more than \$81,000. In other words, the nearly 58 percent of those who were married in their prime earnings years surpassed this level.

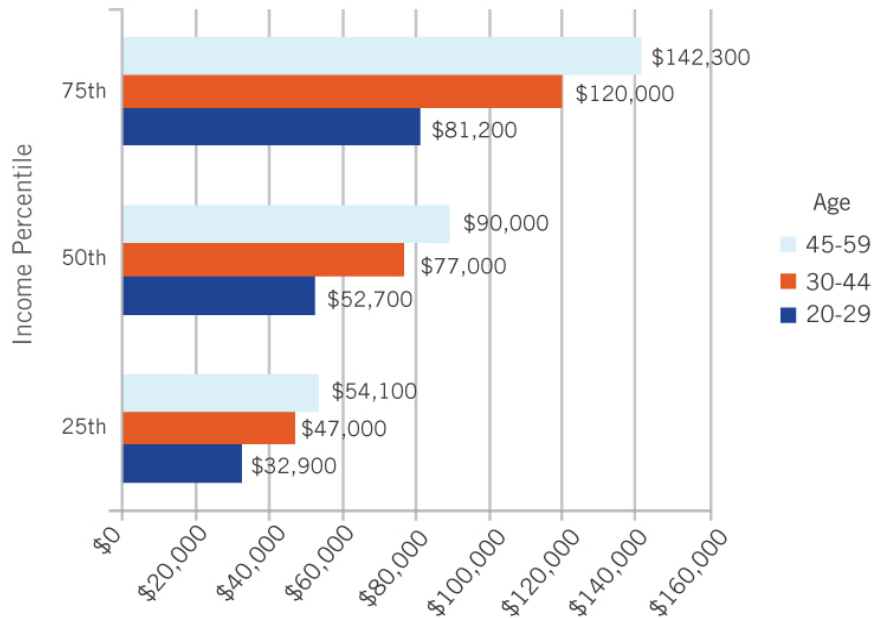


Figure 4: Growth of income Over a Life Time, 2012 Married Couples

A final way to address rising incomes over people's lifetimes (using the cohort approach) is to track what happened people who were young in 1979. Again just for convenience, I looked at married people aged 20 to 31 in 1979 and found that they had a median household income of \$55,600 (2007 dollars). By 2007, married people who were 48 to 59 had a median income of \$81,000, 46 percent higher than their inflation-adjusted incomes in 1979. So, P&S's tiny gain for the bottom 90 percent did not translate into stagnating incomes for most real people.

Finally, using the PSID the progress of real individuals can be tracked as they age from 1979 to 2007. Again, of those who started aged 20-31 years old, median incomes rose 44 percent over the ensuing 28 years. Rather than just look at the medians, the individual experiences income gains and losses can be tracked: over these years, 27 percent actually had lower incomes in the older years than their younger years. Conversely, 35 percent had gains of at least 100 percent, and the median growth rate (which is different from the growth rates of the medians) was a gain of 56 percent.

PART VI: EARNINGS GROWTH OVER A CAREER

Many commentators have written about the sorry state of middle class earning which seemingly haven't risen in a long time. CBO data and life cycle analyses of earnings can shed new light on this issue. In terms of cash wages and salaries of all members of the household for those in the third income quintile, households with children were up \$11,000 (from \$50,000 to \$61,000) and were up \$7,700 (from \$31,000 to \$38,700) for non-elderly households without children from 1979 to 2007. But these figures don't count the importance of increasing employer-provided benefits which rose \$6,140 for households with children and \$3,270 for childless non-elderly households. Consequently, total labor compensation increased by 30 percent for non-elderly households in the middle quintile (\$17,000 for those with children and \$11,000 for those without).

Two things should be noted about these changes. On the one hand, nearly three-quarters of these income gains had been made by 1999, meaning that growth was very slow in 2000 to 2007 (a period of relatively slow economy-wide productivity growth) and negative by several thousand during the great recession of 2008 to 2010 (the last year of CBO data). On the other hand, it is unclear what happened to individual earnings from these data. For households with children, more wives were working longer and for higher pay but more households were headed by single women who had much lower earnings.

Figure 5 displays the change in median yearly earnings for male and female workers in 2012 (by focusing on yearly earnings both hours of work (which vary by intensity per week and number of weeks worked per year) of employment and wage levels matter).³⁸ For both men and women workers, there is a sharp climb in earnings during their twenties.³⁹ Women's earnings are lower and tend to max out sooner: reach \$30,000 at age 31 and then starting at 36 ranged from \$30,-35,000 a year until age 63. Men's earnings continue rising until age 43 when they reach \$49,000 and bounced around a narrow range thereafter through age 61.

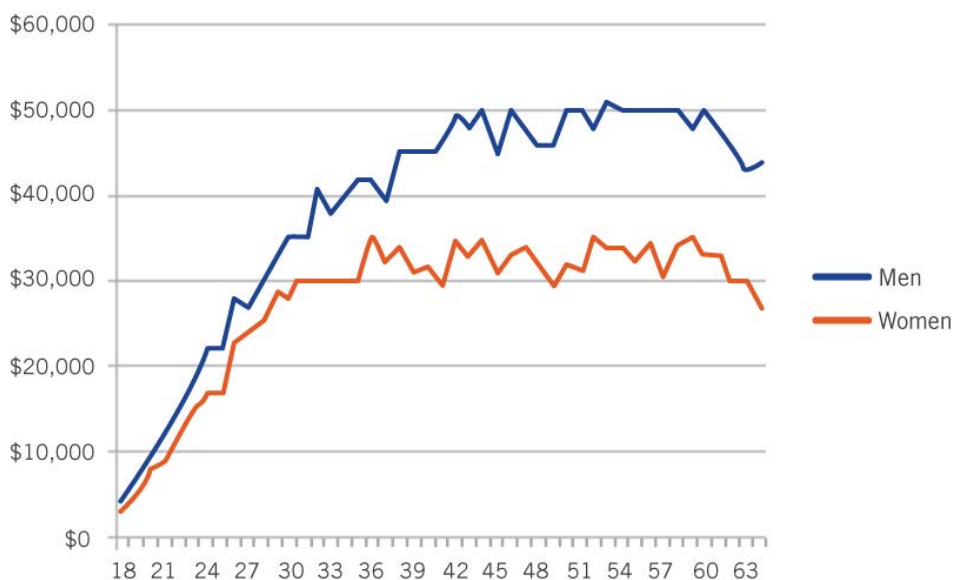


Figure 5: Earnings Rise Rapidly in Worker's 20s and 30s

Rose and Hartmann (2004) showed that workers who spent a single year without any earnings tended to have lower earnings when they were working, especially if they had more than one break in 15 years. For male workers, by age 22, only 26 percent had no earnings for that year. This figure declined to 11 percent by age 30 and varied slightly from 9 to 13 percent through age 50. About 18 percent were not working in a year, and this figure rose to over 30 percent in the early 60s. By contrast, women by 23 had reduced their yearly non-participation to 25 percent, but they stayed at this level (24-28 percent through age 57); by their 60s, over 40 percent of women were having no earnings for the calendar year.

Finally, it should be noted that these data reflect a time when the labor market still hasn't recovered from the Great Recession. The comparable data in 1999 when the economy had a very low unemployment rate and rising earnings show a slightly higher peaks: for men, their median earnings continued to rise after age 43 and reached a maximum of \$58,000 from 51 through 56; and for women, they had a similar earnings profile through age 48 but were able to do better than women in 2012 for ages 49 through 64.

There are a vast echo chamber of books and articles showing social ills, especially stagnant incomes, and the necessity for the system to address these problems.

CONCLUSION: CHOICES FOR THE FUTURE

We have had quite the roller coaster ride over the past 20 years. Starting the 1994, there was strong economic and employment growth that benefited the bottom half of the incomes scale a lot. We reached the highest rate of employment to population in our history and the national unemployment rate varied between 3.8 and 4.1 percent throughout 2000. Growth was so strong that tax revenues streamed in, more than doing away with the federal budget deficit. Optimism reigned and the stock markets soared until the technology bubble burst and the NASDAQ composite index went from over 5,000 to 1,100.

It is hard to believe that in 2001, Federal Reserve Board Chair Alan Greenspan supported individual tax cuts because he claimed that prosperity and high government revenues were projected for next several decades (one of just many mistakes Greenspan made while Chair). The foolhardiness of the stock prices was just a prelude to the unsustainable rise in home prices. Cassandras like Robert Shiller unfortunately went unheeded and we went to the precipice of a complete collapse of our financial system.

Now pessimism reigns, and psychologists have found that we are hard-wired to pay more attention to negative events than positive ones—it is better to make a mistake to run away from a potential predator than to stay to see if that noise was really that of a predator.⁴⁰ In my first foray into this debate, I posted on on-line criticism of *What's the Matter with Kansas*, arguing that it was “an occupational hazard of those with big hearts to see social problems.” Add in the negativity bias, the fact that good news is boring so that the mass media pays a lot of attention to bad news, and the social concerns of a large sector of the population and you now have a vast echo chamber of books and articles showing social ills, especially stagnant incomes, and the necessity for the system to address these problems.

I have argued here that inequality is up but not as much as Piketty and Saez (and the large numbers of people who cite their work) report. Many reasons have been presented throughout the paper showing why the P&S numbers simply don't make sense:

- In the second part of the paper, all of the growth that occurred within each of the major consumption categories could not have occurred if the bottom 90 percent of the distribution got only 9 percent of the growth.
- In the third part of the paper, it was shown that the CBO approach revealed very strong growth in the middle of the distribution. Further it was shown that the upper middle class group (the 81st to 90th percentile) had their after-tax incomes grow by 57 percent from 1979 to 2007. None of this is possible under P&S.
- In the fourth part of paper, the CBO data showed that 47 percent of the growth of after-tax income between 1997 and 2007 went to the bottom 90 percent—a far cry from the less than 9 percent in P&S.
- In the fifth part of the paper, a number of approaches were shown that documented how incomes grew as people aged. This approach comes up with similarly large growth rates as the CBO and shows that the P&S approach of comparing similarly-situated groups can lead to very misleading conclusions.
- Finally, the sixth part of the paper documented earnings growth of individuals over their lifetime and of non-elderly households. This life-cycle data tracks the experiences of real people as opposed to the comparison of similarly-situated people.

This is good news in that it makes the problems smaller and easier to deal with. But the Great Recession, which started in 2008 and whose effects have lingered on until today, has soured the mood of Americans. While real GDP per capita and National Income per capita finally surpassed their 2006 levels, real median household income in 2013 (as reported in the March, CPS Surveys) was still 8 percent lower than its 2007 level (the CBO data end in 2010).

Perhaps this is why in exit polls from 2014, people expressed lots of concerns that the economy was going in the wrong direction and worried that new international, high-connected economy could lead to personal disruptions. Further, there is the old saw of “what have you done for me lately.” Instead of the gains in the 1980s and 1990s, they react more strongly to a variety of more recent negative indicators: small improvements in living standards since 2000, caused in part by small improvements in productivity; much tougher global economic competition, the rising gap between rich and poor; and uncertainty about their children's future, especially given the price and difficulty of finishing a college degree.

Consequently, polling on middle class attitudes from the Pew Research Center reveals both the negative attitudes about the overall economy and the positive attitudes towards their own situation. Young people, in particular, are optimistic about their future. When asked by Pew in 2010, “although there may be bad times every now and then, America will always continue to be prosperous and make economic progress,” 63 percent agreed and

the figure was 70 percent from those 18-29. And in a Pew poll in 2012, 59 percent said that they lived better than their parents at a similar age, and only 18 percent said worse.

The final conclusion then is actually the same one that I made in my previous paper on this subject:

“The old lesson of economics, embraced by a generation of Democratic leaders, that a rising tide lifts all boats is still true, and it’s even more true that without a rising tide it is very difficult to raise the boats of average working Americans. This means that if progressives want to help raise the incomes of average American workers, a robust economic growth strategy with a strong focus on the key drivers of productivity growth – technological innovation and digital transformation of the economy – will be critical. This does not mean that other strategies to ensure more equal distribution of that productivity (e.g. higher minimum wages, more progressive taxes, universal health care, and the like) are not needed to more closely match median and average income growth. But the lesson from this analysis is that progressives ignore productivity growth at their own peril, and more importantly, at the peril of average working Americans.”

ENDNOTES

1. Thomas Piketty, *Capital in the Twenty-First Century*, (Cambridge, MA: The Belknap Press of Harvard University Press, 2014), translated by Arthur Goldhammer.
2. See Lawrence Mishel and Josh Bevin, *Occupy Wall Streeters Are Right About Skewed Economic Rewards in the United States* (Washington: D.C.: Economic Policy Institute, 2011). Using the earlier version of the Piketty-Saez data, Frank Levy and Peter Temins in, *Inequality and Institutions in 20th Century America*(Cambridge, MA: Massachusetts Institute of Technology, Department of Economics, 2007) found that 80 percent of income gains between 1980 and 2005 went to the top one percent. After I alerted Levy, Temins, and Saez that these data used the wrong price deflator (which understated the amount of growth across the income ladder), all of the Piketty and Saez data were updated with the proper inflation adjustment and the share of the top one percent growth declined to the Mishel and Bivens level.
3. See Rob Atkinson, *Worse than the Great Recession: What Experts are Missing About American Manufacturing Decline*(Washington, DC: Information Technology and Innovation Foundation, 2011).
4. *How the Great Recession Has Changed Life in America*(Washington, DC: Pew Research Center, 2010).
5. And since they don't see the gains, they are confused about how so many people vote for Republicans who seem to advocate proposals that are against "their interests." See for example, Robert Frank, *What's the Matter with Kansas: How Conservatives Won the Heart of America* (New York: Holt Paperbacks, 2005). For those who argue this position, they rely on three reasons: the Democrats run bad campaigns and candidates, the Democrats are bought off by wealthy contributors, and the people are confused, befuddled, focused on minor social issues, and some similarly secondary reasons.
6. Scott Winship in several postings on Forbes.Com has addressed some of the same issues. In *Whiter the bottom 90 percent, Thomas Piketty?* (New York: Manhattan Institute for Policy Research, 2014), <http://www.manhattan-institute.org/html/miarticle.htm?id=10273#.VEUnJfldXlc>.
7. Based on author's calculations from the March CPS in 1980 and 2008..
8. For a modern version of this argument, see Robert Skidelsky and Edward Skidelsky, *How Much is Enough: Money and the Good Life*(New York: Other Press, 2012).Further, in 1930, Keynes wrote a short piece on the *Economic Possibilities of Our Grandchildren*(New Haven: Yale), <http://www.econ.yale.edu/smith/econ116a/keynes1.pdf> (accessed November 1, 2014) in which he concluded that "the economic problem may be solved, or be at least within sight of solution, within a hundred years"; John Kenneth Galbraith, *The Affluent Society* (New York: Mentor Books, 1957).
9. It should be noted that the costs of advertising are embedded in the costs of the commodities that sponsor the ads.
10. This is not strictly true as \$1.3 trillion in 2013 was the imputed rent of home ownership: of this total \$600 billion went for the interest on mortgages and other paid services for maintenance while \$400 billion was credited to individuals as rent that they paid themselves and \$300 billion was for capital depreciation.
11. See this Census report describing how this is collected: Current Population Survey, 2010 Annual Social and Economic (ASEC) Supplement (Washington, DC: Census Bureau), <http://www.census.gov/prod/techdoc/cps/cpsmar10.pdf>.
12. The studies on underreporting have occurred infrequently but there is no reason to believe that the level of underreporting has changed significantly over time.
13. Congressional Budget Committee, *The Distribution of Household Income and Federal Taxes, 2010*(Washington, DC: Congressional Budget Committee, 2013).
14. The BEA in constructing their tables on personal income includes various "imputations" of economic resources consumed without being paid for. The two biggest are rental income of home owners --treating home owners as if they are landlords to whom they pay rent—and the cost of financial services (e.g., free checking) that either are free or not covered by the price paid.
15. See original paper on their tabulations describing their methodology; Thomas Piketty, *Capital in the Twenty-First Century*.
16. P&S add almost 10 percent of additional families to accommodate those people that don't file any IRS tax forms (mainly elderly people who rely almost exclusively on social security income).

17. In Stephen J. Rose, *Social Stratification in the United States* (New York: The New Press, Forthcoming 2015), I treat roommates in this fashion but also treat households with cohabitators as being married.
18. Economists say that people who don't have earnings because they have other means of support are not really market-poor because they voluntarily choose to stay out of the labor force. Therefore, including these people in the income distribution without including their outside sources of income does not make sense.
19. Barry Bosworth, Gary Burtless, and Sarah Anders, *Capital Income Flows and the Relative Well-Being of America's Aged Population* (Washington, DC: Brookings Institution, 2007)
20. The CPI-W is very similar and applies to urban workers and not all consumers.
21. For a description of this price indicator and its advantages over previous CPIs, see http://www.bls.gov/cpi/super_paris.pdf.
22. Another difference in the CBO is that the quintiles have similar number of people in them—this is called person-weighting as opposite to the CPS approach of reporting incomes solely on the basis of households. Person-weighting means that families with children are given more prominence – instead of this unit being a single case it is four cases for husband-wife-two-children families. Because these families tend to have higher incomes even when adjusted for size, average and median income figures using the CBO approach are nearly 10 percent higher than comparable figures using households as the unit of analysis.
23. One of the validating experiences of the importance of this factor is the response to the reversal of this trend when more young adults are returning to live with their parents—a move that is treated as a sign of the poor economy and job prospects for young workers.
24. If the CPS used person-weighted median income would be over \$58,000 in 2013 rather than the reported household median of just under \$52,000. If households were adjusted to a “family of three” equivalent income, the median would rise still further to \$66,000.
25. Scott Winship in various columns on the Forbes website (see for example, <http://www.forbes.com/sites/scottwinship/2014/09/30/no-the-rich-are-not-taking-all-of-the-economic-pie-in-8-charts/>) also critically compares P&S data using the CBO approach. But he is responding to growth over business cycles in response to the work of Bard College economist Pavlina Tcherneva.
26. These data include capital gains. But this does not affect the trend as the change from 1979 for incomes without capital gains were plus 4 percent through 2007 and -9 percent through 2010.
27. While P&S don't report median income values, the change in the average for the bottom 90 percent (5 percent gain) is a very good proxy of what happened at the median.
28. Jared Bernstein, “Piketty's Arguments Still Hold Up, After Taxes.” *New York Times* (accessed November 22, 2014), <http://www.nytimes.com/2014/05/10/upshot/pikettys-arguments-still-hold-up-after-taxes.html?rref=upshot&abt=0002&abg=0>.
29. The relative standing of the elderly changed dramatically over these years. In 1979, the elderly were 36 percent of households with incomes in the bottom income quintile; by 2010, this figure dropped to 12 percent despite a small rise in the share of elderly households in the entire population
30. See Lawrence Mishel and Josh Bevin, *Occupy Wall Streeters Are Right About Skewed Economic Rewards in the United States*(2011); Joseph Stiglitz, *The Price of Inequality: How Today's Divided Society Endangers Our Future* (New York: W. W. Norton and Company, 2012).
31. The CPS does not report average incomes for the top 10 percent but they do for the top 5 percent. In terms of growth between 1979 and 2007, the bottom 95 percent only captured 19 percent while the comparable number for the CPS bottom 95 percent was 36 percent.
32. There is a quirk in presentation of income data in the CBO excel distribution tables relative to the presentation of their median tables. In the median tables, there are separate columns for unadjusted incomes and incomes adjusted for size but converted into one person “family” equivalents (in my work, I convert to three-person family equivalents). In all of the income data on quintiles, the quintiles are defined by family-adjusted incomes with an equal number of people in each quintile. But the income figures are unadjusted incomes. The logic of this is that they refuse to use three-person family equivalents and then one-person family equivalents are artificially low and confusing to readers. This accommodation, however, results in growth rates that are 8 percentage points lower than if the comparison was adjusted for family size (from private communication with CBO).
33. See Robert Atkinson, *Worse than the Great Recession: What Experts are Missing About American Manufacturing Decline*.

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34. Doing share of growth analyses over short periods of time is fraught with confusing results. On the one hand, growth is measured by the change over two periods that are close in time tends to be small. Therefore it is quite possible that a small group could be responsible for all of the growth and that other subgroups would be responsible for negative growth. The second problem is that this analysis is often used to show that the majority of people had stagnating incomes. As will be shown in this section, people change places often and that most people follow a slow upward trend as they age from 30 to 55 (before 30 they have a sharp upward trend and after 55 they have a downward trend).
 35. The other long-running American longitudinal panel is the National Longitudinal Study of Youth which started in 1979 (another youth panel started in 1997). There are many shorter longitudinal panels lasting up to 10 years.
 36. A non-dependent is someone mainly responsible for their own well-being and is either part of husband-wife couple (including cohabitators), a single adult with dependents, or a single person living alone or as a roommate. People in institutions, group quarters, and prisons are excluded as are those who are related dependents (children and parents of householders are the major examples of these adults).
 37. In Stephen J. Rose, *Social Stratification in the United States* (New York: The New Press, Forthcoming 2015) and previous editions, I defined 4 income groupings based on the BLS budgets: poverty, near poverty (between poverty line and low budget threshold (1.75 times the poverty line; middle class (between low and high budgets, and well-off (above the middle class or modestly well-off).
 38. Consequently this measure has a lower rate of non-employment than the employment rate that is based on a single week with or without a job.
 39. These data are based on the synthetic cohort approach in which workers of different ages in single year are used to present a life cycle approach to earnings over a career.
 40. See the discussion of our “negativity bias” in Jonathan Haidt, *The Happiness Hypothesis: Finding Modern Truths in Ancient Wisdom* (New York: Basic Books, 2006), p. 28.

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