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The U.S. Income Distribution: Trends and Issues

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Summary

Income inequality—that is, the extent to which individuals' or households' incomes differ—has increased in the United States since the 1970s. Rising income inequality over this time period is driven largely by relatively rapid income growth at the top of the income distribution. For example, in 1975, the average income of households in the top fifth of income distribution was 10.3 times as large as average household income in the bottom fifth of the distribution; in 2015, average top incomes were 16.3 times as large as those at the bottom.

The pace and pattern of distributional change, however, was not constant over this time period:

- **From the mid-1970s to 2000**, incomes grew, on average, for households in each quintile (i.e., each fifth of the distribution). Income inequality increased significantly because incomes rose more rapidly for the top quintile (i.e., the top fifth or top 20% of the distribution).
- **Between 2000 and 2015**, average incomes rose at relatively modest rates for the top two quintiles (i.e., the top 40% of the distribution) and fell for the bottom three quintiles (i.e., bottom 60%). The net effect was that income inequality continued to rise, but at a slower rate.

In 2015, black and Hispanic households were disproportionately in lower income quintiles (although less so than in recent decades), whereas white and Asian households were disproportionately in higher income quintiles. Over recent decades, income inequality has also increased in most other advanced economies, although most others have more equal income distributions than the United States today and did not experience as much of an increase in inequality as the United States has recently.

Households do not necessarily stay in a given quintile from year to year. A new job or profitable investment can propel a household from a lower quintile to a higher one over time; likewise, income loss can result in movement down the distributional ranks. Such movement throughout the income distribution over time is called *income mobility*. Mobility can be measured in different ways and over different time frames. This report considers analyses of mobility over the short-term, the longer-term, and across generations. In general, data from governmental sources reveal three broad trends: (1) households and individuals are not perfectly mobile, that is, their current distributional rank is related to past rankings; (2) mobility is greater over longer time periods; and (3) overall income mobility has not decreased significantly in recent decades.

Economists have identified several factors that are likely to have contributed to widening inequality since the 1970s. The relative importance of each factor depends on how and over what time period inequality is measured.

- Labor income has become less equal because some factors have tended to curb wage growth of lower- and middle-income workers relative to higher income workers. These factors include technological change, globalization, declining unionization, and minimum wage fluctuations.
- Other changes aided by globalization and technological change, such as economies of scale, winner-takes-all markets, and the superstar phenomenon may have boosted wages for very high-wage workers. Change in pay dynamics and social norms may help explain the rise in CEO pay.
- The distribution of financial wealth has grown more unequal over time, which affects income inequality through the capital income that wealth generates.

- The changing demographic composition of households has also contributed to income distribution patterns. Over time, there has been an increase in two earner households, single headed households, and marriages between couples with more similar earnings or educational attainment.

Research has investigated the link between income inequality and economic growth. In theory, greater inequality could increase or decrease growth through many channels, and vice versa. Empirically, studies have tried to tease out the relationship between the two across a large number of countries over time. Those studies tend to find stronger evidence that inequality reduces growth in developing countries, which may be of limited relevance to the United States.

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Introduction

The distribution of income in the United States continues to hold considerable congressional and public attention. Growing distance between earners at the top of the distribution and those in the middle and bottom of the distribution in recent decades has been a particular focus, as policymakers and analysts seek to understand the driving forces behind these distributional patterns and their broader implications for living standards and economic growth.

In support of congressional consideration, this report describes recent and long-term income distribution trends; provides a summary of research on key factors that contribute to recent distributional patterns; and identifies potential linkages between inequality and economic growth.

Key Findings

- **Income inequality has increased over the past 40 years. It has increased most relative to the top of the income distribution, but inequality also grew among the lower 80%.** In 1975, mean household income in the top quintile (i.e., top 20%) was 10.3 times greater than mean income in the bottom quintile; in 2015, it was 16.3 times greater. However, a less prominent trend of rising inequality can also be seen among households in the lower 80% of the income distribution. In 1975, mean income in the 4th quintile was 5.9 times greater than mean income in the bottom quintile; in 2015, it was 7.4 times greater.
- **Inequality was primarily driven by the relatively rapid growth of mean income in the top quintile.** Relatively rapid growth in incomes at the top of the distribution was a significant driving factor over this period. Between 1975 and 2015, annualized growth rates were 0.2% for the bottom quintile, 0.3% for the 2nd quintile, 0.5% for the 3rd quintile, 0.7% for the 4th quintile, and 1.3% for the top quintile.
- **The pace and pattern of inequality growth has changed over time.** Between the mid-1970s and 2000, high-income households experienced rapid real income growth relative to middle- and low-income households, but incomes grew on average for all quintiles. Between 2000 and 2015—a period that includes two economic recessions—average incomes fell in the bottom three quintiles of the distribution, and the previous rapid growth in mean incomes enjoyed at the top of the distribution stalled. As a result, the income distribution continued to become more unequal, but at a slower pace than before 2000.
- **There are racial and ethnic differences in the distribution of household income.** In 2015, 45% of all households (i.e., regardless of race) had annual incomes under $50,000 whereas the share among households with a black householder (i.e., head of household) or a Hispanic householder was higher. Black households and Hispanic households were less represented at the very top of the distribution where only 2% of black households and 3% of Hispanic households had incomes of $200,000 or more, compared to 6% of all U.S. households. Asian households were more uniformly distributed and had higher shares in the top two income groups than white- or black-headed households.
- **Income mobility is limited, but households and individuals have not become significantly less mobile over time.** Households (and tax units) do not necessarily stay in a given quintile from year to year; they can move up or down through distributional ranks over time. Such movement throughout the income distribution over time is called income mobility. In general, data from governmental sources reveal three broad trends: (1) households and individuals are not perfectly mobile, i.e., there is a relationship between one's current rank in the distribution and past rankings; (2) individuals and households are more mobile over longer periods of time, (3) overall income mobility has not decreased notably in recent years.
- **Many factors influence recent distributional trends; the relative importance of each factor varies over time and across income groups.** Technological progress, wage-setting institutions, globalization, and social norms around compensation have altered labor productivity, workers' bargaining power, and pay dynamics with distributional consequences. Macroeconomic conditions affect the availability of jobs and earnings, but are also significant for capital income, a relatively important source of income for the top of the income distribution. Changing demographic composition of households has also contributed to income distribution patterns.
- **Research suggests a complex relationship between income inequality and economic growth; empirical findings are based on a large number of countries and may not hold for the United States.** The impacts of inequality on incentives, policy, and access to resources that affect economic growth are likely to differ for low-income and high-income countries. Many studies find that higher inequality reduces growth, but some find it raises growth and some find that the relationship is not statistically significant. Methodological challenges restrict researchers' abilities to produce clean estimates of these impacts for a given country, including the United States.

Trends: Income Distribution and Mobility

This section explores income distribution and income mobility trends using estimates from a variety of data sources. Census data are used to illustrate distributional trends for the overall population and within racial groups. Income data from the World Wealth and Income Database (WID)—a privately constructed series based on Internal Revenue Service (IRS) records—are used to explore income shares at the very top of the income distribution. Both data sources are used to quantify the relative impacts of the 2007-2009 Great Recession and its recovery across the U.S. income distribution overall and for certain income groups. Income inequality patterns in other high-income countries are examined using a database maintained by the Organization for Economic Cooperation and Development (OECD). This section closes with a discussion of income mobility patterns—that is, how individuals' placement in the income distribution changes over time—using Census Bureau analysis of survey data and estimates calculated from linked IRS tax records.

Describing the income distribution is complicated on several levels. At its heart, this task requires meaningful choices about which data source(s) to use, which in turn affects how income is defined, the unit of analysis, and the extent to which analysis will characterize the full distribution. This report draws upon several sources, but primarily relies on official Census Bureau income statistics and WID income data. These sources vary along all dimensions just mentioned (i.e., income definition, unit of analysis, coverage of the full distribution); a summary description of these series is in the text box below. Likewise, there is not one consensus indicator that captures all aspects of the distribution.[1] For example, comparing incomes at the top of the distribution to the bottom captures the overall span of the distribution, whereas top-to-middle (i.e., upper-tail inequality) or middle-to-bottom (i.e., lower-tail inequality) comparisons provide more information about the shape and pattern of change throughout the distribution. A single summary measure like the Gini coefficient[2] can also be employed to examine changes over time, but sometimes at a loss of details on changes within a distribution. This report focuses on a small set of indicators, noting where other indicators tell a different story.

[1] For an overview of the variety of indicators, see CRS Report R43897, *A Guide to Describing the Income Distribution*, by Sarah A. Donovan.

[2] The Gini coefficient describes the relationship between the cumulative distribution of income and the cumulative distribution of the population. It varies from 0 (total equality) to 1 (total inequality). For more information, see CRS Report R43897, *A Guide to Describing the Income Distribution*, by Sarah A. Donovan.

Census Bureau and WID Income Statistics

The two primary data sources for the analysis presented in this section are (1) official income statistics published by the Census Bureau, and (2) (unofficial) estimates of the income distribution published in the World Wealth and Income Database (WID). Census and WID estimates differ along several dimensions, are not directly comparable, and, like all income data, have strengths and limitations for purposes of characterizing the U.S. income distribution.

Census Bureau income statistics are published annually and are based on the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC). Census statistics describe *household money income*, which is pre-tax cash income received by households on a regular basis from market and nonmarket sources. *Market income* includes labor income, in the form of salaries and wages, self-employment earnings, and capital income, in the form of interest and dividend income, rents, royalties, estate and trust income, and nongovernment pensions and annuities. *Nonmarket sources of income* include the value of all public cash transfers (e.g., Temporary Assistance for Needy Families and Social Security benefits) and other regular, nongovernment sources of income (e.g., child support). Notably, Census income statistics exclude periodic income (e.g., capital gains) and in-kind transfers (e.g., Supplemental Nutritional Assistance Program benefits and employer contributions to health insurance plans).

Some aspects of the Census Bureau CPS-ASEC data limit its usefulness in characterizing households at the top of the distribution. A key limitation derives from Census data recording and internal processing procedures, which effectively "top-code" individuals' four earnings categories at $999,999 each, so that any individual's income above that limit is reduced to $999,999 per category.[3] In addition, Census data exclude capital gains income, which is an important source of income for certain top-income households because the distribution of wealth is also skewed (see the section below entitled, "Capital Income").

The WID income series are based on U.S. income tax return statistics published by the IRS.[4] WID income estimates describe adjusted gross income (AGI) as reported on income tax returns filed by "tax units" (i.e., individual tax return filers or couples filing jointly). AGI is taxable income from all sources less deductions allowed under the U.S. Tax Code.[5] Specifically, AGI comprises salaries and wages, taxable interest, dividends, business or professional net income, net capital gains, net gains from the sale of property other than capital assets, taxable Social Security benefits, rent and royalty net income, partnership and S corporation net income, estate and trust net income, farm net income, unemployment compensation, taxable pensions and annuities, taxable individual retirement arrangement distributions, gambling earnings, and net income from other sources.

WID income estimates are superior measures of top incomes because (1) they are not based on top-coded data and (2) they include capital gains income. However, they may not measure top incomes perfectly because tax filers may have incentives to mispresent income flows and losses to reduce tax liability. IRS AGI statistics have less coverage among low-income individuals and households because some low-income individuals and families are not required to file tax returns at all. They may also undercount income received by this group because certain types of government assistance provided predominantly to lower-income households are not reported on federal tax returns (e.g., SSI and TANF payments).

Differences in income definitions and units of analysis complicate direct comparisons of Census Bureau and WID income data. In addition, the Census Bureau occasionally revises its survey methods and IRS tax policy and tax filing trends change as well; consequently, income statistics from a single source are not perfectly comparable over time.

Distribution of Household Income

Figure 1 illustrates the distribution of U.S. household income in 2015 by plotting income levels on the horizontal axis and the percentage of households on the vertical axis.[6] Data are from the

[3] Census earnings data are top-coded at $9,999,999 per earnings category at the time of data collection. Once collected, Census edits its income data to minimize the incidence of interviewer error or misreporting on the part of the individual interviewed. For the purposes of Census-published data tabulations (which are used in this report) and public-use data, the internal processing limit is $999,999 for each of the four individual earnings categories.

[4] The methods used to achieve WID estimates are described in footnote 29.

[5] A summary of individual tax deductions is in CRS Report R42872, *Tax Deductions for Individuals: A Summary*, by Sean Lowry.

[6] The data presented in the figure represent household incomes in a single year (i.e., not lifetime income) and do not control for demographic characteristics or career experience. As such, households in the lowest income groups may comprise the working-age poor, retired persons, or students. See Gary Fields, "Does Income Mobility Equalize Longer-
(continued...)

U.S. Census Bureau's statistics on households and measure "money income."[7] Money income describes regular, pre-tax cash income from market and nonmarket sources, including government transfers, for all household members who are at least 15 years old.[8] It excludes capital gains and in-kind forms of income (e.g., noncash government benefits, goods produced and consumed at home or farm, and employer contributions). The impact of excluding capital gains—which are significantly skewed across the income distribution[9]—on measures of income inequality can be seen in a later section ("Trends at the Top of the Distribution") that uses WID data.

Figure 1 shows a right-skewed distribution—meaning that the bulk of households are found on the left hand side of the figure with a smaller share of households spread out to the right, with considerably more distance (in terms of income) between them.[10] In 2015, median household income was $56,516 and mean (average) household income was $79,263.

(...continued)

Term Incomes? New Measures of an Old Concept," *Journal of Economic Inequality*, vol. 8, issue 4, December 2010, p. 409.

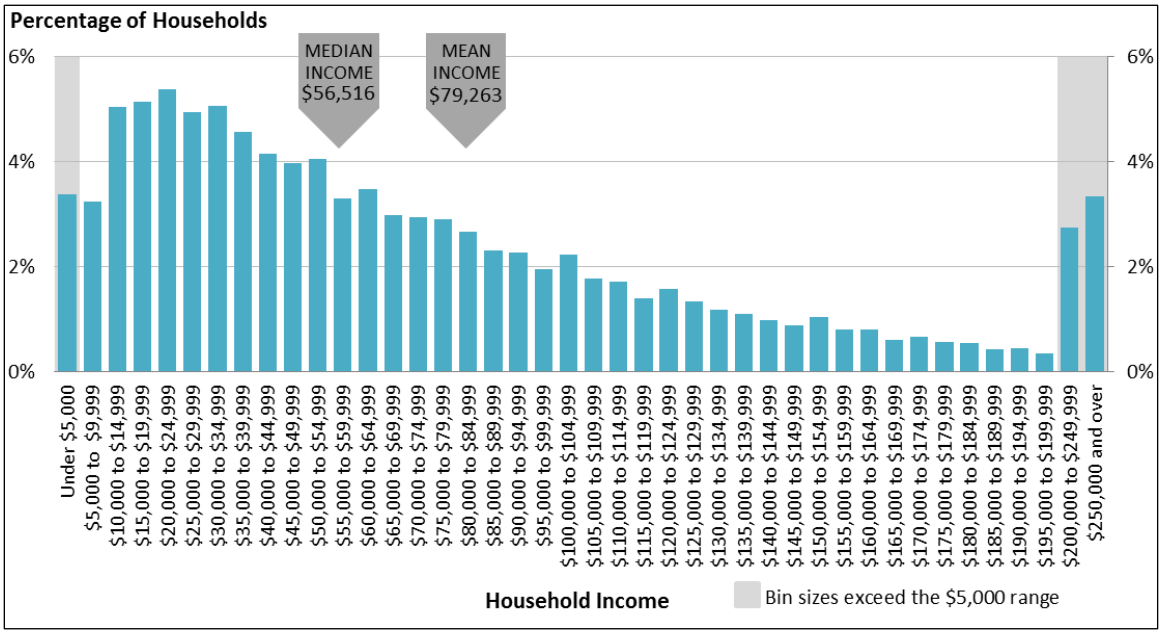
[7] The U.S. Census Bureau collects income data annually from a random sample of households through the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC). Data are collected from February to April of each year and measure income from the previous calendar year. Census compiles official income statistics based on these data and publishes them in the annual *Income and Poverty in the United States* report. For Census statistics on income and poverty for 2015, see Bernadette D. Proctor, Jessica L. Semega, Melissa A. Kollar, *Income and Poverty in the United States: 2015*, U.S. Census Bureau, Current Population Reports P60-256, September 2016, http://www.census.gov/library/publications/2016/demo/p60-256.html.

[8] Census defines a household as one or more people who live together and may or may not be related. A household may be a single person, a collection of roommates, or one or more families living together.

[9] For example, Congressional Budget Office estimates for 2013 indicate capital gains make up 0.1% of market income for households in the bottom quintile and 19.1% of market income for households in the top 1% of the distribution. Congressional Budget Office, *The Distribution of Household Income and Federal Taxes 2013*, June 2016, at https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51361-HouseholdIncomeFedTaxes.pdf.

[10] When the mass of households are found clustered toward the bottom of the distribution, with a tail to the right, the distribution is said to be *right-skewed* or *positively skewed*. The group of relatively high incomes at the top pulls up the mean, so that it will exceed the median in right-skewed distributions.

Figure 1. Distribution of Household Income, 2015



Source: U.S. Census Bureau, *Annual Social and Economic Supplement*, available at http://www.census.gov/hhes/www/cpstables/032015/hhinc/toc.htm.

Notes: Income in this figure refers to household money income as defined by the Census Bureau: pre-tax cash income received by households on a regular basis from market and nonmarket sources. Money income excludes periodic income, such as capital gains, and in-kind transfers. Due to the way the Census Bureau aggregates incomes at the top of the distribution, the top two income groups—"$200,000 to $249,000" and "$250,000 and over"—represent wider income ranges than the groups that categorize the majority of the distribution. The "Under $5,000" group includes households earning zero or negative money income.

Although **Figure 1** provides meaningful information about the shape and breadth of the income distribution at a point in time (i.e., for 2015), it does not indicate how the distribution of income has evolved over time. **Figure 2** provides some insight to these changes by plotting mean quintile household income from 1967 to 2015 (earliest and latest year, respectively, that data are available).[11] In particular, four main observations can be drawn from the figure:

1. **Mean income increased for all groups.** Mean household income increased in real terms (i.e., adjusted for inflation) for all quintiles over this time period. For example, mean income in the bottom 20% increased from $9,929 (in 2015 dollars) in 1967 to $12,457 in 2015.
2. **Rising income inequality was primarily driven by the relatively rapid growth of mean income in the top quintile.** The rate of growth in mean income differs across quintiles, with the top quintile experiencing the highest rate of growth over the 1967-2015 period.[12] Annualized growth rates over this period

[11] Quintiles divide the population of households—ordered by income from lowest to highest—into fifths. So, e.g., the bottom quintile in a given year represents the 20% of households with the lowest incomes for that year.

[12] Growth in mean income for a given quintile does not mean that all households within a given quintile experienced income growth. Some households' incomes grew at rates above their quintile average, some grew at rates below their quintile average, and some experienced income losses. In addition, households do not necessarily stay in a given quintile from year to year. So, for example, the households that comprise the middle quintile in 2015 may not be the households that comprise the middle quintile in 2000 or 1975. Analysis of microdata is needed to examine income dynamics; see the "Patterns of Income Mobility" section of this report for further discussion.

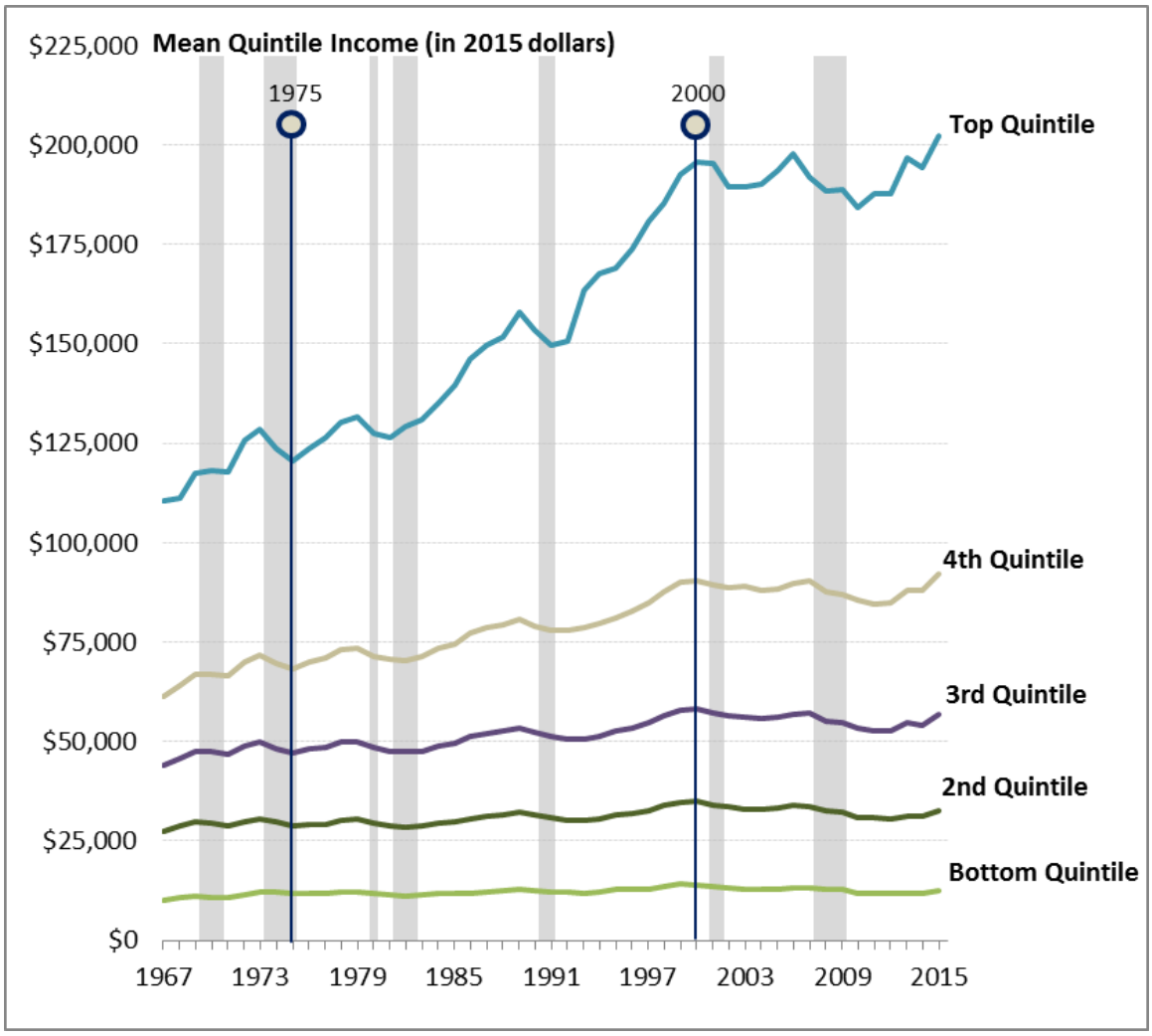
were 0.5% for the bottom quintile, 0.4% for the 2nd quintile, 0.5% for the 3rd quintile, 0.8% for the 4th quintile, and 1.3% for the top quintile.[13] Annualized mean income growth for the top 5% of households—a subgroup of the top income quintile——was 1.5%, suggesting that incomes at the very top of the distribution are driving growth patterns in the top quintile.

3. **Inequality also grew among households in the lower 80% of the income distribution.** In addition to growth in upper tail inequality (i.e., relatively rapid growth in mean income in the top quintile), the figure shows increasingly wider distribution of incomes among the lower 80% of households. In 1967, mean income in the 4th quintile was 6.2 times as large as mean income in the bottom quintile; in 2015, it was 7.4 times as large.
4. **Mean incomes respond to business cycles.** Finally, mean income growth for all quintiles stalls or declines during periods of recession, and can take several years to bounce back after a recession. Across all quintiles, mean incomes fell by 1.7% (top quintile) to 4.2% (third quintile) between 2007 and 2009, and had not returned to 2007 levels (in real terms) by 2015 for the bottom three quintiles.[14]

[13] The distance between mean incomes at the top and bottom of the distribution would have grown even if growth rates had been the same.

[14] In 2007, the bottom three quintiles had mean household income levels in 2015 dollars of $13,205, $33,656, and $57,120 respectively. In 2015, mean household incomes were $12,457 (bottom quintile), $32,631 (second quintile), and $56,832 (third quintile).

Figure 2. Mean Quintile Household Income, 1967-2015



Source: Figure created by the Congressional Research Service (CRS) based on data from U.S. Census Bureau, Current Population Survey (CPS), Annual Social and Economic Supplements, available at http://www.census.gov/hhes/www/income/data/index.html. Recession data (in gray) are from the National Bureau of Economic Research, at http://www.nber.org/cycles.html.

Notes: Income refers to household money income as defined by the Census Bureau: pre-tax cash income received by households on a regular basis from market and nonmarket sources. Money income excludes periodic income, such as capital gains, and in-kind transfers. Census uses the CPI-U-RS to convert incomes to 2015 dollars. Periods of recession are shaded in gray.

Figure 2 illustrates three distinct distributional growth patterns, with the years 1975[15] and 2000 being apparent turning points:

1. **Between 1967 and 1975,** inflation-adjusted average income grew for all five quintiles—except during recessions—with the *bottom quintile* experiencing relatively rapid growth at a 2% annualized rate.[16]

[15] Based on a comparison of income thresholds at the top and bottom of the income distribution, a sustained divergence in the growth rate of top quintile income relative to other quintiles appears to begin in 1975. However, other inequality measures or analyses of longer data series may indicate a different start point.

2. **Between 1975 and 2000**, inflation-adjusted average income continued to grow for all five quintiles—with brief interruptions during recessions—but in contrast to the 1967-1975 period, the mean income for the bottom quintile grew at the slowest rate (0.7% annualized growth over 1975-2000) and growth rates were progressively higher across the income distribution. As a result, overall income inequality increased markedly between 1975 and 2000, when compared with 1967 through 1975.[17]
3. **Between 2000 and 2015—**a period that contained two economic recessions, with the second being particularly deep—annualized real income growth was markedly lower for the top two income quintiles than it was for the 1975-2000 period, and incomes fell for the bottom three quintiles. Between 2000 and 2015, household *incomes grew* at average annualized rates of 0.1% and 0.2% for the fourth quintile and top quintile, respectively; while *incomes fell* at average annualized rates of 0.1%, 0.4%, and 0.8% for the third, second, and bottom quintiles. The net effect has been a slowdown in the rate of distributional expansion, as measured by the growing distance between mean incomes in the top and bottom quintiles.[18] That is, the income distribution continued to widen over the 2000-2015 period, but at a slower rate than was observed for the 1975-2000 period.

Figure 2 shows that the distribution of household income has become progressively less equal since 1967 when comparing top to bottom or top to middle, whereas it has been relatively stable when comparing middle to bottom. Although inequality has widened over the entire period for which Census data are available, the patterns of change (i.e., the reason why the distribution has become more unequal) that occurred before and after 2000 have been quite different. Concretely, income inequality increased between 1967 and 2000 because incomes grew faster for the top quintile—and, to a lesser extent, the fourth quintile—than the rest of the distribution. Inequality continued to grow, albeit at a slower rate of expansion, after 2000, because incomes grew modestly at the top while shrinking for the bottom three quintiles from 2000 to 2015.

The Relationship Between Income Inequality and Poverty

Income inequality and poverty measures are both used to evaluate the economic status of people at the lower end of the income distribution. However, they measure different economic concepts. Income inequality measures tend to be *relative metrics*: they describe individual and household incomes relative to each other, but not necessarily compared against any fixed income level. Poverty measures are used to examine the number or share of people facing economic deprivation, and to gauge the level of that deprivation. Deprivation (and thus poverty) can be defined in absolute terms (e.g., as income below a fixed income level) or as a relative measure.

In the United States, poverty is measured by comparing family income against a fixed income level, which is adjusted over time for inflation using the Consumer Price Index for All Urban Consumers (CPI-U), and is scaled according to family size and the ages of the members. That is, it is a *quasi-absolute measure*. In addition, the U.S. poverty rate is based on characteristics of *families* (i.e., people who live together related by birth, marriage, or adoption), whereas official Census data on the distribution of incomes is based on *households* (i.e., all persons living within the same

(...continued)

[16] Annualized growth rates over this period were 2% for the bottom quintile, 0.5% for the 2nd quintile, 0.8% for the 3rd quintile, 1.3% for the 4th quintile, and 1.1% for the top quintile.

[17] Between 1967 and 1975, the difference in mean incomes at the top quintile and the bottom quintile—a measure of the span of the income distribution—increased by 8% (i.e., 1% annualized growth), whereas between 1975 and 2000, this distance grew by 67% (i.e., 2% annualized growth).

[18] Whereas the difference in mean incomes at the top quintile and the bottom quintile increased at an approximately 2% (annualized) rate between 1975 and 2000, it grew at a 0.3% (annualized) rate over the 2000-2015 period.

housing unit). Because they measure different phenomena, income inequality measures and poverty measures need not necessarily move in the same direction. The poverty rate will be influenced by changes in the absolute level of income at the bottom of the distribution, while many measures of inequality will depend on changes in income at the bottom relative to the middle or top of the distribution.

The Census Bureau publishes data annually for both income inequality and poverty. Since the 1970s, the percentage of people in poverty has fluctuated between 11% and 15%, largely in tandem with the business cycle, but has shown no trend over the full period, while measures of income inequality have trended upward over the same period.[19]

Census data can be used to examine the relationship between mean income per quintile, defined using family income, and official poverty thresholds.[20] Between 1967 and 2015, average income in the bottom quintile has remained close to the poverty threshold—the ratio of average family income in the bottom quintile to an appropriate poverty threshold ranges from 0.88 in 1993 to 1.13 in 1974. While there is no overall trend over the 1967-2015 period, the ratio has been less than 1 since 2008, meaning that average family income in the bottom quintile was below the poverty threshold in this period.

Income Distribution by Race and Ethnicity

The trends in **Figure 1** and **Figure 2** describe distributional patterns for U.S. households in aggregate. This analysis is meaningful, but masks racial and ethnic dimensions of income inequality that have been the focus of some congressional interest. The Congressional Research Service (CRS) applies Census definitions in this section, which divide race into black, white, or Asian and ethnic origin into Hispanic or non-Hispanic. People of Hispanic origin may be of any race.

Racial differences in the distribution of household income are illustrated in **Figure 3**, which plots the income distributions of households categorized by the race—black, white, or Asian—of the "householder."[21] In 2015, 45% of all households (i.e., regardless of race) had annual incomes under $50,000 whereas the share among households with a black householder was notably higher at 61%.[22] Black-headed households were less represented in all other income categories, particularly at the very top of the distribution where only 2% of black households had incomes of $200,000 or more; by contrast, 6% of all U.S. households were in this income category. Although the distribution is also right-skewed for Asian-headed households, Asian-headed households were more uniformly distributed across the income groups and had higher shares in the top two income groups than any other racial group shown in **Figure 3**. The distributional pattern of white-headed households (i.e., the majority group) mirrored the overall distribution.

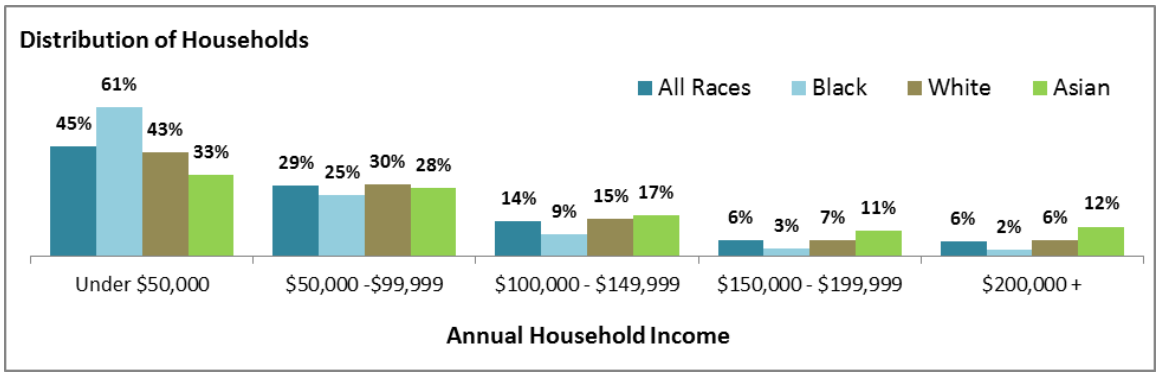
[19] Bernadette D. Proctor, Jessica L. Semega, and Melissa A. Kollar, *Income and Poverty in the United States: 2015*, Current Population Reports, P60-256(RV), September 2016, Table A-2, Table B-1, and Figure 4.

[20] U.S. Census Bureau, Table F-21 Average Income-to-Poverty Ratios for Families, by Income Quintile, Race and Hispanic Origin of Householder, at https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-families.html.

[21] "Householder" is a Census Bureau concept that identifies the individual in a household in whose name the housing unit is rented or owned. In 2015, 78.9% of households were white-headed households, 13.8% were black-headed households, and 5.3% were Asian-headed households; race is not published for the remaining share of households. Each of these categories contains Hispanic and non-Hispanic headed households. A discussion of recent U.S. demographic trends is in CRS Report RL32701, *The Changing Demographic Profile of the United States*, by Laura B. Shrestha and Elayne J. Heisler.

[22] To put the "Under $50,000" income group in perspective, overall median household income in 2015 was $56,516.

Figure 3. Income Distribution of Households by Race of Householder, 2015



Source: U.S. Census Bureau, Table H-17 Households by Total Money Income, Race, and Hispanic Origin of Householder, at https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html.

Notes: "Householder" is a Census Bureau concept that identifies the individual in a household in whose name the housing unit is rented or owned. The racial groups shown above are not mutually exclusive. "Black" describes householders who indicate that they are of a single race (black only) and householders who report they are black and of another race (i.e., black "alone or in combination" to use the Census terminology). Likewise, "Asian" describes householders who report their race as Asian alone or in combination. Every racial group includes persons who are Hispanic and non-Hispanic. Percentages may not sum to 100% due to rounding.

These distributional patterns among white-headed and black-headed households have been largely similar since 2002, the first year for which Census published data using the race categories shown in **Figure 3**. The income distribution among Asian-headed households has been somewhat more volatile than that of other racial groups, but households appear to be shifting from lower to higher income categories.[23] Prior to 2002, Census recorded race using a different methodology and consequently data collected before and after 2002 are not entirely comparable.[24] Between 1967 and 2001, the shares of all three racial groups (black, white, and Asian) in the "under $50,000" income group declined. The share of black-headed households in the lowest income category declined markedly from 80% (1967) to 61% (2001), and increased in the four other income categories.[25] Shares of white-headed households shifted from the lowest two categories to the highest three income categories over the same period. Between 1987 (the earliest year of data) and 2001, the shares of Asian or Pacific Islander headed households in the bottom two income categories declined, while their shares in the top three income categories climbed, with notable gains in the top income category (from 3% in 1987 to 9% in 2001).

As noted above, Census classifies Hispanic as an ethnic origin, not a race, therefore incomes of Hispanic-headed households cannot be directly compared with black-, white-, or Asian-headed households in Census data. **Figure 4** plots the income distribution in 2015 of households with a householder of Hispanic heritage. Hispanic-headed households were more concentrated in the lowest income category shown in the figure (incomes under $50,000) than the full population of

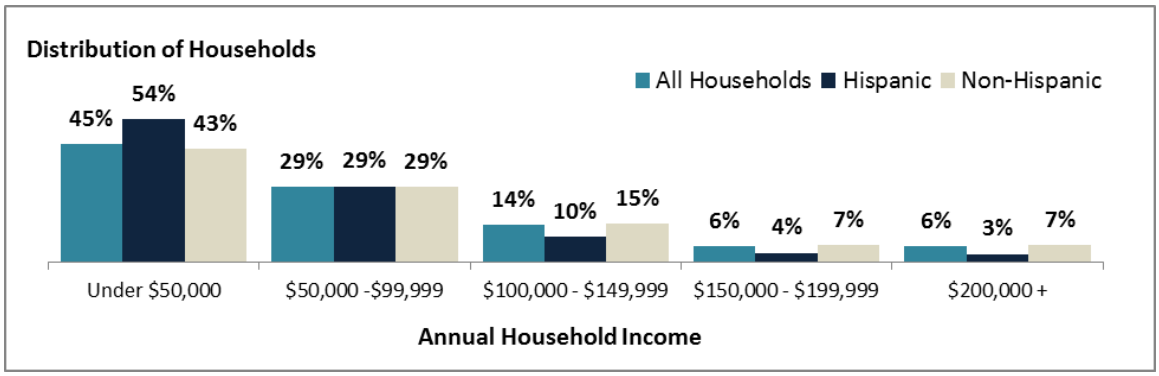
[23] For example, in 2002 36% of Asian-headed households were in the "under $50,000" income category, in 2015 this share was 33%. In 2002, 8% of Asian households were in the "$200,000 +" category and in 2015 this share was 12%.

[24] Until 2002, Census recorded only one racial group per respondent, and therefore could not publish separate statistics on individuals who identify with more than one race. Some multiracial individuals will be included in the pre-2002 single-race groups, but all of them will not.

[25] Although the percentage of black-headed households in the "under $50,000" income group rose and fell over 1967 to 2001, overall it followed a downward trend. In 1967, 80% of black-headed households were in this income group. In 1977, 1987, and 1997, the percentages were 72%, 70%, and 63% respectively.

U.S. households. Hispanic households were less represented in the top three income categories, particularly at the very top of the distribution. Only 3% of Hispanic households had incomes of $200,000 or more, whereas 6% of all U.S. households were in this income category. Non-Hispanic households had a similar income distribution to the overall population.[26]

Figure 4. Distribution of Household Incomes, by Hispanic Origin of the Householder, 2015



Source: Census Bureau statistics for Hispanic-headed households and all households. CRS calculations using Census data for Non-Hispanic households. U.S. Census Bureau, Table H-17 Households by Total Money Income, Race, and Hispanic Origin of Householder, at https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html.

Notes: "Householder" is a Census Bureau concept that identifies the individual in a household in whose name the housing unit is rented or owned. Householders are identified as being of "Hispanic origin" if they indicate that their origin was Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin. People of Hispanic origin may be of any race. See http://www.census.gov/programs-surveys/cps/technical-documentation/subject-definitions.html#ethnicorigin.

Since 1972, when information on Hispanic origin was first collected by Census, the share of Hispanic-headed households that were in the under $50,000 income category has declined steadily, while shares in the top three income categories have increased.[27]

Trends at the Top of the Distribution

As discussed above, income distribution trends have been driven by relatively faster income growth in the top quintile of the distribution. Even within that quintile, income gains have been further concentrated. This section looks at income trends for the top 1% of the distribution. Because some aspects of Census data on household income limit their usefulness in characterizing households at the top of the distribution, this report provides analysis using estimates of top income shares from the World Wealth and Income Database (WID).[28]

[26] This observation of distributional similarity between all households and non-Hispanic-headed households partly reflects the relatively small share of Hispanic-headed households (13.2% of all households) in 2015.

[27] When analysis is restricted to 2002-2015 (i.e., the break in the data series for households categorized by race), a similar shifting of households from low- to high-income categories is observed for Hispanic-headed households, but in terms of magnitude, the change is much more subtle.

[28] Facundo Alvaredo, Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez, The World Wealth and Income Database, http://www.wid.world/, accessed by CRS on August 16, 2016. A primary limitation of the Census data is that earnings data are top-coded at $9,999,999 per earnings category at the time of data collection. Once collected, Census edits its income data to minimize the incidence of interviewer error or misreporting on the part of the individual interviewed. For the purposes of Census-published data tabulations and public-use data, the internal processing limit is (continued...)

WID estimates are primarily constructed from Internal Revenue Service (IRS) tax statistics, and represent the taxable incomes of "tax units" (i.e., individuals or couples) who are required to file a federal income tax return and comply with this requirement.[29] Income comprises all income sources reported on federal tax returns before deductions, including realized capital gains—a significant difference from the Census data presented earlier.[30] Income taxes paid, credits received, non-cash benefits, and non-taxable government transfers are not reflected in these data. The WID data series is subject to the standard caveats applied to tax data (e.g., possible underrepresentation of very low-income earners, sensitivity to tax policy, use of the *tax unit* as the unit of observation).[31]

Long-Run Trends in Income Shares of the Top 1%: The U-Shaped Curve

Figure 5 plots the estimated share of national income earned by the top 1% of tax filers from 1916 to 2015. Shares based on income that includes and excludes realized capital gains income are calculated separately. The figure extends analysis back beyond 1967 (i.e., the starting year for Census data) to address questions about income distribution trends over the long run, and whether recent trends are unprecedented. **Figure 5** illustrates the U-shaped curve of top income shares over the last century; concretely, income shares peaked during the 1920s, fell and then stabilized over the next 50 years, and started climbing again in the early 1980s. The figure further shows that income shares among the top percentile tend to respond to business cycles, falling during economic recessions, and rising during periods of expansion. Finally, using a definition of income that includes realized capital gains increases the share of national income earned by the top 1% and the volatility of this share over time.

(...continued)

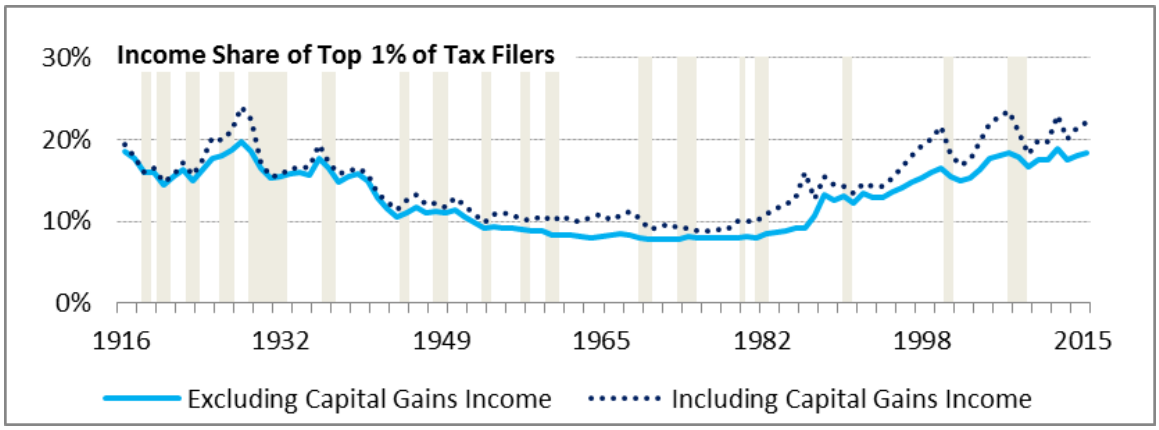
$999,999 for each of the four individual earnings categories. For more on these limitations of Census data for describing top incomes, see CRS Report R43897, *A Guide to Describing the Income Distribution*, by Sarah A. Donovan.

[29] In general, the income threshold and average income for a given fractile (e.g., top 1%) are estimated by applying a standard Pareto interpolation technique to Internal Revenue Service (IRS) federal income tax summary tables. These estimates are then adjusted to construct income distribution estimates that are consistent across time (i.e., so year-to-year changes reflect changes in income, not changes in tax code, income definitions, or filing patterns of individual and married tax filers). Income shares for fractiles (e.g., the share of national income earned by the top 1% in a given year) are estimated by dividing total income for tax filers in a given fractile by national personal income, as measured in the Bureau of Economic Analysis' National Income and Product Accounts, at http://www.bea.gov/national/index.htm. Each fractile is defined relative to the number of potential tax units in the United States (i.e., not the number of filed tax returns). The methods for constructing WID estimates for the United States are described in Thomas Piketty and Emmanuel Saez, "Income Inequality in the United States: 1913-1998," *Quarterly Journal of Economics*, vol. 118, no. 1 (2003), pp. 1-39.

[30] Capital gains reported in IRS statistics—and thus represented in WID calculations—are realized capital gains for a given tax year net of allowable deductions for realized capital losses, some of which may be carried over from previous years.

[31] The WID data are not without their critics. A recent discussion of its limits is in a Brookings study that compares and contrasts income trends produced by WID data and those produced using other methods. Jesse Bricker et.al., "Measuring Income and Wealth at the Top Using Administrative and Survey Data," Brookings Institute, *Brookings Papers on Economic Activity*, March 10, 2016, at http://www.brookings.edu/about/projects/bpea/papers/2016/bricker-et-al-income-wealth-top.

Figure 5. Estimated Share of National Income Earned by the Top 1% of Tax-Filers, 1916-2015



Source: Income data are from Facundo Alvaredo et al., *World Wealth and Income Database*, accessed on April 18, 2016, http://www.wid.world/. Recession data are from the National Bureau of Economic Research (NBER), at http://www.nber.org/cycles.html.

Notes: Income estimates are based on U.S. administrative tax records and represent all income reported on tax returns (before tax and deductions). Two income share series are presented: (1) income shares calculated with tax unit and national incomes exclude realized capital gains income (light blue line), and (2) income shares calculated with tax unit and national incomes include realized capital gains income (dark blue line). Periods of recession are shaded in gray. Estimates for 2015 are based on preliminary IRS income tax statistics.

The Widening Distribution of Income Within the Top 1%

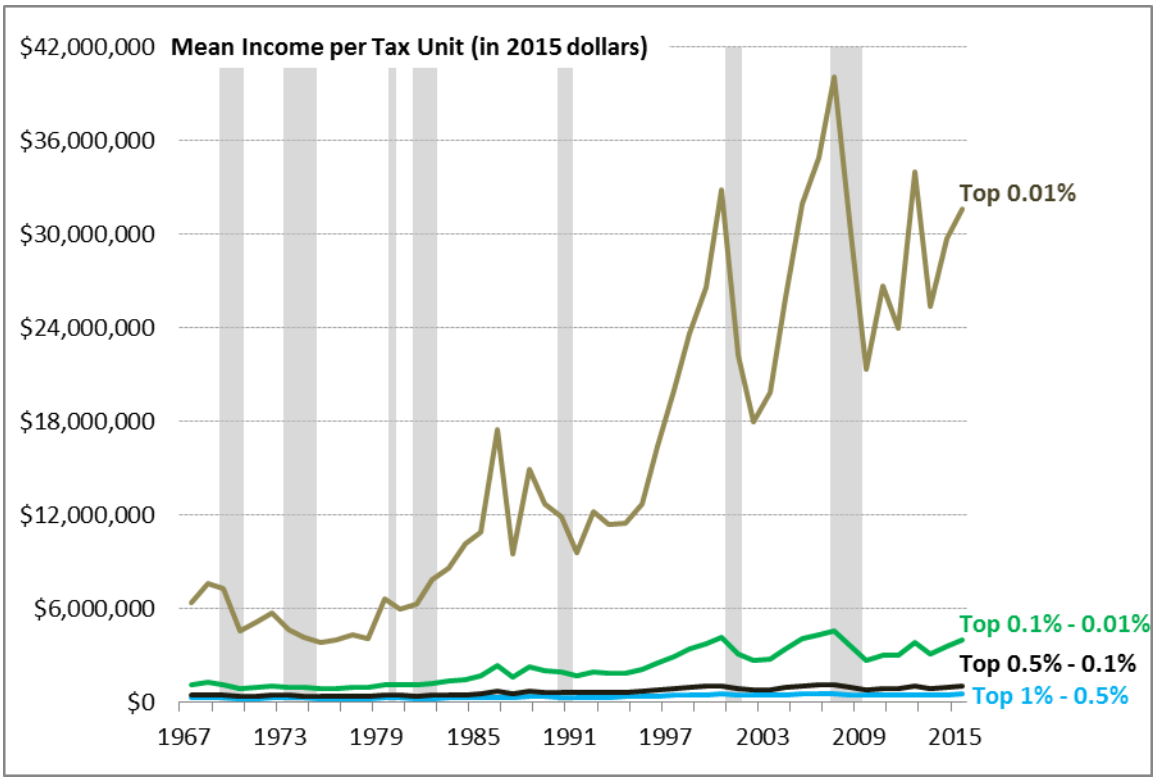
Figure 6 plots average income per tax unit for select income groups within the top 1% of the income distribution from 1967 to 2015, and illustrates a wide and growing divide between incomes of top earners. Tax filers in these groups (and among the top 0.01% in particular) experienced a relatively rapid rise in incomes starting in the 1980s, and slowing after 2000.[32] This pattern mirrors trends for household income groups shown in **Figure 2**; that is, rapid income growth for a top income group until 2000, after which average incomes exhibit considerable volatility and a downward trend.

Although data in the two figures are not directly comparable, **Figure 6** may provide additional evidence that top quintile mean income growth is driven by rapidly increasing incomes at the very top of the income distribution.[33]

[32] To put these income groups in perspective, threshold income for membership in the top 1% of tax filers in 2015 was $442,900 and average income was $1,363,997; for the top 0.1% and 0.01%, the thresholds were $2,045,000 (average income $6,747,439) and $11,267,000 (average income $31,616,431), respectively.

[33] A significant difference between Census data examined in **Figure 2** and the WID data presented in **Figure 6** is the inclusion of reported capital gains in WID data (see footnote 30 for details). Analysis of the WID income series that *excludes capital gains income* is less volatile from year to year, but reveals similar trends overall; that is, a trend of rapid income growth among top income groups that stalled in 2000. Between 2000 and 2015, average incomes oscillated within wide bands, but the trend was positive for all income groups (i.e., 2015 average incomes were higher than 2000 average incomes for all groups) and somewhat less volatile than the WID income series that includes capital gains.

Figure 6. Mean Income per Tax Unit, Select Percentiles, 1967-2015



Source: Income data are from Facundo Alvaredo et al., *World Wealth and Income Database*, accessed on April 19, 2016, at http://www.wid.world/. Recession data are from NBER, at http://www.nber.org/cycles.html.

Notes: Income estimates are based on U.S. administrative tax records and represent all income reported on tax returns (before tax and deductions), including capital gains income. Periods of recession are shaded in gray. Estimates for 2015 are based on preliminary IRS income tax statistics.

The Impact of the Great Recession and the Recovery on Inequality

The "Great Recession" of 2007 to 2009 was the longest and deepest recession since the Great Depression, resulting in substantial income and job loss overall. Following the recession, the economic recovery has featured below average growth that has prolonged the return to full employment.[34] This section looks at how households across the income distribution fared during and since the Great Recession.

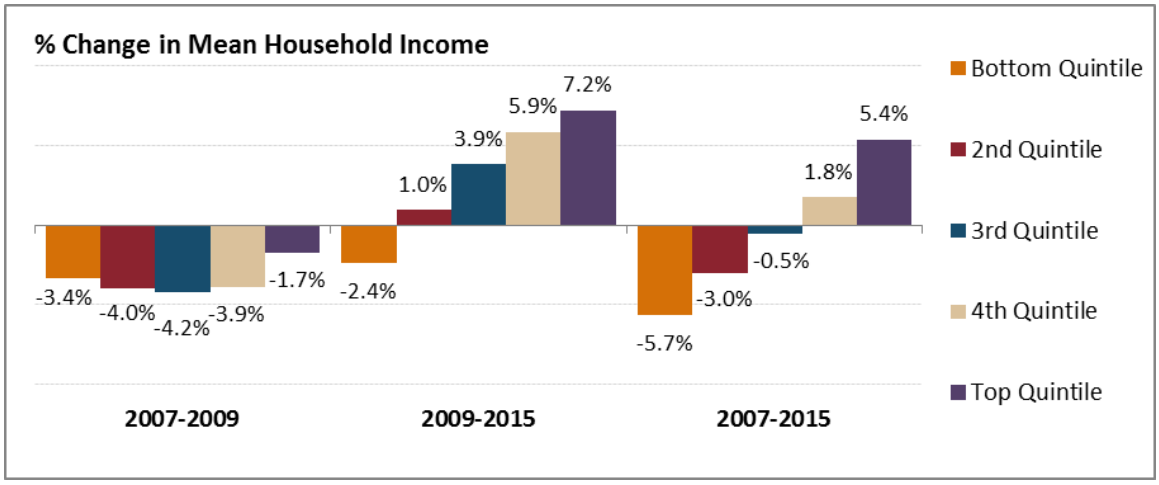
According to Census data presented in **Figure 7**, real household income across all parts of the distribution fell during the recession. Mean income loss over 2007-2009 ranged from 1.7% (top quintile households) to 4.2% (3rd quintile households). Mean incomes continued to fall for all quintiles during the recovery, and the resumption of income growth was staggered. Mean incomes were below their 2009 levels for the top two quintiles until 2013, whereas the second and third quintiles were below 2009 levels until 2015; mean income for the bottom quintile remained below its 2009 level for the entire 2009-2015 period.[35] Over the 2009-2015 period, these patterns

[34] For more information, see CRS Report R44543, *Slow Growth in the Current U.S. Economic Expansion*, by Mark P. Keightley, Marc Labonte, and Jeffrey M. Stupak and CRS Report R43476, *Returning to Full Employment: What Do the Indicators Tell Us?*, by Marc Labonte.

[35] The pattern of mean income changes across quintiles between 2009 and 2015 is strongly influenced by significant (continued...)

translated into net mean income growth for the top four quintiles, with growth rates increasing with quintile rank; the bottom quintile experienced a net loss in mean income of 2.4% over 2009-2015. Looking at the period as a whole, the income distribution became less equal because income loss was constrained to the bottom three quintiles—and percentage losses were progressively smaller for the second and third quintiles—and mean incomes grew for the top two quintiles, with the greatest net growth experienced by the top 20%.

Figure 7. Percentage Change in Mean Quintile Income Between 2007-2015



Source: Figure created by CRS based on data from Census Bureau, Current Population Survey (CPS), Annual Social and Economic Supplements, available at http://www.census.gov/hhes/www/income/data/index.html.

Notes: Income in this figure refers to household money income as defined by the Census Bureau: pre-tax cash income received by households on a regular basis from market and nonmarket sources. Money income excludes periodic income, such as capital gains, and in-kind transfers. Census uses the CPI-U-RS to put dollar amounts into constant dollars.

Two limitations of the Census data make this story incomplete: the Census data (1) do not capture income trends at the very top of the distribution (as discussed above) and (2) exclude capital gains and losses. The latter is significant because capital gains and losses are not evenly distributed across the income distribution (as discussed below) and the financial crisis, which triggered the Great Recession, caused a large loss in wealth that reduced capital gains income. WID data shed some light on these issues. Because the data are based on tax data, however, they may exaggerate actual income losses since it is advantageous for tax purposes to realize gains when they are low and declaring losses reduces tax liability.[36]

Using the WID data, **Figure 8** presents the percentage change in average income for the lowest 90% of income tax filers and groups that compose the top 10%; income includes capital gains.[37] Relative to trends shown in **Figure 7**, **Figure 8** indicates large losses in mean income for all

(...continued)

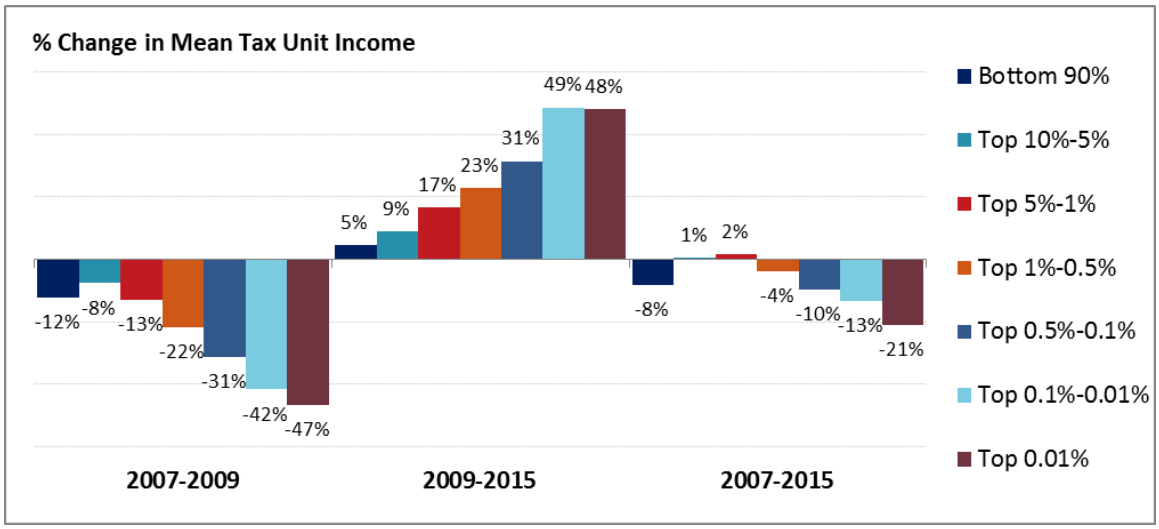
and broad income gains in 2015. When analysis is limited to the 2007-2014 period, only the top two quintiles experienced mean income gains during the recovery (2009-2014), and for the bottom quintile, the percentage loss in mean income during the recovery (8.4% loss) exceeded the percentage loss during the recession (3.4% loss).

[36] Additional limitations of these two data sources are discussed above in the section "Trends at the Top of the Distribution."

[37] WID data does not provide any detail on income trends within the bottom 90% of the distribution, so direct comparisons between **Figure 7** and **Figure 8** cannot be made.

groups during the recession; whereas percentage loss in mean income ranged from 1.7% to 4.2% across quintiles in CPS data, WID data show losses from 8% to 47%. Similarly, **Figure 8** reveals relatively large gains in mean income during the recovery for tax filers at the top of the income distribution. Whereas the top quintile (i.e., the top 20%) in CPS data experienced a 7.2% gain in mean income, WID data show that tax filers in groups within the top 10% experienced mean income gains that range from 9%-49%. On net, between 2007 and 2015, average income fell for tax units in the lower 90% and for tax unit groups within the top 1%. Percentage losses for these groups were greater according to the WID data than Census data, and within the top 1% income losses were progressively larger for higher income groups.

Figure 8. Percentage Change in Mean Income for Top Income Groups, 2007-2015



Source: Income data are from Facundo Alvaredo et al., *World Wealth and Income Database*, accessed on August 18, 2016, http://www.wid.world/.

Notes: Income estimates are based on U.S. administrative tax records and represent all income reported on tax returns (before tax and deductions), including realized capital gains income. Estimates for 2015 are based on preliminary IRS income tax statistics.

The Great Recession could influence the income distribution through a number of channels. Focusing on pre-tax, pre-transfer income, effects of the Great Recession on the income distribution can be broadly categorized into effects on labor income (wage and salary) or capital income (from investment and saving). As a 2013 study noted, asset prices began rising more quickly than labor markets began improving after the Great Recession had ended, so a comparison will be sensitive to the end date.[38]

Labor income was affected by the increase in the unemployment rate from 4.4% before the recession to a peak of 10% in October 2009.[39] Higher unemployment directly reduces the income

[38] Jeffrey Thompson and Timothy Smeeding, *Inequality and Poverty in the United States: The Aftermath of the Great Recession*, Federal Reserve, FEDS Working Paper no. 2013-51, July 2013, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2340665; hereinafter "Thompson and Smeeding, 2013.

[39] In addition to the increase in unemployment, the number of individuals not in the labor force sharply increased around the time of the recession, which could also increase inequality if leaving the labor force reduced their incomes. Economists believe that part of this unprecedented increase in workers not in the labor force was caused by the recession and part was caused by structural factors. For more information, see CRS Report R43476, *Returning to Full Employment: What Do the Indicators Tell Us?*, by Marc Labonte.

of the unemployed and indirectly puts downward pressure on the wages of workers, notably workers with characteristics in common with the unemployed. Because the unemployed are disproportionately made up of workers with lower educational attainment, who on average have lower incomes, a rise in unemployment might be expected to negatively affect primarily the bottom of the income distribution.[40] In terms of the employed, real median wages have been stagnant throughout the recovery, although they have shown a modest acceleration in 2015.[41] The 2013 study found that inflation-adjusted hourly wages at the 10th and 50th percentiles were still below their 2007 levels and were slightly higher than the 2007 level at the 90th percentile by 2011.[42]

The Great Recession was caused by the 2007-2008 financial crisis, which featured a sharp decline in asset prices and rise in defaults on debt backed by assets, such as mortgages. This resulted in a sharp decline in capital income, particularly when capital gains and losses are included in the definition of income. Since financial assets are disproportionately held by households at the top of the income distribution, it might be expected that they would have been disproportionately affected by the financial crisis.[43] CRS calculations based on data from the Congressional Budget Office (CBO) offer some evidence of this, as shown in **Table 1**.[44] The cumulative percentage change in inflation-adjusted capital income from 2007 to 2013 (latest available data) is roughly similar across the income distribution, falling by between 40% and 47% for each income quintile group. This decline is equivalent to 2% to 3% of income for the bottom 80% of the distribution, but because households at the top of the income distribution derive a larger share of their income from capital, it represents 12% for the top quintile and 28% for the top 1% of the distribution.[45] The fact that capital income is more volatile than labor income and capital income is a larger share of total income at the top of the distribution helps explain why, as shown in **Figure 8**, the top 1% saw a bigger drop in income in 2007 to 2009 and a bigger gain in income from 2009 to 2015 than other quintiles.

[40] For example, when the unemployment rate peaked at 10% in October 2009, the unemployment rate was 15.5% for workers with less than a high school diploma, 11.2% for workers with a high school diploma, 9.0% for workers with some college education, and 4.7% for workers with a bachelor's degree or higher.

[41] Median wage data for recent years can be viewed at https://www.frbatlanta.org/chcs/wage-growth-tracker.aspx?panel=1.

[42] Thompson and Smeeding, 2013.

[43] The financial crisis also led to a decline in the value of nonfinancial assets, particularly in the value of primary residences, and net worth (i.e., wealth less debt). In most cases, the decline in the value of primary residences does not affect the income distribution because households do not derive money income from their primary residence.

[44] The Congressional Budget Office (CBO) estimates this data based on IRS and Census data. The latest available data is 2013. See https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51361-HouseholdIncomeFedTaxes_OneCol.pdf.

[45] For example, households in the bottom 20% derived 4% of their market income from capital income in 2013. Their capital income fell by $262 (or 44%) between 2007 and 2013, which was equivalent to 3% of their income. Households in the top 20% derived 13.3% of their market income from capital income in 2013. Their capital income fell by $30,346 (or 47%) between 2007 and 2013, which was equivalent to 12% of their income.

Table 1. Change in Capital Income by Quintile, 2007-2013

(in percentages)

Quintile/Percentile	% Change in Capital Income, 2007-2013	Change in Capital Income (2007-2013) as % of Mean Quintile Income in 2013
Bottom Quintile	-44	-3
Second Quintile	-46	-3
Middle Quintile	-40	-2
Fourth Quintile	-40	-2
Top Quintile	-47	-12
Top 1%	-48	-28

Source: CRS calculations based on the Congressional Budget Office (CBO) data available at https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51361-SupplementalData-2.xlsx.

Notes: Capital income is defined here as the sum of capital gains, interest income, dividends paid by corporations (except S corporations), and rental income. Mean Quintile Income is the average market income received by households in a given quintile. Data are adjusted for inflation using the personal consumption expenditures index.

Inequality Trends in Other Advanced Economies

Rising income inequality is not unique to the United States. According to the Organization for Economic Cooperation and Development (OECD), income inequality (as measured by the Gini coefficient) has trended upward in 20 out of 22 of its member countries since the 1980s or 1990s.[46] Typically, this was because income grew faster for the top of the distribution than the rest of the population before the 2007-2009 financial crisis. For the OECD as a whole, inequality was unchanged since the crisis, but in a few countries, including the United States, it continued to rise, albeit at a slower pace.

Rising income inequality across most OECD countries suggests that it is driven by broader, global forces; thus, distributional trends in the United States have been affected by more than the U.S. cultural, economic, and institutional environment and domestic policy regime. However, noticeable country-specific differences in the magnitude and timing of inequality trends indicate that domestic conditions also matter. Inequality began rising earlier in the United States, and is higher today in the United States than all other OECD countries with comparable income levels. (Depending on the measure, it is lower than some of the poorest OECD members, including Turkey, Chile, and Mexico.)[47] If larger economic and social forces explain the rise in inequality, then those forces have disproportionately affected the United States or the United States has been less effective than other countries at mitigating them.

[46] In 3 of the 22 countries, the rise was small. Federico Cingano, *Trends in Income Inequality and Its Impact on Economic Growth*, Organization for Economic Cooperation and Development (OECD), Social, Employment and Migration Working Paper no. 163, December 2014, http://dx.doi.org/10.1787/5jxrjncwxv6j-en; hereinafter "Cingano, 2014". The OECD is an international organization of advanced- and middle-income countries.

[47] OECD Income Distribution Database, at http://www.oecd.org/social/income-distribution-database.htm.

Patterns of Income Mobility

Between 1967 and 2015, income inequality increased within the United States because incomes grew faster, on average, for households in the top quintiles than for others (see **Figure 2**). While this finding may appear to imply that a fixed group of households gained relative to others over this period, this may not actually be the case for two reasons. First, mean income growth for a given quintile does not mean that all households in that group experienced income growth.[48] Moreover, households (and tax units) do not necessarily stay in a given quintile from year to year. That is, a new job or profitable investment can move a household from a lower quintile to a higher one over time; likewise, households experiencing income loss can move down the distributional ranks.[49] Such movement throughout the income distribution over time is called *income mobility.*

Mobility can be measured in different ways and over different time frames.[50] This section focuses on three frames—the short-term (e.g., one to five years), the longer-term (e.g., 10 years or more), and intergenerational (parent-to-child comparisons). In general, data from governmental sources reveal three broad trends: (1) households and individuals are not perfectly mobile, i.e., there is a relationship between one's current rank in the distribution and past rankings; (2) individuals and households are more mobile over longer periods of time; (3) overall income mobility has not decreased significantly in recent decades.

Short-term Mobility

Analyses of two government data sources indicate limited household income mobility and limited individual earnings mobility over the short term. That is, households and individuals tend to stay at or near their current income or earnings rank over one to five year periods.

Figure 9 summarizes Census Bureau analysis of households' income distribution rankings in 2004 and 2007, and shows that households were mobile to varying degrees—and less so at the top and bottom of the distribution—over the short time period studied.[51] In particular, 69% of households in the bottom quintile in 2004 were also in the bottom quintile in 2007, and 68% of households in the top quintile in 2004 were also in the top quintile in 2007.[52] This finding

[48] Some households' incomes may have grown at rates above their quintile average, some at rates below their quintile average, and some may have experience income loss.

[49] Because distributional rank describes one's placement *relative to others*, it is possible to change rank without any change in income levels (e.g., if the incomes of other individuals or households rise or fall).

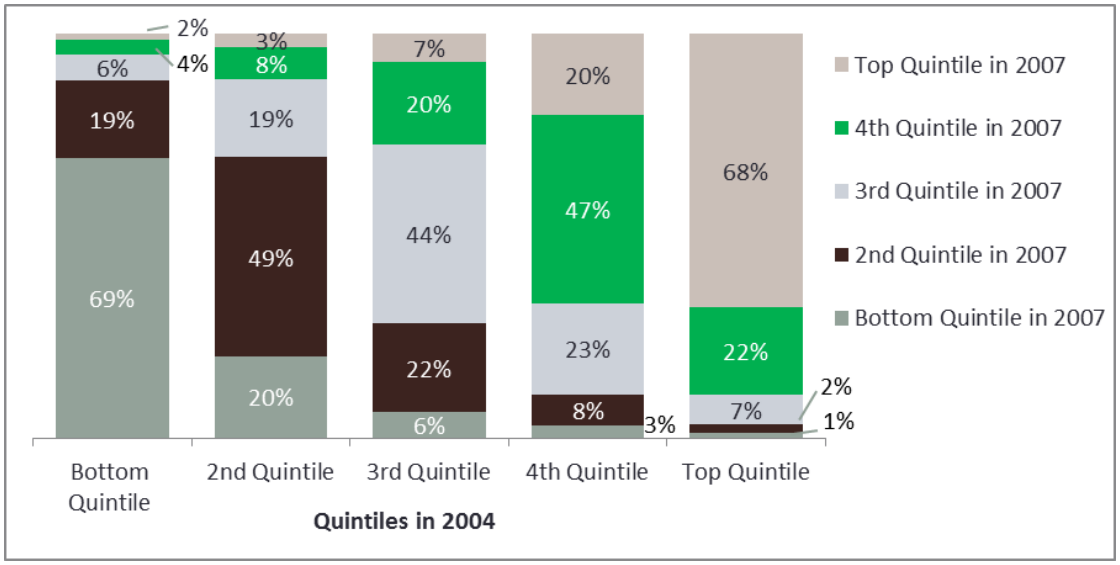
[50] See Gary Fields, "Income Mobility," in Lawrence Blume and Steven Durlauf, *The New Palgrave Dictionary of Economics*, New York, NY: Palgrave Macmillan, 2008.

[51] This is the most current Census analysis of income mobility using the Survey of Income and Program Participation (SIPP). The SIPP is a longitudinal household survey that follows the same respondents over a 2½-4-year period. Additional information about the SIPP is at http://www.census.gov/sipp/. John J. Hisnanick and Katherine G. Giefer, *Dynamics of Economic Well-Being: Fluctuations in the U.S. Income Distribution, 2004-2007*, U.S. Census Bureau, Household Economic Studies, P70-124, March 2011, at http://www.census.gov/prod/2011pubs/p70-124.pdf.

[52] The Census Bureau also analyzed SIPP data for 1996-1999 and 2001-2003. These studies reveal mobility patterns that are largely similar to those found for the 2004-2007 period. Between 1996 and 1999, 62% and 66% of bottom and top quintile households, respectively, remained in their initial quintile; for 2001 and 2003 these rates were 71% (bottom quintile) and 68% (top quintile). John J. Hisnanick and Katherine G. Giefer, *Dynamics of Economic Well-Being: Fluctuations in the U.S. Income Distribution, 1996-1999*, U.S. Census Bureau, Household Economic Studies, P70-95, July 2004, at http://www.census.gov/prod/2004pubs/p70-95.pdf, and John J. Hisnanick and Katherine G. Giefer, *Dynamics of Economic Well-Being: Fluctuations in the U.S. Income Distribution, 2001-2003*, U.S. Census Bureau, Household Economic Studies, P70-112, November 2007, at http://www.census.gov/prod/2007pubs/p70-112.pdf.

indicates that changes in mean income between 2004 and 2007 for the top quintile do not reflect the experience of a single, fixed set of "top income" households, however the set of households in the top income group was largely (68%) the same. Households in the middle quintiles in 2004 showed more upward- and downward-mobility—44% to 49% of these households stayed in the same quintile. Nevertheless, they were at least twice as likely to remain in the same quintile in 2007 as to move to any other individual quintile. Movement beyond an adjacent quintile was relatively rare.

Figure 9. Household Income Mobility Between 2004 and 2007



Source: CRS using data from John J. Hisnanick and Katherine G. Giefer, *Dynamics of Economic Well-Being: Fluctuations in the U.S. Income Distribution, 2004-2007,* U.S. Census Bureau, Household Economic Studies, P70-124, March 2011, figure 2.

Note: Percentages may not sum to 100% because of rounding.

A separate study of Social Security Administration (SSA) earnings data (i.e., labor income only) revealed similar short-term mobility patterns.[53] In particular, SSA earnings data indicate a strong correlation, on average, between individuals' current ranks in the earnings distribution and their rankings in the previous year. The paper also examined a separate income mobility measure based on earnings over a 5-year span and found similar results. Among top earners, individuals in the top 1% of the earnings distribution had a relatively high likelihood of staying in the top 1% over short periods of time (i.e., between 60%-80%, depending on the time frame examined), but were more likely to move to a different earnings rank over longer periods of time (i.e., more likely to move out of the top 1% over 5 years than over 1 year). These short-term earnings mobility patterns—overall and among the top 1% of earners—were largely stable over the 1978-2004

[53] Social Security Administration earnings data allow individual workers' earnings records to be linked over time based on the workers' social security numbers. This study examined income inequality and income mobility patterns for workers who were 25 to 60 years old, and had earnings from work in the commerce and industry sector. The authors attempted to account for a number of limitations in Social Security data, including the earnings cap on payroll taxes and changes in the coverage of Social Security over time. The data do not allow the authors to consider other sources of income, such as capital income and self-employment income, over the full sample, however. Wojciech Kopczuk et al, "Earnings Inequality and Mobility in the United States," *The Quarterly Journal of Economics*, February 2010, p. 91; hereinafter "Kopczuk et al, 2010."

period, although overall earnings mobility across 5-year periods appears to have decreased modestly and particularly among men.

Longer-term Mobility

The same study of SSA earnings data examined workers' earnings mobility over 20-year periods.[54] These data show that, while a degree of immobility persists over longer timeframes, workers were more mobile in the long-term (here over 20 years) than they were over shorter periods (1-5 year periods). Put another way, an individual's past earnings rank is a greater predictor of future earnings ranks in the short term than in the longer-term. They further find that overall earnings mobility in the longer-term has not deteriorated in recent decades.[55]

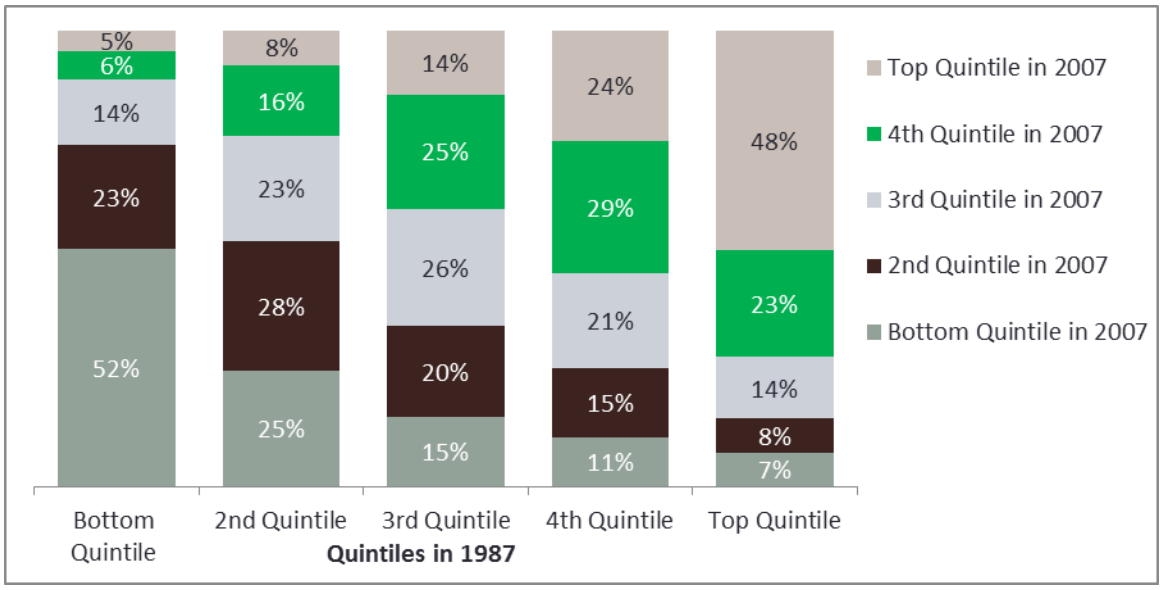
Another study measured long-term income mobility among families using income tax data.[56] **Figure 10** summarizes taxpayers' distributional rankings in 1987 (when the taxpayers were 35-40 years old) and 2007 (when they were 55-60 years old). The figure reveals some degree of long-term income mobility for each quintile, although less so at the top and bottom of the distribution. **Figure 9** and **Figure 10** are based on different data sources and are not directly comparable, but nonetheless reveal different income mobility patterns over the short-term (i.e., a 3-year period, **Figure 9**) and the longer-term (i.e., a 20-year period, **Figure 10**). In particular, individuals appear more mobile—more likely to change placement in the distribution—over the longer-term than the short-term. For both time frames, individuals and households in the top and bottom quintiles were more likely to retain their ranks over time than those in the middle three quintiles.

[54] Kopczuk et al, 2010.

[55] The study shows instead that long-term income mobility (overall) has increased. However, this result appears to be driven by significant improvements in women's earnings. The authors note "[l]ong-term mobility among males has been stable over most of the period, with a slight decrease in recent decades. The decrease in the gender earnings gap and the resulting substantial increase in upward mobility over a lifetime for women is the driving force behind the increase in long-term mobility among all workers." See Kopczuk et al, 2010, p.95.

[56] The study was conducted by U.S. Treasury Department analysts, using official IRS data, but was published in a professional tax journal. Gerald Auten, Geoffrey Gee, and Nicholas Turner, "New Perspectives on Income Mobility and Inequality," *National Tax Journal*, vol. 66, no. 4, December 2013; hereinafter "Auten et al, 2013."

Figure 10. Taxpayers Income Mobility Between 1987 and 2007



Source: CRS using data from Gerald Auten, Geoffrey Gee, and Nicholas Turner, "New Perspectives on Income Mobility and Inequality," *National Tax Journal*, vol. 66, no. 4, December 2013, Table 1.

Notes: Quintiles in 1987 are based on primary and secondary taxpayers ages 35 to 40 in that years, and quintiles in 2007 are based on taxpayers ages 55 to 60 in 2007. Sample is based on taxpayers that appears in IRS administrative records in both 1987 and 2007.

Analysis of taxpayers who were in top decile (i.e., top 10%) in 1987 reveals that "[a]bout one-fourth of those in the top 1 percent were also in the top 1 percent 20 years later, but nearly 70 percent remained in the top income decile."[57]

Intergenerational Mobility

Another vein of this literature examines how parents' placement in the income distribution affects their children's future distributional rankings. The degree to which individuals can achieve a distributional rank that is different from the one they were born into is called *intergenerational income mobility*.

Efforts to estimate the degree of intergenerational income mobility in the United States have encountered several empirical hurdles.[58] A recent and promising development, however, is the publication of a detailed set of intergenerational income mobility estimates by researchers at the Equality of Opportunity Project, a research effort coordinated by Harvard University.[59] This

[57] Auten et al, 2013, p. 896. The study also examines the relationship between tax filers' ages and their placement in the income distribution and finds evidence that taxable incomes peak when individuals are in their early 50s.

[58] These include a paucity of datasets that track incomes across generations, small sample sizes, and imprecise measurement of incomes.

[59] This newly-developed source of estimates is important because it minimizes the empirical hurdles identified in footnote 58. Nonetheless it, like all data sets, has limitations. For one, "children's" incomes (i.e., adult children) are observed at ages 29-30, which is arguably an early stage of an individual's economic profile. In addition, because estimates are based on IRS records, they do not reflect the earnings of individuals not required to file taxes, reported income may be subject to fraud, and they exclude non-taxable income. Finally, access to IRS microdata is heavily restricted, and consequently the Equality of Opportunity Project estimates cannot easily be replicated. Data and research studies are available for download from the Equality of Opportunity Project, at http://www.equality-of-opportunity.org/.

research team collaborated with the IRS to gain unprecedented access (by individuals other than U.S. Treasury analysts) to a large sample of tax records, and—using a 1986 change to the U.S tax code that required tax return filers to provide dependents' Social Security numbers[60]—were able to compare the income distribution rankings of families in 1987-1998 to the rankings of children from those families in 2000-2012, when the children were 29-30 years old.[61]

Analysis by this team of linked IRS records produced two key results. First, parents' past ranking in the income distribution is related to a child's ranking in adulthood (i.e., at age 29 or 30), but parents' past rank is not the sole determinant of children's rankings. The estimated correlation between children's and parents' rank ranged between 0.29 and 0.31, and estimates were statistically significant. This means that a 10 percentile point increase in parents' ranking is associated with an approximately 3 percentile point increase, on average, in a child's ranking.[62] Second, the magnitude of the relationship between child and parent ranks has not changed discernibly for individuals born between 1971 and 1982.

Factors That Affect the Income Distribution: Theory and Evidence

There is broad agreement among researchers that several factors—working in concert—have driven income distributional trends since the mid-1970s. However, there is less agreement about their relative importance, particularly because most empirical research focuses on a specific factor in isolation. This section reviews leading theories and empirical work on factors believed to be significant contributors. Some studies attempt to explain what has held down income growth for low- and middle- income households and workers, others try to explain the rise in income at the top of the distribution, and some consider factors that affect the entire income distribution. Certain factors may also be more important than others at different times within this period; notably because, as discussed above, real income was generally rising before 2000, but since then has stagnated. This section provides an overview of factors affecting labor income and capital income and considers the role of changing household composition on the shape of the income distribution.

Although relevant to considerations of recent trends, how tax policy and government social insurance and cash transfer payments affect the income distribution is beyond the scope of this

[60] This requirement was created by the Income Tax Reform Act of 1986 (P.L. 99-514).

[61] The research team examined other measures of intergenerational income mobility, including the relationship between parent's placement in the income distribution and children's college attendance, and the average distributional rank achieved by children of families at the 25th percentile of the distribution. For a discussion of these findings, see http://www.equality-of-opportunity.org/. For a more general discussion of efforts to assess intergenerational income mobility, see Sandra E. Black and Paul J. Devereux, "Recent Developments in Intergenerational Mobility," in *Handbook of Labor Economics*, ed. Orley Ashenfelter and David Card, vol. 4b (Elsevier, 2011), pp. 1487-1541.

[62] See Raj Chetty, Nathaniel Hendren, Patrick Kline, Emmanuel Saez, and Nicholas Turner, "Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility," *American Economic Review: Papers and Proceedings*, vol. 104, no. 5 (2014), pp. 141-147. Significant geographic variation in the estimated magnitude of this relationship is a central finding from a related study. That is, the analysis reveals that children from some U.S. areas exhibited greater intergenerational income mobility than others; see Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez, "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States," *Quarterly Journal of Economics*, vol. 129, no. 4 (2014), pp. 1553-1623.

report.[63] While the progressivity of the tax system changes the after-tax income distribution, income data used in this report are measured on a pre-tax basis.

Labor Income

Labor income (i.e., earnings from employment) accounts for a significant share of total income for individuals and households throughout the income distribution, representing 65%-82% of average market income in each income quintile, by CBO estimates.[64] As such, it follows that factors that affect relative earnings and the availability of jobs for low-, middle-, and high-wage workers will have consequences for the broader distribution of income, with a given change having a greater impact on the relative placement of the middle three quintiles who earn the largest shares of their income through labor income.[65]

Rapid growth in top incomes is a striking feature of distributional trends between 1967 and 2015 (see **Figure 2**), but is not the sole driver of rising income inequality over the period. Income inequality also increased among the lower 80% of households between 1967 and 2015, and distributional patterns since 2000 have been shaped in part by income losses among the bottom three quintiles. Accordingly, this section considers both the set of factors affecting the distribution of labor income generally (i.e., for low, middle, and high wage workers) and factors driving trends for the very top earners.

Factors Affecting the Distribution of Earnings Across Low-, Middle-, and High-Wage Workers

Broadly speaking, changes in the distribution of labor income can reflect changes across the distribution in workers' relative productivity, their bargaining power, or both.[66] Several factors are believed to have affected distributional patterns in labor earnings through these channels in recent decades. For example, technological innovation has improved productivity for some workers, but these gains are largely concentrated among skilled, high-wage workers. Trends affecting wage-setting institutions such as the minimum wage and collective bargaining had greater significance

[63] For a recent analysis of income distribution before and after taxes and government transfers, see Congressional Budget Office, *The Distribution of Household Income and Federal Taxes, 2013*, June 2016, at https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51361-HouseholdIncomeFedTaxes.pdf.

[64] According to CBO analysis of incomes in 2013, labor earnings accounted for 66% of average market income earned by households in the lowest quintile of the income distribution; between 75% and 82% for the middle three quintiles; and 65% for top quintile. At 36%, labor earnings make up a lower, but still significant, share of household income among the top 1%. CBO defines market income as labor income, business income, capital gains realized from the sale of assets, capital income excluding capital gains, and income received in retirement for past services or from other sources. Conceptually, these percentages underestimate labor income because they exclude business income, and some business owners contribute labor to their firms and are compensated in the form of business income in lieu of wages. CBO, *The Distribution of Household Income and Federal Taxes, 2013*, June 2016, at https://www.cbo.gov/publication/51361.

[65] Labor income is an important resource for many low-income families (i.e., those in the bottom income quintile). However, because many retired workers and college students are located in the lower portion of the income distribution—and their labor income is relatively negligible—the labor earnings share of market income for the lowest quintile (66% by CBO estimates) may understate the significance of labor earnings for low-income workers.

[66] With some exceptions, private-sector compensation in the United States is set by agreement between employers and workers, and depends fundamentally on two main factors: the value of worker productivity and workers' bargaining power. Employers care about how much workers can produce (i.e., their labor productivity) and the profits generated from that production. Workers' productivity is enhanced by education, skills, experience, health, and technology, as well as their command of "soft skills" such as organization and the ability to work on a team. Workers' abilities to leverage their productive capacities into greater earnings depend on their bargaining power.

for workers in the bottom half of the distribution, as have recent global trading patterns that increased competitive pressures for the U.S. manufacturing sector.

Technological Change

Workplaces have long benefited from technological innovations, and recent gains have been particularly notable. Over the last several decades, use of personal computers and information technology (IT) became more prevalent, directly affecting worker performance but also spurring changes in the way tasks are organized. Technological progress has also increased the scope and reduced the cost of automating certain tasks, affecting workers in production and other jobs.[67]

Several economists have argued that technological change affects the relative earnings of workers (i.e., the distribution of wages and salaries) by reducing employers' demand for certain low- and middle-wage workers, while simultaneously increasing demand for high-skilled, high-wage workers. This occurs because technology alters the set of tasks associated with certain jobs—affecting worker productivity, labor demand, and potentially wages—but does so in a way that is *skilled-biased*, meaning that it affects workers differently based on their location on the skill spectrum. This explanation of the relationship between technological change, employment, and the skill premium (i.e., higher earnings for higher skilled workers) is called skill biased technological change (SBTC) theory.[68]

According to SBTC theory, new technology raises the productivity—and their value to employers—of highly-skilled workers who perform complex, non-routine tasks (e.g., physicians, managers). Productivity rises because technology *complements* the work performed by these groups of workers; it replaces time-consuming routine tasks (e.g., data processing, information organization), streamlines processes, and increases the precision of work performed by highly-skilled workers. Productivity improvements generally translate into increased labor demand, which puts upward pressure on wages if demand is not mitigated by other forces.[69] At the same time, technological progress has *reduced* the demand for certain middle- and low-skilled workers who largely perform routine tasks—for example, certain clerical workers and production workers—because new IT and production technology *replaced* a significant share of the tasks performed by these workers, resulting in job loss. For example, the availability of affordable desktop computers, word-processing software, voicemail, and email eliminated many tasks

[67] For a discussion of automation technology and its interaction with labor markets, see David H. Autor, "Why Are There Still So Many Jobs? The History and Future of Workplace," *Journal of Economic Perspectives*, vol. 29, no. 3 (Summer 2015), pp. 3-30. See also Timothy F. Bresnahan, Erik Brynjolfsson, and Lorin M. Hitt, "Information Technology, Workplace Organization and the Demand for Skilled Labor: Firm-Level Evidence," *Quarterly Journal of Economics*, vol. 117, no. 1, pp. 339-376.

[68] For an overview, see Daron Acemoglu and David H. Autor, "Skills, Tasks and Technologies: Implications for Employment and Earnings," in *Handbook of Labor Economics*, eds. Orley Ashenfelter and David Card, vol. 4B (Elsevier, 2011), pp. 1043-1171.

[69] Many factors affect labor demand, including market prices of products or services generated by that labor, production technology, input factor prices (i.e., wage rates and capital prices), and other factors. SBTC theory does not predict that the skill premium will grow indefinitely. Workers respond to rising relative wages by adjusting their education and occupation decisions. Mechanically, the growth in the pay gap will slow down or contract as the relative supply of highly educated workers approaches relative demand. Moreover, perpetually rising demand for skilled labor is not guaranteed by SBTC. Growth in employers' demand for skilled workers may slow as technological improvements allow for greater task substitutions in highly-skilled occupations, or if technological change produces temporary spurts of increased labor demand. See Paul Beaudry, David Green, and Benjamin Sand, "The Great Reversal in the Demand for Skill and Cognitive Tasks," *Journal of Labor Economics*, vol. 34, no. S1 (2016), pp.S199-S247; hereinafter "Beaudry, Green, and Sand, 2016."

traditionally performed by certain clerical staff (e.g., typists, secretaries), and increased automation in manufacturing plants reduced the demand for certain production workers.[70]

Moreover, technological improvements have further affected employers' demand for certain middle-skilled workers by increasing the feasibility of offshoring (i.e., moving production outside the United States; sometimes referred to as *foreign outsourcing*) certain production tasks and services that do not need to be performed in proximity to the consumer (e.g., book-keeping, call-center activities).

Wage-Setting Institutions: The Minimum Wage and Unionization

Labor market institutions—particularly a lack of long-term growth in the inflation-adjusted value of the federal minimum wage and a decline in union membership—are also believed to have affected relative wages.

The federal minimum wage is not indexed to prices, and consequently falls in real terms over the time period between legislated increases; viewed over the longer-term, however, there has been no trend in the real value of the minimum wage since 1990.[71] As the anchor of the earnings distribution, a declining real minimum wage can have distributional consequences if earnings for workers throughout the distribution do not experience similarly paced declines. Research on this relationship focuses on the 1980-2000 time period, when wage inequality grew rapidly.[72] These studies produced a range of estimates, but in general find that the declining value of the minimum wage—particularly in the 1980s—contributed to the growing distance between wages of workers at the bottom of the distribution and those at the middle, particularly for women.[73] Although increasing the minimum wage may improve earnings of low-wage workers, some economists

[70] The theory has less to say about the employment and earnings of the many low-skilled workers concentrated in personal services occupations, whose tasks are by and large neither complemented nor substituted by recent technological change. Although recent technological changes may not directly affect low-skilled workers by augmenting or substituting for their work, increased earnings at the top of the distribution may have increased the demand for services supplied by low-skilled workers and affected employment patterns through that channel. Reductions in middle-skill jobs mean that low-skilled workers now compete with a larger and better-skilled pool of workers for vacancies; this additional competition can place downward pressure on low-skilled wages. See David H. Autor and David Dorn, "The Growth of Low-Skill Service Jobs and the Polarization of the U.S. Labor Market," *American Economic Review*, vol. 103, no. 5 (2013), pp. 1553-1597 and Beaudry, Green, and Sand, 2016.

[71] In 1938, the Fair Labor Standards Act (FLSA) established the federal minimum wage, which set the wage floor for large swaths of the workforce. Congress has raised the federal minimum wage several times, and it is currently set at $7.25. See CRS Report R43089, *The Federal Minimum Wage: In Brief*, by David H. Bradley. States can also set a minimum wage, and several have established a state minimum wage that is above the federal level. For information on state minimum wages, see CRS Report R43792, *State Minimum Wages: An Overview*, by David H. Bradley.

[72] For a discussion of this literature and its evolution, see Thomas Lemieux, "What Do We Really Know about Changes in Wage Inequality," in *Labor in the New Economy*, eds. Katherine G. Abraham, James R. Spletzer, and Michael Harper (University of Chicago Press, 2010), pp. 17-59, available at http://www.nber.org/chapters/c10812. More recent analysis is from David Autor, Alan Manning, and Christopher Smith, "The Contribution of the Minimum Wage to U.S. Wage Inequality over Three Decades: A Reassessment," *American Economic Journal: Applied Economics*, vol. 8, no. 1 (January 2016,), 58-99; hereinafter "Autor, Manning, and Smith, 2016."

[73] One factor limiting the federal minimum wage's influence on low-wage workers is that it is only binding for a small share of workers (e.g., 2% of workers and 3.3% of all hourly workers in 2015). States can also set a minimum wage, and several have established a state minimum wage that is above the federal level. Some studies have identified a "spillover" effect, whereby changes in the minimum wage affect not only minimum wage workers but also those paid close to but above the legislated minimum. One recent study that found evidence of this spillover—but was not able to distinguish it from measurement error in the data set—is Autor, Manning, and Smith, 2016.

indicate that it can have important and potentially deleterious employment effects as well.[74] If a higher minimum wage raises firms' labor costs to the detriment of competitiveness, some minimum wage workers may lose their jobs or experience a reduction in hours, reducing (or eliminating) total labor income for these low-wage workers, with broader distributional consequences. That is, to the extent that there are disemployment effects of a rising minimum wage, the loss of labor income that is concentrated among low-earners can widen the overall income distribution if lost income is not recouped elsewhere.

Evaluated at the median, union members have higher weekly earnings than non-union members working in the same industry.[75] The theory underpinning the union wage premium is that workers can strengthen their overall negotiating stance over wages, employment, and benefits when they organize and put forth a unified position.[76] The union membership rate among wage and salary workers declined by 9 percentage points (from 20.1% to 11.1%) over 1983-2015.[77] Some studies that examine the role of declining unionization on wage trends, particularly over the 1980-2000 period, find that it is associated with an expanding wage gap between high and middle-wage male workers.[78] As collective bargaining coverage declined so did workers' ability to bargain over pay.[79] This affected the dispersion of wages because union membership, historically, has been high in the middle-paying industries and occupations (e.g., construction, transportation, production jobs) relative to unionization rates in low- and high-paying industries and occupations. Given their high representation among unionized workers—especially during the 1980s—these effects are prominent for men.

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[74] For a summary of arguments for and against raising the minimum wage, see CRS Report R43089, *The Federal Minimum Wage: In Brief*, by David H. Bradley.

[75] Average characteristics of union members and non-union members tend to differ in terms of age, skill, position, job tenure, and overall work experience. These characteristics affect wages and therefore, the information gained from a direct comparison of union and non-union pay is limited. A wage premium for union members is generally identified in more sophisticated analyses that control for worker, firm, and industry characteristics that affect wages. See, for example, Barry T. Hirsch, "Reconsidering Union Wage Effects: Surveying New Evidence on an Old Topic," *Journal of Labor Research*, vol. 25, no. 2 (Spring 2004), pp. 233-266.

[76] While unions may contribute to higher wages for unionized workers, some have argued that gaining a more equal negotiating stance with firms may have broader implications for employment opportunities and future wage growth for some employees. For example, as workers gain a larger share of profits, they could reduce incentives for firms to invest (i.e., by reducing the return on investment) and may reduce employment levels and growth. Further, wage and employment benefits that result from union deals may be exclusive to union members ("insiders"), while non-union members ("outsiders") might face greater employment barriers. Finally, by setting wages for a group, collective agreements may limit the ability for high productivity workers to strike a better individual deal.

[77] A slightly higher share of wage and salary workers were *represented* by unions—e.g., union members and non-union members covered by collective bargaining agreements—in 2015 (12.3%), although this number has also declined. These declining trends—in membership and representation—largely reflects private sector trends, which declined sharply over the period (10.1 percentage point decline), while public sector union coverage is considerably higher and more stable (1.5 percentage point decline). 1983 is the first year for which union membership and representation statistics are available from BLS.

[78] See, for example, David Card, Thomas Lemieux, and W. Craig Riddell, "Unions and Wage Inequality," *Journal of Labor Research*, vol. 25, 2004.

[79] The relationship between the union wage premium and union density can run in the other direction as well. That is, if higher wages in unionized firms are not offset by higher productivity (or product prices), firm profitability may suffer and jobs will move to non-unionized firms, resulting in lower union density. For a fuller analysis of this channel see Barry T. Hirsch, "Sluggish Institutions in a Dynamic World: Can Unions and Industrial Competition Coexist?" *Journal of Economic Perspectives*, vol. 22, no. 1 (Winter 2008), pp. 153-176.

Import Competition

Recent global trading patterns have altered what goods and services the United States produces. Standard trade models predict that—although countries benefit *in aggregate* from international trade—gains from trade are not evenly distributed within countries.[80] In particular, the specialization of production that occurs when countries trade increases demand for a country's relatively abundant production factor (capital and skilled labor in the United States) and demand for its relatively scarce production factor (unskilled labor) will fall.[81]

Workers most affected by changing trade patterns are concentrated in industries directly competing with imports. The long-term decline in U.S. manufacturing employment, which lasted through the end of the Great Recession, has led a number of researchers to investigate the extent to which the decline is caused by increased import penetration in manufacturing, which can easily be traded.[82] Recent studies focus on the impacts of China's establishment (starting in 2000) as a global supplier of manufactured goods.[83] Increased international competition—and particularly from China[84]—resulted in factory closings and production shifts that displaced large numbers of U.S. workers. It had additional employment consequences for firms that provided inputs and support services to the manufacturing sector (e.g., suppliers of raw materials, delivery services, warehousing), and affected economic conditions in surrounding communities. These employment effects had distributional consequences because lost jobs were concentrated among low- and middle-wage workers. These workers lost labor income when displaced, and the effects were lasting for some workers—especially for less-educated workers—who were not able to find similarly-compensating work in local labor markets.[85]

As noted earlier in this report, other factors have contributed to a decline in manufacturing employment, such as productivity-enhancing technological changes that have made U.S.

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[80] For more information, see CRS Report R44546, *The Economic Effects of Trade: Overview and Policy Challenges*, by James K. Jackson.

[81] Abundance and scarcity of production factors is defined relative to trade partners. For example, a country can have more unskilled workers than skilled workers but be *relatively abundant* in skilled labor if its ratio of skilled-to-unskilled labor is greater than its trade partner's skilled-to-unskilled labor ratio.

[82] A 12-year decline in manufacturing employment ended in 2011. However, manufacturing employment as a share of total employment continued to decline, albeit at a slower pace. For a discussion of U.S. manufacturing sector employment, see CRS Report R41898, *Job Creation in the Manufacturing Revival*, by Marc Levinson.

[83] These include Daron Acemoglu, David Autor, and David Dorn, Gordan H. Hanson, and Brendan Price, "Import Competition and the Great US Employment Sag of the 2000s," *Journal of Labor Economics*, vol. 34, no. 1 (Part 2 2016), pp. S141-S198; and Justin R. Pierce and Peter K. Schott, "The Surprisingly Swift Decline of U.S. Manufacturing Employment," *American Economic Review*, vol. 106, no. 7 (July 2016), pp. 1632-1662; and David H. Autor, David Dorn, and Gordon H. Hanson, *The China Shock: Learning from Labor Market Adjustment to Large Changes in Trade*, National Bureau of Economic Research, 21906, January 2016, http://www.nber.org/papers/w21906. The results of these studies should be considered with a few caveats in mind. For one, these studies focus on gross employment changes in the manufacturing sector; they do not account for potential employment gains in other sectors (e.g., U.S. export sectors and related sectors like transportation and warehousing). Also the proliferation of complex international supply chains increasingly blurs line between foreign and domestic outputs and complicates empirical analyses such as these. Finally, these studies do not account for the potential positive impact lower-priced imports can have on the real incomes of a broad range of consumers in the economy.

[84] U.S. imports from China rose from $100 billion in 2000 to $483 billion in 2015. Census Bureau data on the volume of U.S. trade with China is available at https://www.census.gov/foreign-trade/balance/c5700.html.

[85] Increased job-churning and lower reemployment wages were found for displaced manufacturing workers, and attributed to increased trade from China after 2000, by Autor, Dorn, and Hanson (2016); see footnote 83 for caveats to this study. The experiences of displaced workers more generally is described in Lori G. Kletzer, "Job Displacement," *Journal of Economic Perspectives*, vol. 12, no. 1 (Winter 1998), pp. 115-136.

manufacturing less labor intensive. Technological progress paired with a changing international trade environment may have also increased the range of goods and services that can be traded, potentially exposing more U.S. workers to import competition than previously. For example, a greater ability to coordinate production (i.e., through better technology) and lower trade barriers may have encouraged U.S. firms to move a portion of production from their domestic plants to (company-owned or contractor) plants operating abroad.[86]

Although more challenging to identify empirically, increased international trade has plausibly created opportunities for employment in other U.S. sectors that expanded as a result of new trade patterns (e.g., exporting sectors and those that use import-competing goods as inputs). The effect on the income distribution will depend on the magnitude of expansion and what types of workers are hired for these jobs. Finally, despite significant and lasting effects for a share of displaced workers, the long-run impact of a trade-induced production shift should attenuate over time, as the economy and new workforce entrants move away from import-competing sectors.

Immigration

To the extent that immigrants' and non-immigrant's wage distributions differ, a sizeable inflow of foreign-born workers will alter the overall wage distribution, all else equal. Immigration can further affect the wage distribution if incoming foreign-born workers *alter employment and earnings patterns of the existing workforce*. How immigration affects labor markets is a large and complex area of economic research.[87] Economic theory produces a range of possible outcomes that depend on the characteristics of incoming immigrant workers and how they compare to a country's existing pool of labor, the degree to which new immigrants and existing workers compete for jobs in the same labor markets, how employers respond to the new labor supply, macroeconomic considerations, and other factors.[88] A large literature has examined the impact of immigrant labor on the employment and wages of native (or resident) workers; the results of these studies are mixed and are sensitive to empirical methods, data sources, time frame of study, and the particular set of workers examined.[89]

Immigration can affect the *wage distribution* through several channels, but the relationship depends fundamentally on: (1) how immigration affects the employment and wage levels of

[86] Pierce and Schott (2016), for example, find evidence of this "within-firm offshoring" in their study of the employment impacts of the United States establishment of permanent normal trade relations with China in 2000.

[87] A detailed discussion of what economic theory predicts about the labor market impacts of immigration for the United States, and a review of the empirical literature is in National Academies of Sciences, Engineering, and Medicine, *The Economic and Fiscal Consequences of Immigration*, ed. Francine D. Blau and Christopher Mackie (Washington, DC: The National Academies Press, 2016); hereinafter "National Academies of Sciences, Engineering, and Medicine, 2016". For information on current immigration trends, see CRS Report R42988, *U.S. Immigration Policy: Chart Book of Key Trends*, by William A. Kandel.

[88] For example, immigration may have a neutral impact if incoming foreign-born workers fill vacancies that cannot be filled with native-born workers; alternatively, if immigration trends respond to increasing labor demand in certain industries or occupations, wage effects may be negligible. By contrast, if immigrants compete with native-born workers for jobs and certain conditions are met (e.g., no commensurate increase in labor demand, immigrant labor can substitute for native-born labor), immigrant labor can put downward pressure on wages for native-born workers. Finally, immigration can improve productivity and employment if firms respond to increased labor supply by investing in technology that expands capacity, or if immigrant and native-born workers specialize in occupations such that native-born workers are able to *upgrade* their jobs. A comprehensive review of research is in National Academies of Sciences, Engineering, and Medicine, 2016. For a discussion of foundational research on the impacts of immigration on host country labor markets, see George Borjas, "The Economic Analysis of Immigration," in *Handbook of Labor Economics*, eds. Orley Ashenfelter and David Card, vol. 3A (North Holland, 1999), pp. 1697-1760.

[89] National Academies of Sciences, Engineering, and Medicine, 2016.

native (or resident) workers, and (2) the degree to which employment and wage impacts are experienced differently by low-, middle-, and high-wage workers. As with impacts on wage levels, the magnitude of any *distributional* consequence of immigration is likely to differ over the short and long terms.[90] Relatively fewer studies have examined how immigration affects the distribution of wages. One recent review of this literature finds that "[w]hile some studies do find important effects, overall, it seems to us that most research does not find quantitatively important effects of immigration on native wage levels or the wage distribution."[91]

Factors Driving Trends Among Top Earners

This section looks at some of the factors that might help explain the other trend driving rising inequality in the long run—the significant growth in real income at the top of the distribution.

Before considering various theories for why income at the top of the distribution has grown, it may be useful to look at who the top earners are. According to BLS data, the top 9 occupations with the highest median pay in 2015 were different medical specialists and the 10th highest was chief executives.[92] However, median pay data does not reveal the occupations of households at the top of the income distribution. A 2012 study based on IRS tax filings found that in 2005 nonfinancial executives, managers, and supervisors, were the occupations of 31% of the top 1% of income earners. The next four occupations, making up a combined 43% of the top 1%, were medical, financial (including management), lawyers, and computer (including math, engineering, and technical). Between 1979 and 2005, top 1% earners in the executive and finance occupations saw the largest growth in their share of income (capturing 60% of the growth in top 1% income), whereas top 1% earners in finance and real estate saw their share grow most quickly.[93] A more recent study found that the industries with the most top 1% earners were the medical, legal and financial industries. (The only information technology industry among the top industries by this study's classification was computer systems design.)[94] The fact that top earners are spread across a number of occupations and industries and have experienced varied income growth rates suggests that there may be multiple forces driving the trend of income growth at the top. A leading explanation is skill-biased technological change (as discussed in the section entitled "Technological Change"). The following discusses other explanations for income growth at the top of the distribution.

[90] Over longer periods of time, the economy and labor markets (national and local markets) may adjust to immigration flows in ways that affect the distribution of labor incomes.

[91] Francine D. Blau and Lawrence M. Kahn, *Immigration and the Distribution of Income,* National Bureau of Economic Research, 18515, November 2012, p.52, http://www.nber.org/papers/w18515. Blau and Kahn also considered the compositional effects of recent immigration flows to the United States. That is, they ask if differences between the characteristics of incoming immigrant workers and those of the resident workforce affect the distribution of wages (and other measures of earnings). They find that as of 2009 these effects were small, but note that they may become more important over time.

[92] Data available on BLS's website at http://www.bls.gov/ooh/highest-paying.htm.

[93] Jon Bakija, Adam Cole, and Bradley Heim, "Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality," working paper, April 2012, at http://web.williams.edu/Economics/wp/BakijaColeHeimJobsIncomeGrowthTopEarners.pdf. See also Steven Kaplan and Joshua Rauh, "Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes?," *Review of Financial Studies*, vol. 23, no. 3., March 2010, pp. 1004-1050.

[94] See Jonathan Rothwell, "Make Elites Compete," Brookings Institute, March 25, 2016, http://www.brookings.edu/blogs/social-mobility-memos/posts/2016/03/25-make-elites-compete-why-one-percent-earn-so-much-rothwell.

Economies of Scale

Globalization, investment requirements (particularly in IT systems), and regulatory relief[95] have allowed some firms to grow in size and benefit from *economies of scale*.[96] Some studies have found that economies of scale in particularly large firms allow workers at the top of the firm's hierarchy to also increase their productivity and capture higher wages.[97] Another example of the industries benefiting from economies of scale is "winner takes all" industries, discussed next.

"Winner Takes All" Industries

"Winner takes all" industries are those in which there are positive *network effects*, meaning that existing users benefit from the presence of more users, that lead to one firm or product developing a dominant position or product in that market. Technological change seems to have favored certain winner-takes all-industries, as evidenced by the success of many IT firms in market niches, including social media, internet search engines, and online sellers.[98] Winner-takes-all industries might naturally favor compensation structures in which top employees at the most successful firms are highly compensated, as discussed below. There is also evidence that highly successful firms pay all employees more than similar firms, which may contribute to growing inequality.[99]

Superstar Earners

A related phenomenon is the economics of superstars.[100] Some industries, such as entertainment and sports, face consumption preferences in which consumers are willing to pay disproportionately more to see superstars than lesser performers. Although entertainers and sports figures make up only a small share of the top of the income distribution, this phenomenon may apply to a lesser degree in other industries as well. For example, some consumers may be willing to pay disproportionately more to engage the services of the very best doctor, lawyer, or investment professional.[101] Technology and globalization also seem to have increased the superstar effect, as superstars can reach increasingly larger markets across more platforms.

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[95] For example, banks could not operate across state lines or own nonbank subsidiaries until the 1990s.

[96] Economies of scale refers to production technology and firm organization that permits production (and profits) to increase by a factor *greater* than the increase in inputs. For example, economies of scale are present if 2 hours of labor produces 4 units of output, but 4 hours of labor produces 10 units of output.

[97] Xavier Gabaix and Augustin Landier, "Why Has CEO Pay Increased So Much?," *Quarterly Journal of Economics*, vol. 123, February 2008, p. 49. Another study found no relationship between firm size and executive pay before the 1989s. See Carol Frydman and RE Saks, "Executive Compensation: A New View from a Long-Term Perspective, 1936-2005," *Review of Financial Studies*, vol. 23, no. 5, 2010, p. 2099.

[98] Thomas Noe and Geoffrey Parker, "Winner Take All: Competition, Strategy, and the Structure of Returns in the Internet Economy," *Journal of Economics and Management Strategy*, vol. 14, no. 1, March 2005, p. 141.

[99] One study found that inequality in pay between firms rather than within firms (e.g., manager vs. worker) is the cause of rising wage inequality overall. Jae Song et al, "Firming Up Inequality," NBER, Working Paper no. 21199, May 2015, at http://www.nber.org/papers/w21199.

[100] Sherwin Rosen, "The Economics of Superstars," *American Economic Review*, vol. 71, no. 5, December 1981, p. 845.

[101] While only a few chief executive officers (CEOs) would qualify as superstars in the traditional sense of the term, high-CEO pay has similarly been explained as analogous to a prize for winning a tournament against fellow employees. Edward Lazear and Sherwin Rosen, "Rank-Order Tournaments as Optimum Labor Contracts," *Journal of Political Economy*, vol. 89, no. 841 (1981); Iman Anabtawi, "Explaining Pay Without Performance: The Tournament Alternative," *Emory Law Journal*, vol. 54, issue 4 (Fall 2005), p. 1557.

Pay-Setting Dynamics and Compensation Structure

Doubts have been raised about whether pay-setting dynamics at the top of the income distribution are best described by the competitive markets theory. In particular, studies have questioned whether the close relationship at some corporations between chief executive officers (CEOs) and their boards (which set their pay) creates "principal-agent" problems that have allowed CEOs undue influence over setting their own pay, resulting in rent seeking.[102] Many studies have sought to determine whether levels of CEO pay are well correlated with firm performance, and they reach different conclusions.[103]

Changes in the form of compensation may have also contributed to income growth at the top of the distribution.[104] For example, median CEO salary at S&P 500 firms has grown only modestly between 1992 and 2008 and now accounts for only 17% of total compensation, whereas other compensation (mainly in the form of stocks, options, bonuses, and long-term incentive plans) was almost four times higher in real terms.[105]

The growing use of stock options and other forms of incentive-based pay has increased how much the recipient can earn when certain targets are met, leading to outsized income gains if a company is highly successful or if incentive-based pay is poorly targeted. But incentive-based pay could also cause compensation to rise inadvertently (because it is poorly targeted) or, in the case of executive compensation, as a result of rent seeking.[106] An example of poorly targeted incentive-based pay is options that deliver value to the recipient even when the company's stock has risen no more than overall stock prices and retain value (or are revalued) even if the company's stock price falls.[107] Given the inherent unpredictability of future stock prices, pay that is tied to stock prices can be inadvertently high when future stock price gains are underestimated, as was the case during the stock market boom in the late 1990s. Increased use of stock options is not necessarily a sign of rent seeking, however. For example, a startup that is initially cash-flow poor or in a winner takes all industry may find it easier to offer employees stock options that have a small probability of being highly valuable than high initial salaries. For startups that are not ultimately successful, those options will not turn out to be highly valuable, but the minority that are successful will contribute to greater income growth at the top of the distribution. In this example, compensation rises (for employees at successful firms) to induce employees to accept a more risky form of compensation and outcomes across workers are more unequal than the value of compensation ex ante.

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[102] These arguments are evaluated in CRS Report RL33935, *The Economics of Corporate Executive Pay*, by Gary Shorter and Marc Labonte. For a literature review, see Carola Frydman and Dirk Jenter,. "CEO Compensation," *Annual Review of Financial Economics*, vol. 2(1) , December 2010, pages 75-102; hereinafter "Frydman and Jenter, 2010."

[103] Frydman and Jenter, 2010.

[104] For estimates of the relationship between performance based pay and inequality and a discussion of whether performance based pay causes greater inequality or is a symptom of greater inequality, see Thomas Lemieux et al, "Performance Pay and Wage Ineqaulity," *Quarterly Journal of Economics*, vol. CXXIV, Issue 1, February 2009.

[105] Frydman and Jenter, 2010. When compensation to employees takes the form of stocks or stock options, compensation for labor then takes the form of capital income. Generally speaking, Census income data is reported when cash is received, so forms of compensation such as stocks and options might not be included or might be included with a lag in Census data. In addition, CEOs with very high income would not be included in Census data because it is top coded, as discussed above.

[106] Lucian Ayre Bebchuk and Jesse M. Fried, *Pay without Performance: The Unfulfilled Promise of Executive Compensation* (Cambridge and London: Harvard University Press, 2004).

[107] Marianne Bertrand and Sendhil Mullainathan, "Are CEOs Rewarded for Luck? The Ones without Principles Are," *Quarterly Journal of Economics*, vol. 116, no. 3 (2001), pp. 901-932.

Social Norms

It has also been suggested that income at the top of the income distribution is constrained by social norms. For example, executive pay might face an *outrage constraint*, meaning executives want to keep their pay below the level that would trigger a backlash from workers or shareholders who view it as unfairly high. Social norms are culturally based, and cultural differences might help explain, for example, why executives are paid more in the United States than in other advanced economies, even at companies that are competing against each other globally.[108] If social norms are an important constraint on income at the top of the distribution, changes in social norms or growing efforts to disguise pay levels (through complex incentive-based pay schemes) to get around the outrage constraint may help explain the growth in income at the top of the distribution in recent decades.[109] It is difficult to quantify the effects of social norms and how they have changed over time.

Licensing Requirements

One study argues that barriers to entry for workers in certain industries have reduced competition and raised incomes at the top of the distribution by allowing workers in those industries to capture *economic rents*. Examples of barriers to entry include licensing requirements for lawyers, doctors, and dentists that allows certain services to be offered exclusively by accredited professionals.[110] Because licensing requirements are long-standing in these industries, however, they can help explain inequality but not rising inequality. Licensing requirements also affect pay in certain industries that are not at the top of the income distribution, but their effect on the distribution is unclear. Overall, the Council of Economic Advisers cited data finding that the share of workers covered by state licensing requirements has increased from 5% in the 1950s to 25% in 2008.[111]

Capital Income

For households in the bottom 80% of the income distribution, labor income (i.e., wages and salary) is the primary source of income (except for many elderly households, for whom retirement income is the primary source). For the bottom households, factors affecting wages are driving income distribution trends. But for the top of the income distribution, capital income is also an important source of income. According to CBO data, in 2013, capital income (including capital gains) made up only 3%-4% of total market income for each of the bottom four quintiles, but made up 13% of total income for the highest quintile and 30% of total income for the top

[108] Different institutional and legal structures among countries may also contribute to pay differences. Fernandes et al. show that the difference in CEO pay across countries (surveys indicate that U.S. CEOs earn double their foreign counterparts, on average) is smaller after controlling for firm size and other factors, and the difference comes mostly in the form of bonuses and equity-based pay. Nuno G. Fernandes et al., "Are US CEOs Paid More? New International Evidence," EFA 2009 Bergen Meetings Paper; AFA 2011 Denver Meetings Paper; ECGI – Finance Working Paper no. 255/2009 (May 2012), at http://ssrn.com/abstract=1341639 or http://dx.doi.org/10.2139/ssrn.1341639.

[109] Robert Gordon and Ian Dew-Becker, "Controversies about the Rise of American Inequality: A Survey," National Bureau of Economic Research, working paper No. 13982, May 2008, Part 8, at http://www.nber.org/papers/w13982.

[110] Jonathan Rothwell, "Make Elites Compete," Brookings Institute, March 25, 2016, http://www.brookings.edu/blogs/social-mobility-memos/posts/2016/03/25-make-elites-compete-why-one-percent-earn-so-much-rothwell.

[111] Council of Economic Advisers, *Occupational Licensing: A Framework for Policymakers*, July 2015, at https://www.whitehouse.gov/sites/default/files/docs/licensing_report_final_nonembargo.pdf.

1%.[112] Thus, trends in the distribution of wealth, which generates capital income, could have important effects on the income distribution.[113]

The Federal Reserve conducts a triennial *Survey of Consumer Finances* that includes data on financial asset holdings by income distribution.[114] As seen in **Table 2**, the distribution of financial assets, and the income it can potentially generate, has become more unequal since 1989. The inflation-adjusted holdings of financial assets for the ninth and top deciles grew about twice as fast as the fourth quintile, and about four times as fast as the bottom and third quintiles from 1989 to 2013 (latest available data).[115] (Interestingly, the holdings of the second decile barely grew over that period.)[116] Median holdings of financial assets are more imbalanced than mean holdings. The value of inflation-adjusted median holdings is lower by about a factor of three at the top of the distribution and 30 at the bottom of the distribution. For example, median holdings for the bottom 20% of the distribution were $1,000 compared with mean holdings of $31,300 in 2013. Unlike mean values, median values are lower in 2013 than 1989 for the bottom two quintiles, slightly higher for the third quintile, and significantly higher for the top two quintiles.

Table 2. Mean Value of Family Financial Assets, by Percentile of Income

(in thousands of 2013 dollars)

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Ninth Decile	Top Decile
1989	21.6	42.6	57.1	88.5	128.6	655.7
1992	16.7	36.1	57.0	83.7	142.9	622.6
1995	24.1	49.3	64.8	104.7	184.6	746.5
1998	26.8	59.2	75.0	139.4	242.0	1,105.2
2001	31.7	58.5	106.0	197.3	308.7	1,440.9
2004	28.6	52.6	89.5	181.5	299.6	1,358.0

[112] CBO, *The Distribution of Household Income and Federal Taxes, 2013*, June 2016, supplementary data, at https://www.cbo.gov/publication/51361. To the extent that other income categories, such as business income, include elements of what might be considered capital income, these data are an underestimate.

[113] Capital income will also fluctuate from year to year based on changes in the rate of return earned on assets. Over longer time periods, as considered in this report, rates of return smooth out.

[114] Since the focus is on capital income, this report does not report data on net worth (assets minus liabilities). In this sense, the data in this section overstate the financial wellbeing of households because most households have liabilities partly offsetting their assets. Net worth is significantly lower than the value of financial assets for households in the bottom and second quintiles. Nevertheless, the Fed reports net worth is also positive for all quintiles in 2013, in part because net worth includes residential equity. Data available at http://www.federalreserve.gov/econresdata/scf/files/BulletinCharts.pdf. For more information, see Jesse Bricker, et al., "Changes in U.S. Family Finances from 2010 to 2013: Evidence from the Survey of Consumer Finances, *Federal Reserve Bulletin*, vol. 100, no. 4 (September 2014), at http://www.federalreserve.gov/pubs/bulletin/2014/pdf/scf14.pdf.

[115] Financial assets include "transaction accounts, certificates of deposit, savings bonds, other bonds, stocks, pooled investment funds, retirement accounts, cash value life insurance, and other managed assets." The Fed's nonfinancial assets category includes some assets that are unlikely to generate income (i.e., vehicles and primary residences) and some assets that might generate income (i.e., secondary residences, equity in business, equity in non-residential property). When nonfinancial assets are included, the trend across the income distribution for the mean value of total assets is similar to the trend for financial assets.

[116] The second quintile saw the smallest wealth gain of any cohort since 1989 because it was the only group to see a drop in wealth between 1998 and 2013. Since 1998, the value of its asset holdings declined in four out of five of the 3-year intervals that comprise the 1998-2013 period.

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Ninth Decile	Top Decile
2007	33.3	55.4	88.6	184.9	266.7	1,537.0
2010	41.5	45.8	89.9	149.5	312.1	1,487.5
2013	31.3	44.0	78.3	160.7	328.4	1,616.0
cumulative % change	44.9%	3.3%	37.1%	81.6%	155.4%	146.5%

Source: Federal Reserve, *2013 Survey of Consumer Finances*, at http://www.federalreserve.gov/econresdata/scf/files/BulletinCharts.pdf.

Note: Includes only families that hold financial assets.

These data are limited to families that own financial assets, but the share of families that own any assets is also skewed across the distribution. In 2013, 18% of families in the bottom quintile did not own any financial assets (including bank accounts), compared with 2% or less of families in the top three quintiles. The most common asset for a family to hold was a transaction account, such as a bank account.

Since the financial crisis, wealth patterns have diverged across the distribution. Between 2007 and 2013, the median and mean value of financial assets rose for the top decile and fell for the bottom three quintiles of the income distribution. These results might be because the top decile held better performing assets than the rest of the distribution or it might be because the bottom 60% of the distribution reduced asset holdings, whereas the top 10% accumulated more assets over this period. In either case, the result would be that smaller asset holdings in 2013 for the bottom 60% would be expected to generate less capital income going forward.[117]

Although not reported in the *Survey of Consumer Finances*, the average rate of return on these assets may also vary by quintile. If high-income households earn higher rates of return on their assets than low-income households (if the former invest in hedge funds and the latter deposit their money in bank accounts, to take an extreme example), then the distribution of capital income generated by these assets would be more skewed (and volatile) than the underlying holdings.

If high-income households continue to have higher savings rates than low-income households, as they have historically, the distribution of wealth would become more unequal and would likely contribute to higher income inequality in the future. Historical patterns may change, however. Even if the distribution of wealth did not change in the future, the capital income generated from these assets (if positive) will contribute to future income inequality.

Family Composition

Another explanation for widening inequality over time stems from how the income distribution is measured. Because income is measured on a household or family basis instead of a per capita (individual) basis, trends in the composition of households and families can alter the income distribution.[118] Since 1967, three notable trends in family composition have influenced the income distribution:

[117] When nonfinancial assets are included, the median and mean values of total assets fell for all quintiles between 2007 and 2013, but fell less for the top decile than the bottom three quintiles.

[118] In addition, the size of households has declined over time, from 2.9 in 1975 to 2.5 in 2015. While this does not necessarily affect measures of inequality, it understates the growth rate of income per capita over time.

- **The increase in dual income families**. According to Census data, the share of married families with two earners has risen from 44% in 1975 to 59% in 2015. Since World War II, the female employment-population ratio increased continually from 31% in 1948 to a peak of 59% in 1999. (It has fallen modestly since, mainly because of the aging of the labor force and recessions.) If this trend were uniform across the income distribution, it would not affect inequality,[119] but the rise in female entry into the labor force is more pronounced among higher income families. One study found that married women's labor force participation rate at the 80th income percentile rose from 42% in 1960 to 77% in 2005, but only rose from 25% to 34% in those years for households at the 20th percentile.[120]
- **The increase in assortative matching.** In addition to the rise in dual income households, there has been an increase in "assortative matching"—spouses marrying those with similar incomes or educational attainment—over time. One study found that the result of assortative matching increased the Gini coefficient[121] in 2005 from 0.34 to 0.43 or 0.44, indicating an increase in income inequality.[122]
- **The increase in female single-headed families.** Finally, the long-term increase in single-headed families (with most of the increase occurring in the 1970s and 1980s) increases measures of household inequality. According to Census data, the median and mean income of families with a single female head of household was less than half that of married families in 2015. The share of families with a female head has increased from about 13% in 1975 to 19% in 2015. One study attributed 21% of the rise in inequality between 1979 and 2006 to the decline in married couple households.[123]

While these factors help explain mathematically why a measure of inequality based on the household unit may exaggerate actual inequality, they are not causal. In other words, individual income for a given person would not change if their family status changed.

[119] In the sense that earnings inequality has been more pronounced for men than women, married women's entry into the labor force has decreased inequality compared to the counterfactual. See Maria Cancian and Deborah Reed, "Assessing the Effects of Wives' Earnings on Family Income Inequality," *The Review of Economics and Statistics*, Vol. 80, No. 1 (Feb. 1998), pp. 73-79.

[120] Jeremy Greenwood, Nezih Guner, Georgi Kocharkov, Cezar Santos, "Marry Your Like: Assortative Mating and Income Inequality," *American Economic Review*, vol. 104, p. 348-353, 2014; hereinafter "Greenwood, Guner, Kocharkov, and Santos, 2014".

[121] The Gini coefficient describes the relationship between the cumulative distribution of income and the cumulative distribution of the population. It varies from 0 (total equality) to 1 (total inequality). For more information, see CRS Report R43897, *A Guide to Describing the Income Distribution*, by Sarah A. Donovan.

[122] See Greenwood, Guner, Kocharkov, and Santos, 2014. For evidence of assortative mating by educational attainment, see Christine R.Schwartz and Robert D. Mare, "Trends in Educational Assortative Marriage from 1940 to 2003," *Demography*, volume 42 (no. 4): 2005, pp. 621-646. For research finding assortative matching to have a small effect on overall inequality, see Dmytro Hryshko et al., "Trends in Earnings Inequality and Earnings Instability among U.S. Couples: How Important is Assortative Matching?", Center for Economic Studies, working paper CES 15-04, January 2015.

[123] Gary Burtless, "Effects of Growing Wage Disparities and Changing Family Composition on the U.S. Income Distribution," Center on Social and Economic Dynamics, Working Paper No. 4, July 1999, at https://www.brookings.edu/wp-content/uploads/2016/06/disparities.pdf.

Does Income Inequality Affect Economic Growth?

Gross domestic product (GDP) measures the economy's production of goods and services. Economic growth measures the rate of increase in GDP, which is the economy's ability to produce more goods and services. GDP is closely related by accounting identity to national income (which is composed of business income and household income), so by definition GDP and national income grow together.[124] However, the connection between GDP growth and national income says nothing about the distribution of income. Mathematically, an increase in overall income is only possible with GDP growth, but may or may not result in income rising for all households. In other words, GDP growth increases the size of the income pie, whereas distribution concerns how the pie is divided. Thus, the question becomes whether the division of the pie affects how quickly the pie grows.

A look at the historical record in the United States reveals no consistent relationship between GDP growth and income inequality. Relatively high and rising inequality has coincided with high GDP growth periods, such as 1995 to 2000, and low growth periods, such as 2008 to 2015. Likewise, falling or stable inequality has coincided with high growth periods (expansions in the 1940s to 1960s) and low growth periods (the 1970s). An international comparison also does not provide prima facie support for the idea that a higher *level* of inequality reduces growth, because the United States is more unequal than other developed countries and average U.S. growth rates have exceeded all large- and most medium-sized developed countries since the 1980s.[125] These results are perhaps unsurprising considering that many factors influence growth. Therefore, exploring connections between inequality and GDP growth requires analysis more sophisticated than simple correlations. Broadly speaking, two steps are needed to address the question of whether inequality has effects on growth. The first is to identify the theoretical channels that link them. The second is to use sufficient data and appropriate empirical methods, if possible, to isolate and measure the direction and magnitude of the relationship.

Theoretical Channels Linking Income Inequality and GDP Growth

Economists have identified various transmission channels through which inequality and GDP growth could theoretically be correlated.[126] Some of these channels predict that higher inequality would be associated with lower growth and others predict it would be associated with higher growth.

Channels that predict higher inequality would be associated with lower growth include the following:

- **Opportunity and Mobility.** Greater inequality could reduce growth if it derives from unequal opportunities or barriers to advancement (i.e., individuals do not have the opportunity to reach their full potential). Gender or racial inequality, in particular, might have a strong link to lower growth through this channel if they

[124] In National Income and Product accounting, net national product is equal to national income by definition. Gross national product less capital depreciation equals net national product. GDP measures goods and services produced in the United States and gross national product measures goods and services produced by U.S. citizens.

[125] This simple comparison is silent on whether a *change* in inequality could affect growth, particularly since the United States started from a higher-level than its peers.

[126] The direction of causation between the two is discussed below. For a literature survey, see Pedro Cunha Neves and Sandra Maria Tavares Silva, "Inequality and Growth: Uncovering the Main Conclusions from the Empirics," *Journal of Development Studies*, vol. 50, no. 1 (2014), p. 1.

create barriers to or reduce the incentive for women or minorities to seek education, invest, or pursue business opportunities. Inequality of opportunity could persist if low income individuals cannot access credit markets to make efficient capital or human capital (e.g., education) investments.

- **Governance.** Greater inequality could be associated with poorer governance or political instability, and those factors reduce growth.[127] Greater inequality might increase (or be the by-product of) rent seeking behavior and undermine the legitimacy of political institutions. For example, in the extreme, coups, civil war, corruption, and graft have significantly negative effects on growth.
- **Redistribution and Taxation.** Some researchers posit that greater inequality leads to pressure for redistributive policies that lower growth. Those polices could lower growth if incentives to work, save, or invest are reduced by the policies themselves or by higher taxes that are required to fund those policies, all else equal. However, asserting that redistributive policies reduce growth may be an overgeneralization that is only true in some cases, as some redistributive policies, such as greater access to public education or health, could have the opposite effect and boost growth.

Alternatively, channels that predict higher inequality would be associated with higher growth include the following:

- **Incentives.** Greater inequality could increase growth because it increases incentives to work, acquire skills, innovate, and save. For example, a greater wage gap between high school and college educated workers increases the incentives to go to college, which would raise the productivity of the workforce.[128]
- **Concentrated Savings.** Since high-income households have higher saving rates on average and saving is necessary for long-term growth (because it finances capital investment), greater inequality might induce more saving that spurs more growth.[129]

As these channels illustrate, it may not be inequality per se that has a negative or positive effect on growth, but other phenomena that tend to be associated with inequality, such as lack of income mobility or opportunity for individuals at the bottom of the income distribution. Inequality may be an easily measurable and well-correlated proxy for these true drivers of growth, and so these distinctions would not significantly change research results. But from a policy perspective, if the policy goal were to boost growth, it could be more effective to tackle the root causes than the inequality associated with them.

The next section discusses empirical evidence of the relationship between inequality and growth based mainly on cross-country studies. In evaluating these studies, identifying which of these

[127] One study examined whether inequality reduced growth by leading to polarization that reduced property rights. See Philip Keefer and Stephen Knack, "Polarization, Politics and Property Rights: Links Between Inequality and Growth," *Public Choice*, vol. 111(2002), p. 127, at http://siteresources.worldbank.org/INTINVTCLI/Resources/polarizationpropertyrightsandthelinksbetweeninequalityandgrowth.pdf.

[128] This channel could be weakened if there are significant barriers to mobility or accessing education, which might be more prevalent when inequality is higher.

[129] One study estimated that the bottom 90% of the wealth distribution had a saving rate of 0.1%, while the top 10% had a saving rate of 24% in 2010 to 2012. Emmanuel Saez and Gabriel Zucman, "Wealth Inequality in the United States Since 1913: Evidence from Capitalized Income Tax Data," *Quarterly Journal of Economics*(2016), Table B33.

theoretical channels dominates is not as important when trying to estimate the average effect of inequality across a large number of countries as it is when trying to estimate the effect on an individual country. Each of these channels works differently and is of relatively different importance in any given country. Political instability is an example of a channel that could be a dominant determinant of growth in some countries, but of limited relevance to the United States. If, say, the cross-country results were being driven by political instability, those findings could be robust and would still arguably not be particularly relevant to the United States.

Empirical Evidence and Challenges

Given that theoretical channels predict that greater inequality could result in higher or lower economic growth, empirical evidence is needed to determine which of these effects discussed above dominates. Dozens of studies have attempted to measure the relationship between inequality and growth, and reach differing conclusions.[130] Most studies try to identify the relationship between growth and inequality by comparing results across many different countries, rather than using data for a single country over time. According to a recent literature review,

> The review suggests that the effect of inequality on growth tends to be negative and more pronounced in cross-section studies, in less developed countries, and when inequality in wealth distribution is considered. By contrast, when panel data are used, the sample is mostly composed of developed countries, regional dummies are added to the growth regression and income distribution is used instead of wealth distribution, the impact of inequality on growth becomes insignificant or even positive.[131]

A few fundamental challenges hinder any attempt to identify the true relationship between growth and inequality, and these studies attempt in various ways to address them:

- **Direction of Causation.** Basic statistical analysis assumes that causation runs in one direction, with a set of independent variables causing changes in a single dependent variable. But in the case of inequality and growth, causation may run in both directions (i.e., inequality affects growth and growth affects inequality), and it is not clear which direction might dominate.[132] Although this section explores how inequality affects growth, there are many examples from history that suggest economic growth leads to a widening distribution of income, notably when countries industrialize.[133] For example, the development of an integrated economy across the continental United States in the 19th century thanks to railroads, telegraphs, and other innovations allowed U.S. businesses to achieve

[130] For a literature survey, see Pedro Cunha Neves and Sandra Maria Tavares Silva, "Inequality and Growth: Uncovering the Main Conclusions from the Empirics," *Journal of Development Studies*, vol. 50, no. 1 (2014), p. 1. According to Forbes, early studies that found statistically significant effects on growth had shortcomings with data quality and estimation techniques. See Kristin Forbes, "A Reassessment Of The Relationship Between Inequality And Growth," *The American Economic Review*, vol. 90 (2000), p. 869.

[131] Because different studies use different measurements of inequality and different estimation techniques, a quantitative range for the effects of inequality on growth cannot easily be summarized.

[132] The proper direction of causation is also an issue for the channels through which researchers have posited that inequality affects growth. For example, if corruption lowering growth is the relevant channel, does greater inequality increase corruption or does greater corruption increase inequality?

[133] Statistical methods exist to address this challenge, what economists refer to as an endogeneity problem, but obtaining sufficient data to execute them can be extraordinarily challenging, particularly in a cross-country analysis.

greater economies of scale that increased both growth and inequality at the top of the income distribution.[134]

- **Data Quality and Consistency.** Unlike GDP growth, inequality is not a basic statistic collected by all governments using standardized, widely agreed upon definitions (of income, for example) and data collection standards. The quality and availability of data on inequality vary from country to country, although these have improved over time.[135] Moreover, as discussed above, inequality can be represented by various measures, and unless these measures are perfectly correlated, then the results will depend on which measure is used. Different measures of inequality have very different policy implications. For example, an OECD study found that "In particular, what matters most [for growth] is the gap between low income households and the rest of the population. In contrast, no evidence is found that those with high incomes pulling away from the rest of the population harms growth."[136]
- **Omitted Variable Bias.** Many different factors besides income inequality affect a country's growth rate, but there is not a consensus among economists about which factors are most important. Some of the theoretical channels posited above, such as corruption, cannot be easily or directly measured. Furthermore, statistical analysis is limited in the number of explanatory variables that can be included, and consistent, high-quality data may be lacking on important explanatory variables. Therefore, studies vary on which explanatory variables besides inequality to include and generally include relatively few. If an important explanatory variable is omitted and that omitted variable is correlated with inequality, then the effects of inequality on growth will not be isolated and the results will be statistically biased, overstating or understating inequality's effect on growth. Using a large number of countries in a sample may help to mitigate problems with omitted variable bias. But the fact that the relationship between growth and inequality is weaker when country-specific or region-specific effects are controlled for suggests that omitted variable bias may be a significant shortcoming.
- **Lack of Variation in the Data.** Cross-country comparisons are common because they provide more variation and observations than single-country studies, but even cross-country studies can suffer from a lack of variation in the data. As discussed above, inequality in most countries has risen in recent decades. Likewise, growth is somewhat correlated across countries from year to year. Statistical analysis to identify causal relationships depends on variation in the

[134] Economist Simon Kuznets posited that when economies begin developing, inequality initially increases, and as economies reach a more mature level of development, inequality lessens. Economists refer to this relationship as the Kuznets curve, and this relationship held in the United States until the 1980s, when inequality began to increase again. See Simon Kuznets, "Economic Growth and Income Inequality," *The American Economic Review*, vol. XLV, no. 1 (March 1955), at https://assets.aeaweb.org/assets/production/journals/aer/top20/45.1.1-28.pdf.

[135] There are databases containing income distribution data for a large number of countries, such as the United Nations University's World Income Inequality Database (WIID), but these compile national data of varying quality, availability and consistency, as opposed to collecting original uniform data according to consistent standards. For information about the WIID and shortcomings, see Stephen P. Jenkins, "World Income Inequality Databases: An Assessment of WIID and SWIID," Institute for Social and Economic Research, ISER Working Paper Series no. 2014-31, September 10, 2014, at https://www.iser.essex.ac.uk/research/publications/working-papers/iser/2014-31.

[136] Cingano, 2014. The OECD is an international club of advanced and middle-income countries. In 3 of the 22 countries, the rise was small.

data; if variation is lacking, the results may not be very meaningful. This problem is compounded because some of the channels through which inequality affects growth, such as saving and income mobility, are longer run phenomena. If multiple year averages are used to account for this, the number of observations and variation in those observations will be reduced further.[137]

- **Assumption that the Growth-Inequality Relationship is Stable Across Countries.** Cross-country studies assume that the effects of inequality on growth are the same across countries, and that the effects of other sources of growth are properly identified and the same across countries.[138] But given the large institutional, structural, and cultural differences between countries, and the limited number of other variables controlled for, inequality may have a very different effect on U.S. growth than its effect in another country.[139]

  In particular, most studies include both developed and developing countries. The growth experience and growth dynamics in those two sets of countries widely differ. Some studies that separated results by developed and developing countries found that the negative relationship between inequality and growth only held or was only statistically significant for developing countries.[140] To the extent that the results are driven by experiences in developing countries, the results may be of limited relevance to the relationship between growth and inequality in the United States and other developed economies. For example, arguments that inequality reduces growth by fostering corruption and undermining good governance may be more important in developing countries than in the United States.

Most of these studies attempt to identify the long-term effects of inequality on growth, but some commentators have noted the coincidence with rising inequality and the two worst economic crises of the past 100 years, the Great Depression of the 1930s and the Great Recession beginning in 2007. Although much less research has been done on this link, some economists have hypothesized that greater inequality might result in financial and economic instability, by resulting in unsustainable credit bubbles.[141] However, some sort of "tipping point" explanation would be needed to explain why inequality is destabilizing only beyond a certain point, because high and rising inequality in the United States is not limited to those two periods of instability.

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[137] Alternatively, if shorter time periods are used, then the data are likely to be autocorrelated, which would create additional empirical challenges.

[138] The relationship may also not be linear. Lower growth may be associated with very low inequality (such as in communist countries) and very high inequality, for example. If so, more sophisticated statistical methods would be needed to identify the true relationship between the two.

[139] This problem can be addressed using country fixed effects, but some studies that did so found that the other variables, including inequality, then lost much of their explanatory power.

[140] Amparo Castelló-Climent, "Inequality And Growth In Advanced Economies: An Empirical Investigation," *Journal of Economic Inequality*, vol. 8 issue 3(September 2010), p. 293; Dustin Chambers and Alan Krause, "The Relationship Between Inequality And Growth Affected By Physical And Human Capital Accumulation?," *Journal of Economic Inequality*, vol. 8 issue 2 (June 2010), p. 153; Sherif Khalifa and Sherine El Hag, "Income Disparities, Economic Growth, And Development As A Threshold," *Journal of Economic Development*, vol. 35, no. 2 (June 2010), p. 23; Robert Barro, "Inequality And Growth In A Panel Of Countries," *Journal of Economic Growth*, vol. 5 (2000), p. 5.

[141] See Andrew G. Berg and Jonathan D. Ostry, *Inequality and Unsustainable Growth: Two Sides of the Same Coin?*, International Monetary Fund, IMF Staff Discussion Note SDN/11/08, April 8, 2011, at http://www.imf.org/external/pubs/ft/sdn/2011/sdn1108.pdf; Barry Z. Cynamon and Steven M. Fazzari,*Inequality and Household Finance During the Consumer Age*, Levy Institute, Working Paper no. 752, at http://www.levyinstitute.org/pubs/wp_752.pdf; . Kumhof and Rancière,.*Inequality, Leverage and Crises*, IMF, Working Paper no. WP/10/268, at https://www.imf.org/external/pubs/ft/wp/2010/wp10268.pdf.

Author Information

Sarah A. Donovan
Analyst in Labor Policy

Joseph Dalaker
Analyst in Social Policy

Marc Labonte
Specialist in Macroeconomic Policy

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