Chapter 3

# Labor Market Policies to Sustain the Middle Class

The Great Recession of 2007 to 2009 sharply reduced what the middle class earned from work. By 2016, the household labor earnings of the median American were still below their prerecession high of nine years earlier, despite the fact that the recession had officially ended in 2009. This unprecedentedly slow recovery, especially for middle-class labor incomes, is perhaps the primary economic problem our Nation faces. While labor incomes stagnated, a marked increase in net government transfers (government benefits received minus taxes paid) to some degree offset the decline in the median American's household income from all sources between 2007 and 2016, finally even surpassing its prerecession high in 2016. But without substantial increases in economic growth, this level of redistribution is unlikely to be sustainable. Clearly, the best possible outcome is for labor incomes to return to normal levels of growth. In the interest of guiding policymakers in their efforts to stimulate such a recovery, this chapter takes a deep dive into describing the recent failure of American labor markets to deliver the prosperity to which Americans had previously grown accustomed. The patterns this chapter describes will clarify the motivation of many of the Administration's policy initiatives that this *Report*'s other chapters discuss.

Why have American workers had the worst labor earnings experience in modern history for the past nine years? As chapters 1 and 2 discuss, the Administration's actions on tax and regulatory reforms will stimulate lagging economic growth and increase the demand for workers, addressing this key factor—as will rebuilding our Nation's infrastructure, as outlined in chapter 4.



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However, other factors are important as well, and these will become clear from the evidence this chapter presents. Reductions in the disincentives to work—alongside increased enforcement of work provisions and eligibility requirements in the country's welfare programs—are also needed. Continued government transfers mean that some prime working age Americans find themselves facing a trade-off between staying on the sidelines, while continuing to receive government transfers, and coming back to work, which would result in a forfeiture of those entitlements.

This Administration is also deploying other supply-side tools. Policies that enable workers to get retraining to meet current market needs through apprenticeships and other programs will encourage work. Stemming the opioid crisis and enacting policies to better connect workers with jobs, including broadband access and improvements in geographic mobility, would also increase the labor supply. Other pro-work policies proposed by this Administration, such as paid family leave for new parents, should also raise the long-run probability of parental employment.

The experience of older Americans who are now staying in the workforce longer indicates that government policies can indeed affect decisions to work, and that demography need not be destiny. Public policies enacted since the 1980s with respect to retirement have played an important role in incentivizing work at older ages—for instance, by raising the age at which full Social Security benefits can be claimed and ending the earnings test at that age for those who wish to continue working while receiving benefits. Eliminating the earnings test for workers between age 62 and normal retirement age would likely also increase participation. Policy may also help nudge employers to fill the unmet demand of older workers for jobs with flexible, reduced hours as a gradual entry into retirement in lieu of full nonparticipation by these workers.

Finally, younger workers have become increasingly detached from the labor force. Although more teens are enrolled in school, evidence suggests this group, relative to 10 years earlier, spends more time on unproductive activities,

neither at work nor in school. Early employment can be especially critical for the life prospects of lower-income American teenagers, and policy efforts to encourage the integration of practical labor force training into high school programs may help stem this tide by providing teens with employment and occupational direction early on.

Because past public policies are responsible for some of the drag on employment growth, changes in these policies can be important mechanisms for getting workers off the sidelines and again fully participating in our economy and enjoying its benefits. A coordinated effort encouraging people to do this could—as the economics literature we describe below suggests—significantly reinforce the positive effects of labor demand policies, such as the major tax reform just passed.

Two measures of the United States' economic success are its rate of real economic growth, and how this growth translates into resources for the average American.[1] This chapter begins by documenting trends in real GDP growth from quarterly U.S. National Accounts data. We measure the peak-to-trough-to-peak average rate of growth within each business cycle, starting with the first post–World War II cycle and continuing through the current one, which began in December 2007. This method disentangles cyclical changes in output from long-term, secular trends in economic growth.

To determine how these secular GDP growth patterns have translated into resources for the American middle class since 1948, we first follow the literature and use GDP divided by the total U.S. population, or per capita GDP, as a measure of individual well-being. GDP is the most common measure of aggregate economic growth, and GDP per capita has historically been the most common way to estimate how this growth is distributed to the average person (Jorgenson, Landefeld, and Schreyer 2014). But a growing body of literature (e.g., Atkinson, Marlier, and Guio 2016; Nolan, Roser, and Thewisen 2016) argues that the income of the median person (i.e., the person whose income is exactly at the 50th percentile—above half the population, and below the other

[1] We use the Bureau of Economic Analysis (BEA) GDP price deflator in all this chapter's graphs that are related to aggregate GDP values. We use the Consumer Price Index Research Series (CPI-U-RS) (Stewart and Reed 1999) in all the graphs related to ASEC-CPS data. We do so because these are the standard deflators used in the income inequality literature. However, we test the sensitivity of our results using the PCE Price Index, which is a chain-type price index. We use this price index rather than the Chain CPI, which only begins in 1990, because it has been available since 1947. Our main findings are not sensitive to this deflator choice.

half) is a better way to estimate how yearly resources produced via GDP are distributed to "the middle class" (box 3-1).[2] This is especially true when, over time, systematic changes in income inequality across the entire income distribution could cloud interpretations of mean GDP.[3]

It is easy to envision where this middle (median) person is in the income distribution, but it is far more difficult to identify this person's income using aggregate data. The share of GDP going to specific individuals and the households in which they live cannot be directly determined from aggregate data. To do so, the economics literature has turned to survey data.[4]

The longest continuous series of cross-sectional data providing information on the economic resources that, over a given year, flow to individuals and the households in which they live comes from the Annual Social and Economic (ASEC) Supplement to the Current Population Survey (CPS). It is a nationally representative annual survey of 60,000 households and approximately 200,000 individuals who live in them conducted by the U.S. Census Bureau. In this chapter, for each year since 1979, we show the sensitivity of trends in median income to alternative measures of income (e.g., wage earnings, market income, and disposable income), of the sharing unit over which that income is shared (e.g., only the individual who receives it, the tax unit, family, and household), and the unit of analysis (e.g., individuals, tax units) one uses to determine the median.

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[2] "Middle class" is a term of art that potentially has many definitions. Here we focus only on two: the mean and median of the total population of the United States. Other measures are possible. The main results given in this chapter, in figures based on data from the Current Population Survey, are not sensitive to using the mean value of the middle quintile.

[3] We use median income because it is not as sensitive as mean (per capita) income to both changes in the income distribution over time—e.g. substantial increases in the share of income held by the very top of the distribution—and to the under coverage of income at the two tails of the distribution in survey data. This latter point is important because the U.S. top income literature finds that insufficient income from top income groups is captured by the ASEC-CPS (see Atkinson, Piketty, and Saez 2011) and the U.S. poverty literature finds that this is also the case at the bottom of the distribution due to under coverage of government transfers (see Meyer, Mok, and Sullivan 2015). In addition, because a major task of this chapter is to provide better ways to measure how resources are distributed to the average American than by simply using GDP per capita, we focus on the median American rather than some subset of Americans by age in the first part of our analysis. We do, however, look at different labor force participation outcomes by age, sex, and education later in the chapter.

[4] Efforts are now ongoing to do so by assigning aggregate data from the National Accounts to administrative tax record data; see Piketty, Saez, and Zucman (2016). However, as detailed later in the chapter, such efforts still rely on the tax unit as the sharing unit. They also do not follow the Canberra Group's (2011) criteria with respect to capturing all persons in the tax unit, including dependents, so that a country's entire population is accounted for. See Larrimore et al. (2017), as well as Auten and Splinter (2017), for recent critiques of the methods used by Piketty and Saez (2003) and Piketty, Saez, and Zucman (2016). In their critiques, the authors begin with the personal income tax record–based data used by Piketty and Saez (2003). But they then substantively add to these data. This allows them to first make like-to-like comparisons and then to show the sensitivity of Piketty and Saez–style results to alternative measures of income.

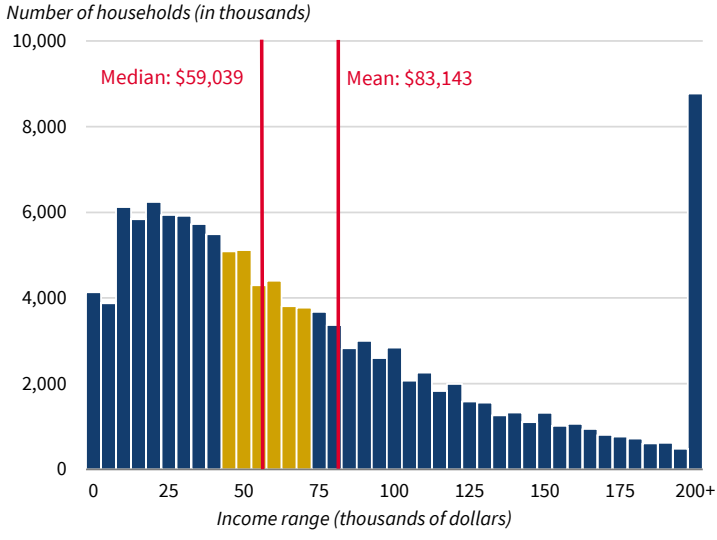
### Box 3-1. Who Is in the Middle Class?

Despite its frequent use in policy debates, there is no universally agreed-upon definition of the term "middle class." According to the U.S. Census Bureau, in 2016 the median household had $59,039 in income (Semega, Fontenot, and Kollar 2017). That is, half of all U.S. households had incomes below this amount, while the other half had incomes above this amount. Meanwhile, in 2016 the average (mean) income of American households was $83,143. This average is higher than the median income because the distribution is not symmetric, as is evident in figure 3-i.

Although the median identifies the household exactly in the middle of the income distribution, it does not identify which other households should belong to the middle class. One approach is to include the middle quintile—the 10 percent of households directly below the median and the 10 percent of households directly above it. In 2016, the middle quintile in the U.S. had roughly $45,000 to $75,000 in annual income; 40 percent of U.S. households had income less than the lower end of the range ($45,000), and 40 percent had income more than the top end of the range ($75,000).

It is notable that this statistical definition of the middle class is much narrower than Americans' self-perceptions of their own economic situations. According to a study by the Pew Research Center (2015), almost 90 percent

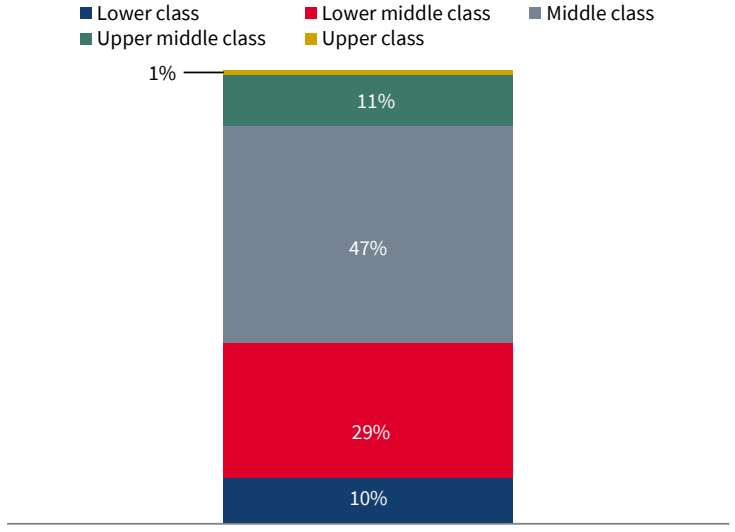
**Figure 3-i. U.S. Household Income Distribution in 2016**




Source: U.S. Census Bureau.
Note: Middle quintile range (shaded yellow) is an estimate. Data are right-censored at $200,000.

of Americans consider themselves to be either lower-middle, middle, or upper-middle class, with almost half (47 percent) considering themselves to be exactly middle class (figure 3-ii). Only 1 percent consider themselves upper class, according to Pew, while 10 percent consider themselves lower class.

**Figure 3-ii. Self-Reported Economic Class of Americans (percent), 2015**




Source: Pew Research Center (2015).
Note: Responses of "do not know" are not shown (figure percentages add up to 98%).

We find that average growth in real GDP and real GDP per capita are lower during the current business cycle than during any other post–World War II cycle. The story for real median income is more nuanced. The fall in median labor earnings during the Great Recession (2007–9) was deeper than during all other recessions after World War II, but government tax and transfer policies greatly offset this decline. Using our preferred measure of median income—*the household size–adjusted, after-tax and after-transfer income of persons (real disposable income)*—we find that it took nine years (2007–16) before median income returned to its 2007 level, just before the start of the Great Recession. This feat, which has been achieved in each business cycle since 1979, was accomplished most slowly in the current cycle.

In contrast, our median income measure that only includes the income derived from work by all members of the median tax unit—*the labor earnings of the median tax unit*—is still well below its level at the start of the business cycle. This was also the case for this measure of median income during the

2000–2007 business cycle. Hence, in 2016, the labor earnings of the median tax unit remained substantially below its 2000 high point. This income measure, which uses the tax unit rather than the household as both its sharing unit and its unit of analysis, is commonly used in the tax record–based literature.

The failure of this tax record-based measure of median income to return to 2000 levels is somewhat muted when we use our preferred measure of median labor income—*the household size–adjusted labor earnings of the median person*. Using this survey-based measure of income which uses the household as its sharing unit and the person as its unit of analysis, median labor income was only slightly lower at the end of the 2000–2007 business cycle than at its beginning. And, thanks to substantial growth in 2015 and 2016, the household size–adjusted labor earnings of the median person in 2016 are now well above those for the Great Recession trough year of 2009 but still noticeably below the level at the start of the 2007 business cycle.

Using shift-share analysis, Larrimore, Burkhauser, and Armour (2015) account for changes in *the household size–adjusted after-tax and after-transfer income of persons* (i.e., real disposable income). In doing so, they show that unlike previous business cycles since 1979, the declines in the household size–adjusted labor earnings of persons during the recession periods of the first two business cycles of the 21st century predominantly came from declines in employment rather than declines in earnings conditional on employment. We come to a similar conclusion. Using aggregate statistics on employment from the monthly CPS and earnings from the Establishment Survey, both series maintained by the Bureau of Labor Statistics (BLS), we show that the Great Recession was a downturn with more substantial employment effects than previous downturns.

The lack of a return to the employment-to-population rates (where the population is age 16 years and over) that prevailed at the start of the Great Recession, even eight years after the end of the recession in 2009, is partially demography-driven. We provide perspective on the important changes in labor force participation rates by gender and age that account for declines in the overall employment-to-population rates of those age 16 and over that we are now observing. As the members of the Baby Boom generation, those Americans born in the post–World War II era through 1964, have moved into "retirement ages," the overall participation rate has drifted downward. This movement of the Baby Boom generation into older ages has greatly increased the share of older persons in the overall population, and the employment rates of older persons remain below those of younger persons. The aging of this group first began to contribute to an overall decline of the participation rate in 2008; after the remainder of this cohort moves into retirement, the participation rate will stabilize. Partially offsetting the aging effect since 2008 are the increased employment rates of older persons, as discussed later in the chapter. Further, the incomplete recovery of overall employment rates to pre-2000

levels is not simply the story of the aging Baby Boom generation, because, unlike those over the age of 55, the labor force participation and employment rates of prime-age workers remain below those in 2007, immediately before the Great Recession.

Because of these factors, we expect that the negative contribution of the Baby Boom generation to GDP growth will wane over the next 10 years. Further, policies that increase the labor force participation rate of all workers would have a material impact on long-run economic growth. For example, a combination of policies and economic conditions that return the prime-age participation rate to the rate apparent in 2007 (still well below the rate apparent in 2000) would return about 1.7 million U.S. workers to the labor force over 10 years and raise the overall participation rate by 0.065 percentage point per year, resulting in a 0.1-percentage-point increase per year in the rate of GDP growth over the next 10 years.

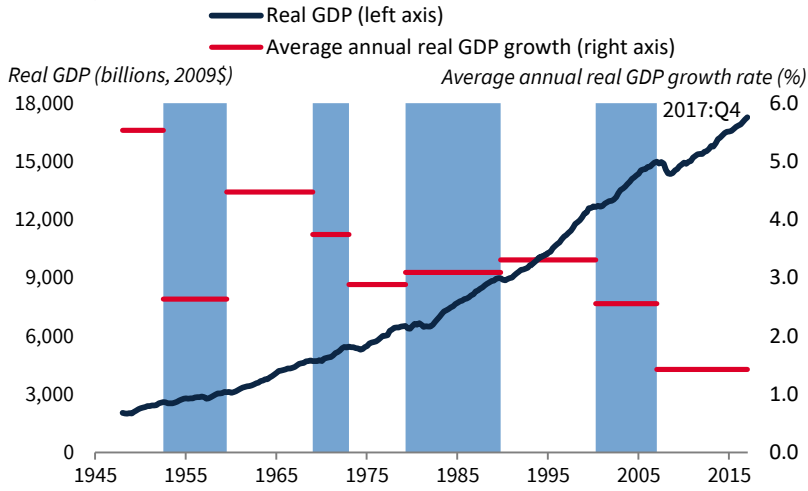
In the rest of this chapter, we examine these employment dynamics more closely, separately analyzing the labor force behavior of the population 55 and over, of young persons (16–24), and of prime-age workers (25–54). We argue that demography is not destiny, and that the labor force participation rates of these groups are not only sensitive to economic growth and the accompanying cyclical changes in the demand for their services, but also to changes in tax and transfer policies that encourage them to increase or decrease their supply of labor to the economy.

## Trends in GDP and GDP per Capita across the Business Cycles

Figure 3-1 reports real GDP by quarter and the average annual real GDP growth rate for each of the nine post–World War II business cycles, beginning in the fourth quarter of 1948 (hereafter, 1948:Q4, etc.). We collapse the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s respectively. The average yearly GDP growth rate for each business cycle—as defined by the National Bureau of Economic Research (NBER)—is measured from peak to peak, and the shaded areas of figure 3-1 identify the beginning and ending peak of each business cycle. Although a rule of thumb for the start of a recession is often described as two or more consecutive quarters of negative GDP growth, the NBER committee's procedure for identifying turning points differs from this rule in a number of ways. As the NBER (2010) committee states:

> First, we do not identify economic activity solely with real GDP and real GDI [gross domestic income], but use a range of other indicators as well. Second, we place considerable emphasis on monthly indicators in arriving at a

**Figure 3-1. Level of Real GDP and Peak-to-Peak Average Real GDP Growth, 1948–2017**



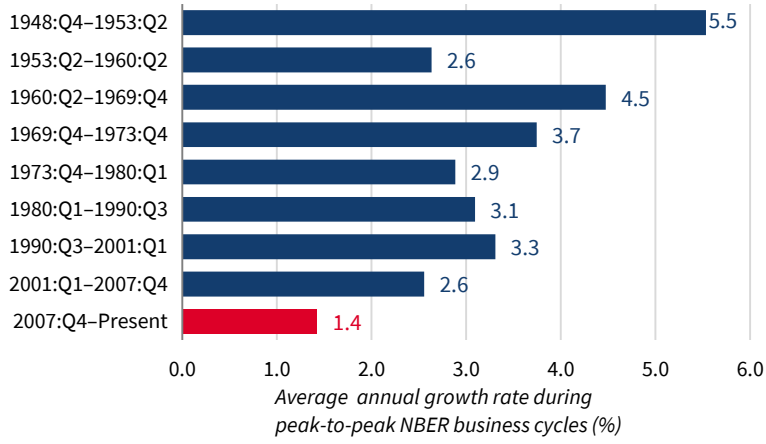

Sources: National Bureau of Economic Research (NBER); Bureau of Economic Analysis (BEA); CEA calculations.
Note: Shading denotes NBER business cycle. CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. The BEA GDP price deflator is used to convert current to real dollars.

monthly chronology. Third, we consider the depth of the decline in economic activity. Recall that our definition includes the phrase, "a significant decline in activity." Fourth, in examining the behavior of domestic production, we consider not only the conventional product-side GDP estimates, but also the conceptually equivalent income-side GDI estimates. The differences between these two sets of estimates were particularly evident in the recessions of 2001 and 2007–2009 (for more details, see NBER 2010).

Although GDP growth has been positive over all nine business cycles, the average yearly growth from peak to peak has greatly varied, as reported in figure 3-2. The greatest average growth in GDP occurred during the first post–World War II business cycle (1948:Q4–1953:Q2)—5.5 percent a year. But average growth fell to 2.6 percent during the 1950s business cycle (1953–1960:Q2). Average yearly GDP growth then rose to 4.5 percent during the 1960s business cycle (1960–69:Q4), far surpassing average growth in the 1950s. Growth fell to 3.7 percent during the 1969–73:Q4 business cycle of the early 1970s, and further still, to 2.9 percent, from 1973 to 1980:Q1. But then came two decades of economic growth greater than 3.0 percent. Average GDP growth increased to 3.1 percent during the 1980s business cycle (1980–90:Q3), and to 3.3 percent during the 1990s business cycle (1990–2001:Q1). Average GDP growth then fell

## Figure 3-2. Average Annual Real GDP Growth Rates during Business Cycles, 1948–2017

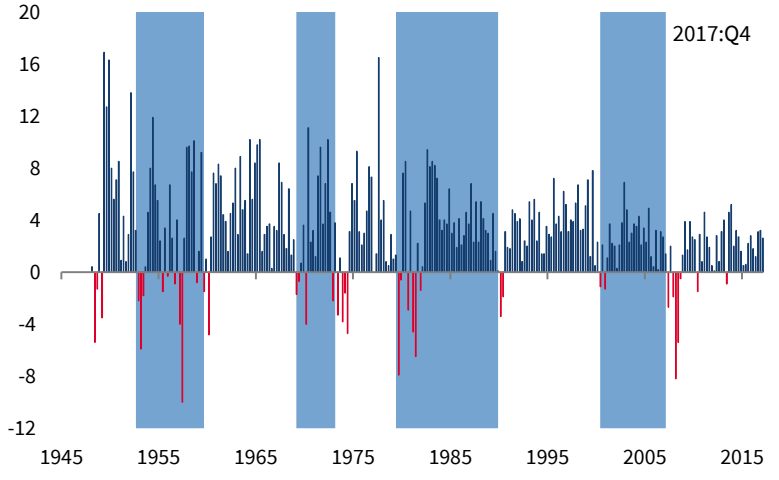
*Peak-to-peak NBER business cycles*




Sources: National Bureau of Economic Research (NBER); Bureau of Economic Analysis (BEA); CEA calculations.
Note: CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. The BEA GDP price deflator is used to convert current to real dollars.

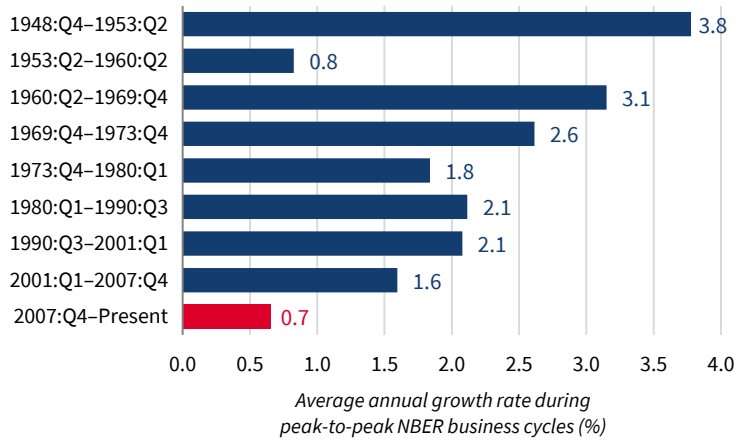
## Figure 3-3. Real GDP Growth Rates, 1948–2017

*Quarterly real GDP growth (seasonally adjusted at an annual rate)*




Sources: National Bureau of Economic Research (NBER); Bureau of Economic Analysis (BEA); CEA calculations.
Note: Shading denotes NBER business cycle. CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. The BEA GDP price deflator is used to convert current to real dollars.

**Figure 3-4. Average Annual Real GDP per Capita Growth Rates over Business Cycles, 1948–2017**




Sources: National Bureau of Economic Research (NBER); Bureau of Economic Analysis (BEA); CEA calculations.
Note: CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. The BEA GDP price deflator is used to convert current to real dollars.

to 2.6 percent during the 2001–7:Q4 business cycle, before collapsing to 1.4 percent over the current, ongoing business cycle (2007–present) that includes the Great Recession years (2007–9:Q2) and the long, but relatively slow, quarterly growth in GDP through 2017:Q4, the latest quarter of data at the time of this writing.[5] As can be seen in figure 3-3, though there were several quarters of very small positive growth (under 1.0 percent), and even two quarters of negative growth, during the period from 2009:Q3 to 2014, quarterly economic growth has picked up since then, and especially in 2015 and 2017.

Figure 3-4 reports average annual growth rates in GDP per capita for each of the nine NBER-defined post–World War II business cycles described above. Annual growth rates are lower for GDP per capita because the United States' population has increased each quarter since 1948. But the general trend in real growth in GDP per capita during business cycles over the nine business cycles is the same as that of real GDP. The highest post–World War II average business cycle growth rate in GDP per capita occurred during the first postwar business

[5] The current business cycle, which began in 2007:Q4 and is ongoing as of the publication of this report (2017:Q4), is 9 years long, approaching the longest on record, the 9.5 year business cycle of the 1960s. The business cycle is not yet complete, and average growth rates for the cycle will rise provided growth in the upcoming years is higher than the 1.4 percent per year apparent in Figure 3-2. But the long cycle implies that each additional year of growth will have a more muted impact on the average than would be the case under a shorter cycle.

cycle (3.8 percent). It faltered in the 1950s, to 0.8 percent, before rising to its second-highest point (3.1 percent) during the 1960s business cycle. Average growth in GDP per capita again faltered in each of the two business cycles of the 1970s, and especially during the 1973–80 business cycle (2.6 and 1.8 percent, respectively). But it then rose from this late 1970s average low during both the 1980s (2.1 percent) and 1990s (2.1 percent) business cycles, before once again declining during the 2001–7 business cycle to 1.6 percent—and dramatically falling to 0.7 percent during the current, ongoing business cycle. This is the lowest average business cycle growth rate in GDP per capita during the postwar era.

## Median Income Trends across Business Cycles

Economic growth, measured in aggregate or per capita terms, indicates progress in delivering more resources to a nation's economy. How this progress translates into resources for the middle class, however, depends on how gains are distributed across the population. Household survey data are the usual source for monitoring income and its distribution—at the household, family, and individual levels. Each year the U.S. Census Bureau uses household survey data to derive its official statistics on income and poverty. (See Semega, Fontenot, and Kollar 2017 for the most recent available year in this series.) Household survey data are also the basis for cross-national comparative studies and are the source for most other distributional analyses, such as those done by the Organisation for Economic Cooperation and Development (OECD 2008, 2011, 2015). The definitions that underlie the way that income questions are asked in these household surveys provide best-practice measures of personal living standards.

The "income-sharing" unit that researchers choose when using these data is virtually always the household (all persons living in the dwelling), and the "income definition" is disposable (posttax, posttransfer) income, adjusted for differences in household size and composition using an equivalence scale.[6] The "unit of analysis" is the individual (regardless of age). Hence, median income is based on the equivalized income assigned to each person in the

[6] Size-adjusted household income accounts for economies of scale in household consumption by dividing income by the square root of household size. This income measure is commonly used in U.S. and cross-national studies of inequality (see, e.g., Gottschalk and Smeeding 1997; Atkinson and Brandolini 2001; Burkhauser et al. 2011), as well as by the OECD in its official measures of income inequality and poverty (d'Ercole and Förster 2012). It also closely matches the adjustments for household size implied by the Census Bureau's poverty thresholds (Ruggles 1990). This measure assumes that income is shared equally among all household members, so each member receives the same amount for personal consumption.

population. Gottschalk and Smeeding (1997), d'Ercole and Förster (2012), and the Canberra Group (2011) make the case for this standard methodology.[7]

A long-standing challenge to survey-based estimates is that they do not provide a complete picture of the income distribution and its trends because they fail to fully capture the highest incomes. In contrast, the tax-based data used in the top income shares literature do a much better job of capturing the highest incomes. (For the seminal article on U.S. top incomes, see Piketty and Saez 2003; for a review of this literature, see Atkinson, Piketty, and Saez 2011.) However, this tax data benefit is gained at the cost of being constrained to use the definitions of income and income-sharing unit mandated by each country's tax administration (definitions that differ from the survey-based ones), and being restricted to summary inequality measures that do not incorporate differences across the full income range (i.e., top income shares).

However, because we are focusing on the middle class and are using a median rather than a mean income measure to track changes in middle-class income, under coverage of income at the very top of the distribution is unlikely to affect the results we report. In addition, survey data allow us to consider various definitions of income and sharing units, and to consider different units of analysis (box 3-2). This is not possible when using tax record–based data. Likewise, those using tax record–based data in the standard labor economics literature are forced to focus on the median wage earnings of workers. As a result, they do not account for the fact that many workers live in households that share earnings and other resources, which can lead to a misrepresentation of the distribution of income available to all Americans.

The set of six measures of median income from the survey- and tax-based literatures we discuss in the next subsection are all derived, as noted above, from data contained in the unrestricted, public-use ASEC Supplement to the CPS. This is the most common cross-sectional survey-based source of data for those interested in measuring the incomes and income distributions of Americans. The supplement contains a detailed questionnaire on the sources of income for household members and is commonly used to evaluate levels and trends of income and income inequality (see, e.g., Gottschalk and Danziger 2005; Daly and Valletta 2006; Blank 2011; and Burkhauser et al. 2011).

## *Six Measures of Median Income*

We document median income trends on the basis of six measures which we describe below. But in all cases we will compare trends in real median income

[7] The International Expert Group on Household Economic Statistics (Canberra Group) was convened as an initiative of the Australian Bureau of Statistics under the auspices of the United Nations Statistical Commission. Its report was largely adopted as the standard for measuring household income by the International Conference of Labour Statisticians. In 2011, the United Nations Economic Commission for Europe provided an updated reference, outlining its latest standards and recommendations.

### Box 3-2. The Use of Survey Data versus Tax Record Data to Measure Income and Its Distribution

This chapter argues that *the household size–adjusted posttax, posttransfer income of the median person measure*, based on U.S. household survey data, provides a better estimate of the levels and trends in the resources going to the American middle class than do studies that rely solely on tax record–based data. It nonetheless recognizes that household surveys do a poorer job of capturing the resources controlled by those at the very top of the income distribution than do tax-based studies. However, the most recent income distribution studies in other countries not only recognize the limitations of both tax record–based and survey-based data, but also overcome them. They do so by directly linking tax record data to survey data (see Burkhauser et al., forthcoming, a, b), or they use survey data to capture the bottom part of the distribution and tax record data to capture the top part, and then add these separate estimations together (e.g., see Atkinson 2007; Alvaredo 2011). Jenkins (2017) reviews this literature and provides an alternative method from that of Alvaredo (2011).

The major advantage of linking tax record data to data from a random sample household survey is that a tax unit is a subset of a household. So one can, for instance, assign the income values of the top 1 percent of tax units from the tax-based data to the top 1 percent of tax units that are subcomponents of the households in the survey. It is much more difficult to do this starting with the tax record data, unless one can link these tax units to the households in which they reside. Matching efforts of this sort are still at the experimental stage in the United States. See Larrimore, Mortenson, and Splinter (2017) for an attempt to use the mailing addresses on tax forms contained in Internal Revenue Service records to do so.

Another major way in which the top income literature based on tax record data differs from the survey-based inequality literature that is not resolved, even by linking data sets, is in the treatment of capital gains. Contrary to the Canberra Group's (2011) conventions, the top income literature not only includes capital gains as a source of income, but also does so by including taxable realized capital gains rather than Haig-Simons recommended accrued capital gains. Most household surveys follow the Canberra Group's conventions and do not provide information on capital gains. Armour, Burkhauser, and Larrimore (2013, 2014) and Larrimore and others (2017) discuss the merits of including taxable realized capital gains. They argue that if one chooses to use a measure of capital gains as a source of income, then it is preferable to include all accrued capital gains based on Haig-Simons principles.

using the Consumer Price Index Research Series (CPI-U-RS).[8] The first is *the labor earnings of the median tax unit*. This income measure only looks at one source of market income, labor earnings (i.e., wages and salaries, self-employment income, and farm income), and uses the tax unit as both its sharing unit and its unit of analysis. Such a measure is in the style of the tax record–based literature because labor earnings are a component of market income and the sharing unit is the tax unit.

The second measure is *the household size–adjusted labor earnings of the median person*. Although this measure also only includes labor earnings, it expands the sharing unit to the household, estimates the equivalized value of those labor earnings, and assigns it to each person in the household. Burkhauser, Larrimore, and Simon (2012) first showed that because the number of tax units within households has grown over time, while the number of people in those households has fallen, these demographic characteristics will tend to increase this measure of median income over time relative to a tax unit–based measure of labor earnings.

The third measure is *the household size–adjusted market income of the median person*. This uses Piketty and Saez's measure of pretax, pretransfer market income. Its sources of income include labor earnings, interest, dividends, rents, trusts, and pension income received in retirement. But it excludes public transfers. It does so using the household as the sharing unit and the person as the unit of analysis. Although the level of median income of this measure will be greater than one that looks at labor earnings alone, its trend will also depend on the relative growth of other sources of market income.

The fourth measure is *the household size–adjusted pretax, posttransfer income of the median person*. This is the measure of income that the U.S. Census Bureau uses in its household income series (Semega, Fontenot, and Kollar 2017); it adds government cash transfers to the income measure used in the previous series. This includes income from cash transfer programs such as Aid to Families with Dependent Children and its successor, Temporary Assistance for Needy Families, as well as from social insurance programs such as Social Security and Workers' Compensation. It excludes, however, transfers directly tied to the tax system, such as the Earned Income Tax Credit (EITC). It also excludes any in-kind government transfers, such as food and housing assistance, and the value of Medicare or Medicaid insurance. The U.S. Census Bureau reports the "pretax, posttransfer income of households" in the first

[8]We do so since the CPI-U-RS is the standard deflator used in the survey-based income inequality literature. However, we test the sensitivity of our results using the PCE price index which is a chain-type (or Tornqvist) price index, so it does not systematically overstate inflation like the CPI-U and its variations, which are Laspeyres indices. Again, we use this price index rather than the Chain CPI, which only begins in 1990, because it has been available since 1947. See figure 3-22 in the appendix to this chapter, where we show that though this deflator slightly increases real growth in median income over each of the four business cycles we explore in this section, our main findings are not sensitive to this deflator choice.

figure of its annual report (Semega, Fontenot, and Kollar 2017); it is also the measure reported in box 3-1. But the U.S. Census Bureau, in its more sophisticated discussions of income trends, uses this fourth measure we define here, which takes into consideration the number of persons in the household and assigns them an equivalized income value. Because this measure adds government transfers but does not subtract government taxes, its level of median income will be greater than one that looks at market income alone, but its trend will depend on the relative growth of other sources of government transfers to market income.

The fifth measure is *the household size–adjusted posttax, posttransfer income (including some in-kind transfers) of the median person*. This disposable income measure more fully captures the importance of government tax and transfer policies for the resources of the median person. It uses NBER's TaxSim 9.3 (Feenberg and Coutts 1993) to estimate Federal and State taxes and liabilities, including Social Security and Medicare payroll taxes. In addition, it captures the market value of some in-kind transfers. The Census Bureau imputes the value of SNAP (the Supplemental Nutrition Assistance Program—food stamps), housing subsidies, and school lunches on an annual basis. We use these values in our estimates. All are now generally recognized as important resources that are primarily available to low-income households, and the Census Bureau now includes them as resources in its Supplemental Poverty Measure (Garner and Short 2012). Larrimore, Burkhauser, and Armour (2015) use this measure in their analysis. Because it both adds government in-kind transfers and tax credits (e.g., the EITC) but subtracts taxes, the level of median income of this measure could be higher or lower than the Census Bureau's median (pretax, postcash transfer) income values as well as median market income alone. Its trends will depend on the relative growth of net government transfers to market income.

The sixth measure is *the household size–adjusted posttax, posttransfer income (including in-kind transfers as well as the insurance value of employer provided health insurance and Medicare and Medicaid) of the median person*. Burkhauser, Larrimore, and Simon (2012) were the first to use the market value of health insurance in a disposable income measure, in order to show the growing importance of access to health insurance for explaining differences between survey- and tax record–based analyses of income and its distribution. The U.S. Congressional Budget Office (CBO), in 2012, was the first government agency to include the market value of both government- and employer-provided health insurance in their measure of income (CBO 2013). Larrimore, Burkhauser, and Armour (2015) include this measure in an appendix table. Lyons (2015)—as well as Burkhauser, Larrimore, and Lyons (2017)—show its importance for estimating the income of working age people with disabilities; and Elwell and Burkhauser (2017) show its growing importance for measures of median income that they estimate back to 1959. Due to the rapid growth

in employer- and government-provided health insurance, its median income values will be greater than all other measures in levels and trends.

Figure 3-5 reports the trends for these six measures of median income, normalized to 100 percent in 1979. The values given in this figure come from extensions of the findings of Larrimore, Burkhauser, and Armour (2015) and Elwell and Burkhauser (2017) to income year 2016 for all measures except the sixth which extends only to 2014. NBER's business cycles are denoted by alternated shading between business cycle peaks, as in figure 3-1.[9] Note that, though the total population included in each of our six trend lines is the same, the median person in that population will not be the same person because the income sources and sharing unit used to capture income differ.[10]

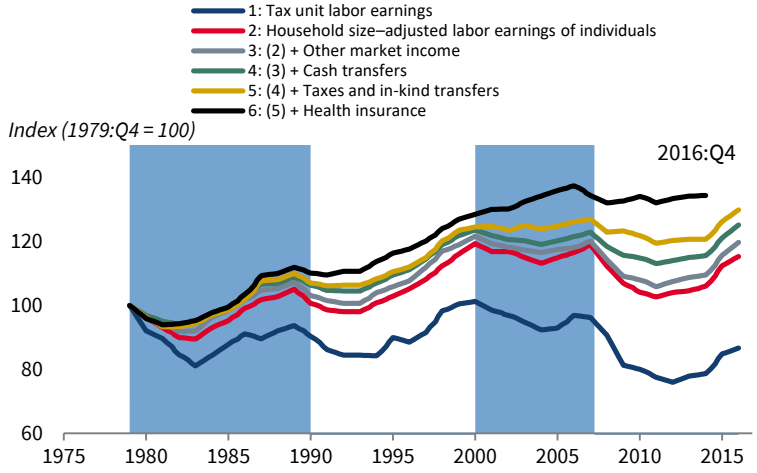
There are a number of similarities in the trends of five of these six measures of income. The median value of all five income measures that use the household as their sharing unit and the person as their unit of analysis is greater at the ending peak of the 1980s and the 1990s NBER business cycles than at their starting peaks. During both cycles, median income falls from its prerecession high to a trough (with the year varying by measure). But in both cycles, strong postrecession growth increased median income well above its initial prerecession business cycle high.

This is not the case for the growth in *the labor earnings of the median tax unit*. The median value of this measure is noticeably lower at the end of the 1980s business cycle than at the beginning. Although it recovers somewhat from its 1984 trough, it is only at 94 percent of its 1979 high in 1989. During the 1990s cycle, postrecession growth is strong enough to lift median labor earnings above its prerecession high, but it only manages to return it to just above its 1979 prerecession high in 2000, well below the other five measures

[9] CPS income values are annual. We convert to quarterly values by assigning annual values to Q4 and linearly interpolating. There are two important breaks in the CPS data during this period. The first is the well-known break in the data that occurs between income years 1992 and 1993. We follow Larrimore, Burkhauser, and Armour (2015) and adjust for this by assuming that the entire decrease in median income between 1992 and 1993 is caused by the improvement of CPS data collection efforts, and therefore we decrease median income in 1992 and in all preceding years by the same percentage. The second occurs for income year 2013. In that year CPS used past years methods for one part of the survey population and a new method for the other part, to test the impact of the new method on outcomes. We follow Elwell and Burkhauser (2017) and use the median value based on these new methods for 2013 and thereafter and raise median income in all preceding years by the ratio of median values in 2013 based on the new and the old methods.

[10] The median individual for each measure will also change year-to-year. Substantial shifts in the composition of the population, such as through the immigration of low skilled workers or the aging of the population into retirement, may increase the share of the population living in households with low labor earnings, reducing the *household size–adjusted labor earnings of the median person* even when, over the same period, the median earnings of employed individuals is rising. Alternatively, the increase in the share of persons living in two or three earner households may reduce the share of the population living in households with low labor earnings, increasing the *household size–adjusted labor earnings of the median person*, even when over the same period the earnings of employed individuals is falling.

**Figure 3-5. Alternative Measures of Trends in Real Median Income, 1979–2016**




Sources: National Bureau of Economic Research (NBER); Elwell and Burkhauser (2017); Current Population Survey; Bureau of Labor Statistics; CEA calculations.
Note: Shading denotes new NBER business cycle. CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. Annual data are linearly interpolated. Consumer Price Index Research Series is used to convert current to real dollars.

of income in 2000. Those focusing on the growth in *the labor earnings of the median tax units* will greatly understate the actual increase in labor earnings available to the median American during this period because that median American lives in a household that may contain more than one tax unit. The same is true for using growth in *the labor earnings of the median worker* to make inferences about the labor earnings available to the median American.

The other five measures all take into consideration the fact that workers live in households, not in tax units or by themselves, and that these household members share their individual labor earnings. Some of the measures also include other sources of market income, as well as the net returns of government taxes and transfers. All show substantially higher growth in the resources available to the median American over these first two business cycles than does the measure of *the labor earnings of the median tax unit*.

This income measure's inconsistency vis-à-vis the other five measures continues during the 2001–7 business cycle. *The labor earnings of the median tax unit* dramatically falls from 2001 to 2004, and though it increases thereafter until 2006, it is substantially below its 2001 value by the end of the business cycle in 2007. It then falls precipitously during the Great Recession and does not turn upward until 2013. Since then, it has slowly recovered, but by 2016 it was well below its value at the start the current business cycle in 2007, and even further below its 2001 peak.

However, this measure fails to recognize the social insurance value of living in a household—which is the pooling of labor earnings over all household members. Thus, sharp reductions in earnings from one tax unit in a household are softened by the continued earnings of its other tax units. At the same time, the number of people living in each household falls during this period, so household resources are shared among fewer people. These are important distinctions. Although our preferred measure of median labor earnings, *the household size–adjusted labor earnings of the median person*, also falls at the start of the 2001 business cycle, during the recovery years, it increases and almost reaches its 2001 level by 2007. This measure then falls precipitously during the Great Recession and does not turn upward until 2012; it then increases and is closer to it 2007 peak level by 2016 than is the flawed measure *the labor earnings of the median tax unit*. More important, the pooling of labor earnings in households reduces the depth of the drop in median income in the years between the business cycle's prerecession and postrecession peaks.

*The household size–adjusted market income of the median person* follows a very similar path within business cycles. Growth by the end of the 2001–7 cycle was not enough to raise median market income above its level in 2000, but because nonwage market income has grown faster at the median during the 2007 cycle, this measure of median income almost reaches its 2007 pre–Great Recession peak by 2016 and experiences a less severe drop in the years between the two cycle peaks.

*The household size–adjusted pretax, posttransfer income of the median person*, as used by the U.S. Census Bureau—which adds cash transfers to market income—closely follows the market income trends. Growth by the end of the 2001–7 business cycle was not quite enough to raise it to its level in 2000, but government transfers offset market income declines during the cycle, so its interim-year declines were smaller. Because government transfers have grown faster than market income during the current cycle, this measure of median income finally exceeded its pre–Great Recession high by 2016, greatly offsetting market income declines in the interim years. What is less clear is the degree to which this observed growth in net government transfers for the median American had negative effects on their employment, and hence on measures of labor and market income in the previous series.

The measure *household size–adjusted posttax, posttransfer income (including some in-kind transfers) of the median person*—which is recommended by the OECD, and is used by most European Union members—is also our preferred measure of median total income, because it more fully takes into consideration both government taxes and transfers. Doing so shows how effective government tax and transfer policy has been in increasing the median income of Americans and in offsetting the decline in their market income during both the 2001–7 business cycle and the present cycle. Although the growth of median income during the first two cycles is much greater than during the

last two, this fuller measure of income is the only one that shows growth over all four. More important, it shows that government tax and transfer policies since 2001 have largely offset the interim-year declines in median market income during this period.

The measure *household size–adjusted posttax, posttransfer income (including in-kind transfers as well as the insurance value of employer provided health insurance and Medicare and Medicaid) of the median person* is somewhat controversial, because it adds the market value of health insurance provided by employers and the government (i.e., Medicare and Medicaid) to the previous measure. However, this measure is now used by the CBO in its measures of income and in the economics literature (see Lyons 2015; Burkhauser, Larrimore, and Lyons 2017; and Elwell and Burkhauser 2017). Because of the rapid growth in health insurance provided by employers and the government since the mid-1980s, its median income trends are considerably greater than all the other such trends shown in figure 3-5 through 2006. Median values fall somewhat until 2008 and are flat through 2014, which is the last year of our data.[11]

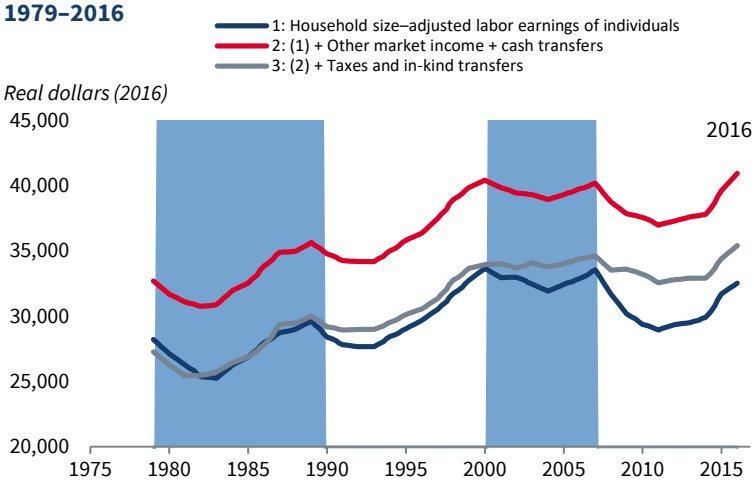
Figure 3-6 reports real median levels from 1979 to 2016:Q4 for our preferred measures of labor earnings and disposable income, as well as for the U.S. Census Bureau's pretax, posttransfer measure of income. All three use the same household sharing unit, with household income equivalized and the individual as the unit of analysis. All values are in 2016 dollars.[12] The only difference in these measures is in the sources of income considered.

When we only consider the labor earnings of all household members, median income was $28,203 in 1979, and rose to a peak of $33,663 in 2000, but was only $32,320 in 2016:Q4—still below its 2000 peak. When we include other forms of market income as well as government cash income, median income levels increase, respectively, to $32,696, $40,148, and $40,600. When we use our preferred disposable income measure, its 1979 median value of $27,255 is less than the value of median labor earnings. This shows both the greater importance of labor earnings at the median and the fact that the median person lived in a household whose taxes paid to government were greater than

[11] The Census Bureau discontinued its series on the market value of Medicare and Medicaid in 2015. It addition, Burkhauser, Larrimore, and Lyons (2017) argue that the Affordable Care Act's rules regarding community ratings of health insurance, which came into effect in 2014, by law reduced the cost of private market health insurance to persons with above-average expected healthcare costs. This, in turn, reduced the market value of Medicare and Medicaid to their beneficiaries because they are now eligible for this less expensive community-rated private market health insurance.

[12] All these values are reported for the median person, and show this person's household size–adjusted income. Because we are using an equivalence scale of 0.5, if this person lived in a household of four persons, his or her household income would be the square root of 4, or two times the values reported in this figure (equivalence value = household income / square root of the number of persons in the household).

**Figure 3-6. Alternative Measures of Real Median Income, 1979–2016**




Sources: National Bureau of Economic Research (NBER); Elwell and Burkhauser (2017); Current Population Survey; CEA calculations.
Note: Shading denotes NBER business cycle. CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. Annual data are linearly interpolated. Consumer Price Index Research Series is used to convert current to real dollars.

transfers received in 1979. This no longer becomes the case as early as 1983. Although median disposable income continues to be at about the same level as median labor earnings for the rest of the 1980s, and somewhat above median labor earnings during most of the 1990s, by 2000, at $33,950, it was only about $300 above median labor earnings. However, thereafter, median disposable income grows much more than median labor earnings, especially after 2007, as taxes and transfers play a much more important role in sheltering the median person's household equivalized income from losses in market income during and after the Great Recession. By 2016:Q4 median disposable income is $35,152, exceeding its previous 2007 peak.

## *Decomposing Median Income Changes by Employment and Earnings*

The slow rebound of *the household size–adjusted labor earnings of the median person* after the Great Recession, as reflected in figure 3-6, is remarkable—and it indicates a departure from the experience of individuals after previous, albeit weaker, recessions. What is the underlying source of this departure from previous experience? There are several possible answers, but one is the unprecedented increase in government social safety net programs. Although this increased use of tax and transfer policies to redistribute market income successfully cushioned the sharp decline in GDP during the Great Recession of

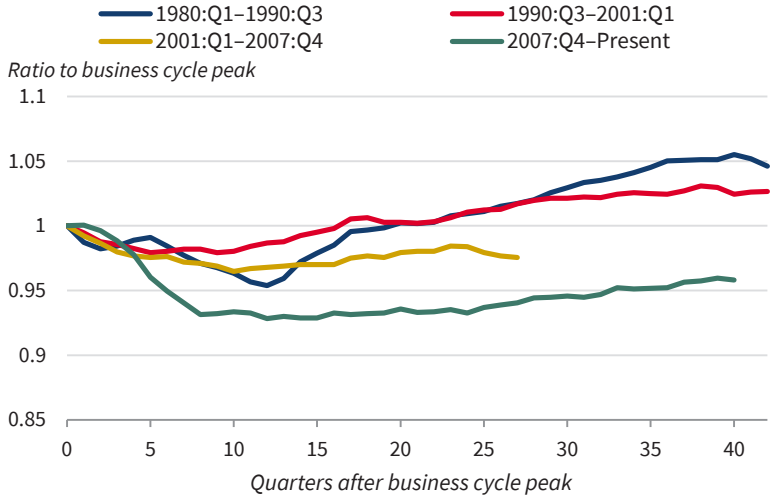
2007–9, as reported in figure 3-1, the subsequent negative employment effect of these transfers could to some degree be responsible for the remarkably slow pace of GDP growth in the recovery period since then.

For the last two business cycles pictured in figure 3-6, previous research using shift-share analysis highlights the primacy of employment declines over earnings declines in accounting for the drop in *the household size–adjusted posttax, posttransfer income (including some in-kind transfers) of the median person*. Larrimore, Burkhauser, and Armour (2015) calculate that declines in the employment of heads of households and their spouses alone account for 79 percent (–3.25 percentage points, out of –4.10 total percentage points) of the median recession-related income decline from 2007 to 2010, controlling for all other factors. Likewise, between the recession-related years 2000 and 2003, the employment declines of household heads and their spouses on their own would have caused median income to fall by 1.88 percentage points; it was only because of policies that changed tax liabilities that median income actually rose by 0.35 percentage point.

These declines in median income that are accounted for by the employment declines of household heads and their spouses in the 2001–7 and 2007–present business cycles are in contrast to earlier recessions, when such declines were completely accounted for by declines in the earnings of male household heads and their spouses conditional on employment.[13] For example, 2.6 percentage points of the total recession-related 1989–92 fall in median income of 3.5 percentage points were accounted for by the earnings declines of male household heads and their spouses, while only 1.1 percentage point was accounted for by the decline in their employment. The respective numbers are 3.9 percentage points for earnings and 2.0 percentage points for employment, out of a total decline of 6.6 percentage points for the recession-related years 1979–82. Between both 1979 and 1982 and 1989 and 1992, median incomes fell, while the employment and earnings of both female household heads and their spouses rose. In the next section, we explore in more detail the possible explanations for the long-term decline in the employment and labor force participation of working age Americans.

[13] In the CPS data, the head of a household ("the householder") is defined as the household's primary earner. The household can contain both its head's family members—i.e., those related to the head by blood or marriage—and other unrelated individuals. One of the reasons to use the household as the sharing unit rather than the tax unit is that an increasing share of households contain two adults who share income and perhaps the parentage of their children but are neither blood relatives nor married and who file separate personal income tax forms.

**Figure 3-7. Age 16+ Ratio of Employment to Population, Measured Relative to Opening Business Cycle Peak, 1980–2017**



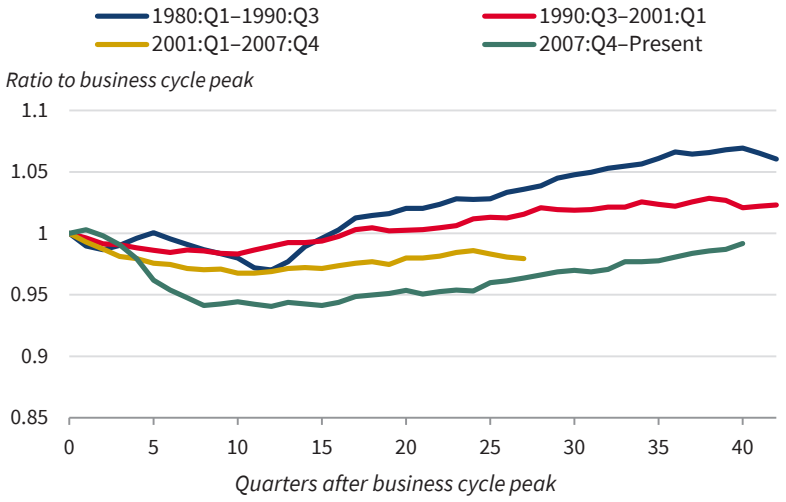

Sources: National Bureau of Economic Research; Bureau of Labor Statistics; CEA calculations.
Note: CEA collapsed the double-dip recessions of 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4 into a single peak-trough-peak period of the 1980s.

## Measures of Employment and Earnings Using Aggregate Data

The attribution of income reductions in the most recent recessionary periods to declines in the employment of working age Americans—detailed in Larrimore, Burkhauser, and Armour (2015)—are consistent with the aggregate employment statistics produced by the Bureau of Labor Statistics and derived from the monthly CPS. For each business cycle beginning with the 1980:Q1 peak, figure 3-7 gives the quarterly ratio of employment to population for those age 16 and over as a multiple of the ratio observed at the opening cycle peak. Thus, the value in quarter 0 is always 1, and as each recessionary period unfolds, the value falls below 1. Viewing the data in this way facilitates comparisons of employment and wage declines across business cycles.

For the business cycles beginning in 1980 and 1990, the ratio eventually returns to parity before the closing cycle peak, within 20 and 17 quarters, respectively. But for the 2001–7 cycle, the ratio of employment to population never recovered from its initial decline, and the employment declines during the Great Recession simply layered on to these still-depressed rates. As a result, not only is the ratio of employment to population in 2017:Q4 below the value in 2007:Q4, it also remains below the ratio at the beginning of the 2001 recession.

**Figure 3-8. Prime-Age (25–54) Ratio of Employment to Population, Measured Relative to Opening Business Cycle Peak, 1980–2017**

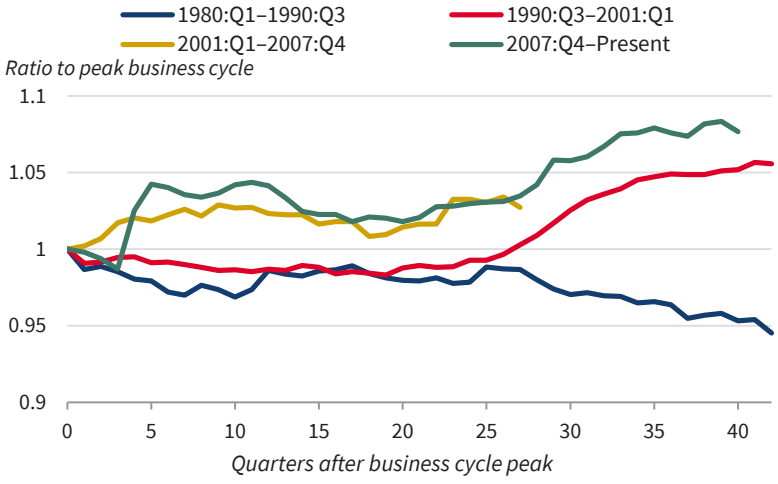



Sources: National Bureau of Economic Research; Bureau of Labor Statistics; CEA calculations.
Note: CEA collapsed the double-dip recessions of 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4 into a single peak-trough-peak period of the 1980s.

In addition to the sharp GDP declines during 2008 and 2009 that are shown in figure 3-1, the Great Recession coincided with the movement of the Baby Boom generation (those Americans born between 1946 and 1963) into older age. Although declines in the ratio of employment to population may have been spurred by GDP declines, the slow recovery over the ensuing years may also be partly accounted for by the front end of the Baby Boom generation moving past age 55 beginning in 2001 and past age 62 in 2008, ages at which average employment rates are below those for younger workers. Yet Baby Boomers' aging into retirement cannot be the full story; the employment patterns for the prime-age population (25–54), shown in figure 3-8, parallel those given in figure 3-7. The members of this group saw slightly shallower employment declines in the first eight quarters of the 2008 recession, and though their employment rebound has been stronger, prime-age workers still have not reached parity after 40 quarters of the current business cycle. Just as with the full population age 16 and over, prime-age workers began the 2007 cycle with employment rates below those at the start of the 2001–7 cycle.

In contrast, conditional on employment, real average hourly earnings for private production and nonsupervisory workers (the longest continuous series available) in the BLS Establishment Survey weakened only slightly after 2007, and not at all during the 2001 recession, as indicated in figure 3-9. It is particularly important to note that these earnings values are only for employed

**Figure 3-9. Real Average Hourly Earnings, Private Production and Nonsupervisory Workers, Measured Relative to Opening Business Cycle Peak, 1980–2017**




Sources: National Bureau of Economic Research; Bureau of Labor Statistics; CEA calculations.
Note: CEA collapsed the double-dip recessions of 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4 into a single peak-trough-peak period of the 1980s. Earnings are deflated using the Consumer Price Index for Urban Wage Earners and Clerical Workers.

workers, and the disproportionate job loss at the lower end of the income distribution (Elsby, Hobijn, and Sahin 2010; Farber, Hall, and Pencavel 1993) implies a degree of selection into those reporting hourly earnings in the relevant surveys. Still, the return of average hourly earnings to their pre-recession level after only four quarters of the current recovery implies that the sluggish pace of median income growth since 2007 is—as Larrimore, Burkhauser, and Armour (2015) found—the outcome of sluggish employment patterns rather than earnings conditional on employment. This is in contrast to the failure of real average hourly earnings to ever return to their average level at the start of the 1980s business cycle and for the first 26 quarters of the 1990s business cycle.

## Addressing America's Employment Challenge

The employment patterns highlighted in figures 3-7 and 3-8, and the resulting weakness in the labor earnings of the middle class, are of critical policy importance. In the remaining sections of this chapter, we take a deeper look at the labor market attachment of the noninstitutionalized civilian population age 16 and over. Our analysis focuses on labor force participation rather than employment per se, in order to more closely match the academic literature. Participation rates also have the benefit of capturing job seeking as well as

### Box 3-3. Women's Labor Force Participation after World War II

The emergence of women from World War II with increased professional ambitions has been well documented (Mosisa and Hipple 2006; Shank 1988; Acemoglu, Autor, and Lyle 2004). The postwar rise in the female labor force participation rate—from 33 percent in 1948 to a high of 60 percent in 1999—thus represented a steady increase in women's ability to manage both career and family. Indeed, this change was largely attributable to married women's engagement with the labor force (Smith and Ward 1985; Costa 2000); previously, these women had left the labor force at the time of marriage or childbearing, rarely to return. In 1950, only 10 percent of married women age 15–64 with a child younger than five years participated in the labor force, compared with 28 percent without a young child (Costa 2000). However, by 1998 the share of married women age 15–64 with a child under the age of five who were in the labor force had risen to 64 percent; and for those without a young child, the labor force participation rate had risen to 76 percent.

In the postwar period, until the 1960s, the rise of women's labor force participation was driven by their return to the workforce at the end of their childbearing years. However, starting in the 1960s, their overall rise in labor force participation is attributable not to their returning to work after their childbearing years but by their increasing participation during these years (Bailey 2006, 2013). In the 1960s, women's increasing use of contraceptive technology, which gave them more control over the timing and frequency of births, was a critical part of these changes, as were changing social norms related to working mothers (Bailey 2006; Goldin and Katz 2002). Their access to family planning enabled women to pursue higher levels of education, invest in other forms of human capital (e.g., on-the-job training), and participate in traditionally male-dominated professions (Bailey 2013).

Although, through the end of the 20th century, women increasingly found their way into the labor force, and stayed there through their childbearing years, the female labor force participation rate peaked in 1999, at 60 percent. Since then, this rate has edged downward, to 57.0 percent in 2017, paralleling the trend for men. However, 2016 marked the first year since 2008 (during the Great Recession) that the labor force participation rate for women increased (by 0.1 percentage point from the previous year). The general decline over the past 20 years is partly attributed to Baby Boomers aging into age brackets with traditionally lower participation rates, along with increases in teenagers' school enrollment (Toossi and Morisi 2017). But it is also due to declines in the probability of employment among married mothers (Cohany and Sok 2007), many of whom saw marginal tax rate hikes in recent years. Despite these declines, American women are far more likely than women in the other OECD countries to work full time and to be in higher-level positions, such as managers and professionals (Blau and Kahn 2013).

employment, providing a measure of labor force attachment beyond binary employment status. Labor force participation rates will be a bigger overstatement of employment early in business cycles, when GDP first begins to decline and unemployment grows, relative to later points in the same cycle, when unemployment rates have declined from their recessionary peaks.

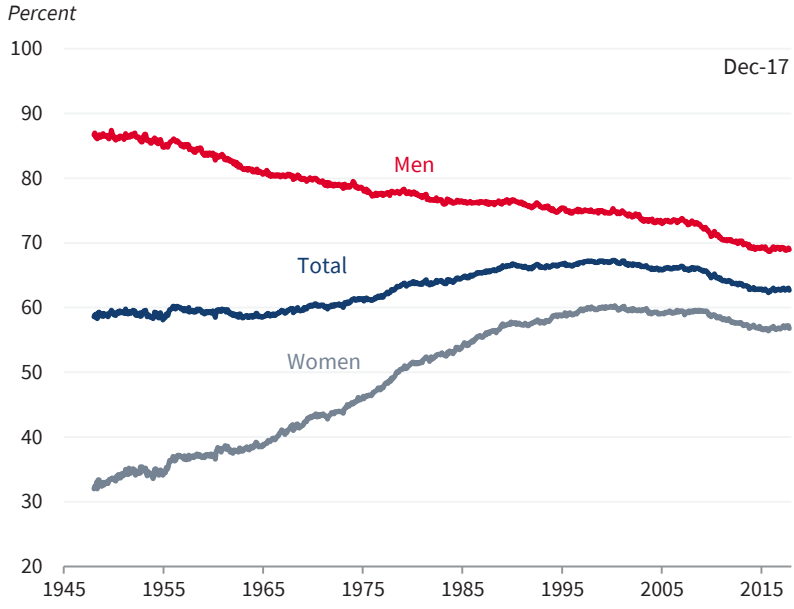
The labor force participation rate of the U.S. noninstitutional civilian population in 2017 was 62.8 percent, the culmination of a multiyear decline beginning in roughly 1990, although the decline for men began much earlier (see figure 3-10); the overall rate has stabilized over the past three years. In earlier years, from 1948 through roughly 1998, the steady decline in the labor force participation rate of men was offset by a rapid increase in the rate for women (box 3-3). But after the late 1990s, the participation rate of women stabilized and then declined, serving to reinforce the decline for men and inducing a reduction in aggregate participation rate.

The aging of the U.S. population is an important factor in the labor force participation patterns shown in figure 3-10. The Baby Boom generation has aged into retirement, though increased life expectancies for men and women alike have served to increase the size of the postretirement population. A clearer vision of the employment crisis, therefore, requires examining participation within age groups. Beginning with 1970 (the opening year of the 1970–73 business cycle), figure 3-11 shows the annual participation rate by age group.

One clear pattern in the post-1969 data is the rise and then post-1988 fall in labor force participation for workers age 16–24. (This decline is discussed more fully below.) In contrast, prime-age workers, those between 25 and 54 years of age, steadily increased their participation rate through 1997, experiencing a rise after 1970 of 10 percentage points to a series high of 84.1 percent, matched again in 1998 and 1999. During this period, women continued to join and persist in the labor market, but after 1999, prime-age participation faltered, and the rate in December 2017 was 81.9 percent, reflecting a rate of 89.0 percent among prime-age males and 75.0 percent among prime-age females. Participation patterns for prime-age workers are discussed in more detail below.

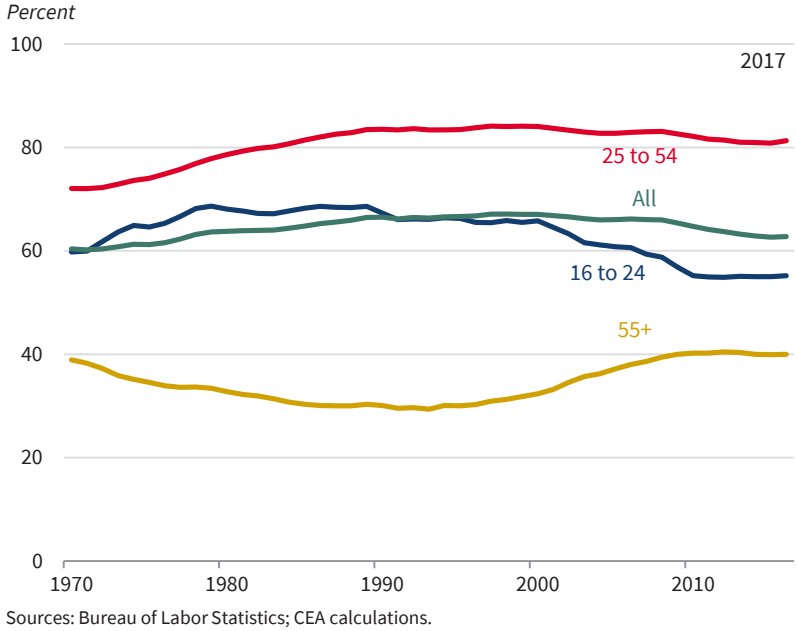
Finally, the population age 55 and older, the fastest-growing group shown in figure 3-11 thanks to the effects of the Baby Boomers, has been the bright spot in the otherwise disappointing two decades of labor force participation since 1997. For this group, the 1990s and 2000s brought returns to participation rates not seen since the 1960s; in 2017, the rate for those 55 and older was 1.1 percentage points higher than in 1970. Some of the increase can be attributed to the aging of a cohort of women who experienced high rates of participation while they were of prime age during the 1990s. But these changes for older workers are also attributable to changes in policy toward older workers, and we discuss these policy choices and their implications for the labor force participation rate of older workers in the next section.

**Figure 3-10. Labor Force Participation Rates by Gender (Seasonally Adjusted), 1948–2017**




Souce: Bureau of Labor Statistics.

**Figure 3-11. Annual Labor Force Participation Rate by Age Group, 1970–2017**




Sources: Bureau of Labor Statistics; CEA calculations.

## Labor Force Participation among the Older Population

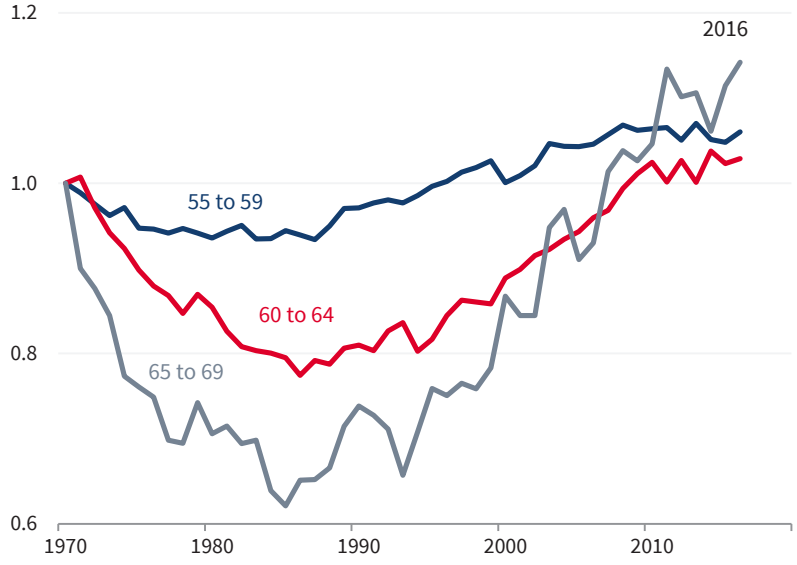
Figure 3-11 presents a striking picture of changes in labor force participation over time for older workers: Since the mid-1980s, older workers have increasingly remained in the labor force, while younger workers have been leaving. The overall participation rates of these older population groups are substantially lower than those of prime-age workers, imposing a demographic drag on the aggregate participation rate as the U.S. population ages. Thus, the U-shaped pattern of decline, and then return, of participation among older workers that is observable in figure 3-11 serves to partially offset this demographic drag.

To further examine the change in labor force participation among older Americans, we use the CPS to subdivide participation rates for five-year age brackets, separately examining the participation of those age 55–59, 60–64, and 65–69. Our results extend through 2016, the latest year with the full set of monthly CPS samples available for public use. Indexing the value in each year to the observed participation rate in 1970 gives a measure of relative change for each group. Figure 3-12 indicates that the decline and recovery in participation has been dramatic for the 65–69 age group and, to a lesser extent, for the 60–64 group. By 1985, the participation rate for those age 65–69 was only 62.1 percent of its 1970 level. It then rose to 114.2 percent of its 1970 value by 2016. For those age 60–64, the decline was not as steep—a decline to 77 percent of its 1970 value in 1986, followed by a rebound to 102.9 percent of its 1970 value in 2016. Those age 55–59 experienced a milder decline through 1987, before seeing an upward trend through 2008 and a plateau thereafter. For all older age groups, the turning point for participation rates occurs sometime in the middle to late 1980s. And for all groups, the changes are driven by women, whose increased participation serves to mask weak participation for older men relative to 1970 (figures 3-13 and 3-14).

The changes in labor force participation among older workers are likely due, at least partly, to changes in policies to reduce explicit or implicit age discrimination against older workers and to changes in private pensions. For instance, the Age Discrimination in Employment Act of 1967 first prohibited firms from forcing their employees to retire before age 65; and in 1986, this act was further amended to prohibit mandatory retirement before age 70. But it was argued at the time that the actual influence of these mandates would have only a limited effect on the age when an employee would retire from a firm. More important were the rules governing employees' private pension plans (Burkhauser and Quinn 1983; Quinn, Burkhauser, and Myers 1990). In the 1970s and 1980s, the vast majority of workers participating in a firm-sponsored pension program were enrolled in a defined-benefit (DB) plan. These plans frequently discouraged continued work with the firm by providing less than actuarially fair yearly increases in benefits for those who postponed taking

**Figure 3-12. Annual Labor Force Participation Rate for Older Workers by Age Group, Relative to 1970, 1970–2016**

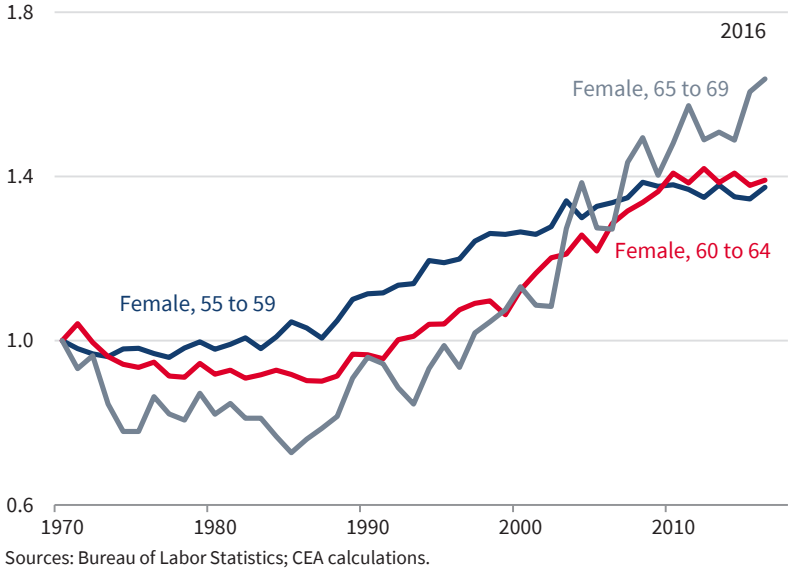
*Ratio relative to 1970*




Sources: Bureau of Labor Statistics; CEA calculations.

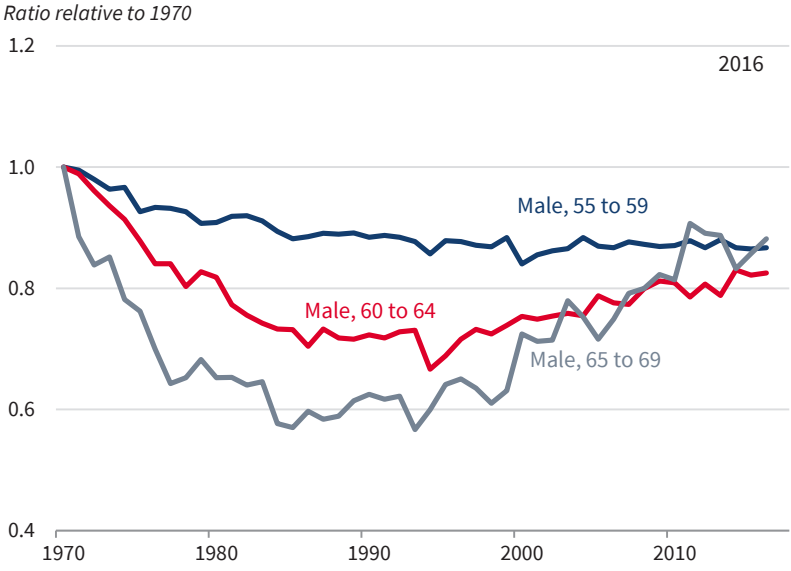
**Figure 3-13. Annual Female Labor Force Participation for Older Workers by Age Group, Relative to 1970, 1970–2016**

*Ratio relative to 1970*




Sources: Bureau of Labor Statistics; CEA calculations.

**Figure 3-14. Annual Male Labor Force Participation for Older Workers by Age Group, Relative to 1970, 1970–2016**




Sources: Bureau of Labor Statistics; CEA calculations.

their benefit beyond the earliest age it was offered (Burkhauser 1979; Kotlikoff and Wise 1987).

The introduction of the Employee Retirement Income Security Act in 1974, with new standards designed to better protect employees and ensure that they would retire with a pension, mandated that employers more "fully fund" their DB plans. Firms responded to this and other workforce changes by shifting to defined-contribution (DC) plans. These new DC plans were "fully funded" in the sense that employees received an employer-provided payment to their own personal retirement fund each year, but they shifted the investment risk of these funds to the employee. It is particularly important that unlike DB plans these DC plans had no built-in incentive for early retirement. In addition, in 1978 Congress allowed employee contributions to 401(k) DC plans to be paid with pretax dollars, which further encouraged the switch to DC plans. In 1977, 65.8 percent of active participants in employer-sponsored retirement plans were in DB plans and 34.2 percent were in DC plans. By 2014, the rates had more than reversed, to, respectively, 16.1 and 83.9 percent (U.S. Treasury 2010; U.S. Department of Labor 2017). This growth in DC plans may have significantly increased labor force participation rates over what they

would have been under a DB system (Leonesio et al. 2012; Purcell 2005; Juhn and Potter 2006).[14]

In like manner, it has been argued that the rules governing a country's government run pension system, for example the Social Security program (Old-Age and Survivors Insurance) in the United States, offer incentives to leave the labor force early even while providing protection against income loss in retirement (National Research Council 2001). As with private DB pension plans, public plans can have an important effect on work incentives. The age at which benefits are initially available, called the early retirement age, coupled with the patterns of benefit accrual, help determine the continuation of workers in the labor force. The key element of benefit accrual is the adjustment to benefits if a person works for another year; if the "actuarial" adjustment effectively offsets the fact that they are received for fewer years this will not have an added effect on labor force participation past early retirement age. However, if there is no adjustment, or if the adjustment is not large enough to offset the fewer years of receipt of benefits, the result is an incentive to leave the labor force. In many countries, disability and unemployment insurance programs effectively provide for early retirement before the explicit early retirement age. Gruber and Wise (1999) provide the first systematic evaluation of the incentives effects of major industrialized countries publicly provided pension systems.

In the United States, the 1983 Social Security Amendments initiated a plan to gradually increase the full retirement age from 65 to 67 years of age. Although early retirement at age 62 was still permitted, this increase in the normal retirement age effectively lowered the yearly benefits from doing so. Beginning with those born in 1938 or later, the full retirement age will gradually increase over 22 years until it reaches 67 for individuals born after 1959.[15] The 1983 Social Security Amendments also phased in an increased reward (i.e., provided a larger "actuarial" adjustment) for delaying entitlement receipt (Delayed Retirement Credit) beyond the age of full retirement between 1987 and 2005, which further encouraged retirement delays (Gustman and Steinmeier 2006). Blau and Goodstein (2010) estimate that the combination of increases in the full retirement age and rewards for delayed entitlement-

[14] Because the upturn begins around 1988, the upward trend in the labor force participation of older persons predates the welfare reform of the late 1990s, implying little ability of this policy change to explain the participation rates of the older population. Participation rates also appear to be continuous over the 2008–9 period, implying a limited role for increased participation as a result of retirement asset value destruction during the Great Recession. For further discussion, see Gustman, Steinmeier, and Tabatabai 2010; and Daly, Hobijn, and Kwok 2010.

[15] The amendments implemented the increase in the full retirement age to 66 years in two-month increments annually for age cohorts born between 1938 and 1942, and the full retirement age of 66 years holds for the 1943–54 cohorts as well. For individuals born between 1955 and 1959, the age continues to incrementally increase by two months a year so that, for those born in 1960 and thereafter, normal retirement age will be 67. This later six year transition from a normal retirement age from 66 to 67 began in 2017 for those who reached age 62 in that year.

taking may have accounted for one quarter to one half of the increase in labor force participation for men age 55–69 since the 1980s, or an increase in their labor force participation rate of 1.2 to 2.4 percentage points. In addition, policy changes to the Social Security retirement earnings test enacted in 2000 may have further removed financial disincentives to work past normal retirement age. The Senior Citizens Freedom to Work Act eliminated the Social Security earnings test for individuals between the full retirement age and 70 years of age. This amounted to the removal of a tax on earnings in the form of lost Social Security benefits in each quarter worked. Its removal in 2000 would have further increased labor supply of older employees in the years before the actuarially adjustment over these ages fully offset the delay in taking benefits. Gustman and Steinmeier (2009) estimate that these various changes increased full-time employment for those age 65–67 by about 9 percent between 1992 and 2004, and that the changes in the Social Security rules may account for one-sixth of the observed increase in labor force participation for men age 65–67 between 1998 and 2004.[16]

Because the participation rates of older age groups were paralleled by those age 55–59, a group that is largely unaffected by changes in Social Security rules, nonpolicy causes are also likely to explain part of the overall participation increase for this older age group.[17] For example, improved health among this population leads to both a greater physical and mental capacity to participate in the labor market, as well as a longer life expectancy, over which older Americans will need to fund living expenses during retirement. At the same time, the changing nature of work makes the physical health of America's population less relevant for participation; even with no change in average health conditional on age, successive cohorts of Americans will find it more physically possible to continue working at older ages because their occupations are decreasingly dependent on physical work capacity (Maestas and Zissimopoulos 2010). An increasing rate of self-employment and part-time bridge jobs among older workers also gives them the flexibility they desire to gradually consume more leisure as they age while retaining their participation

[16] Song and Manchester (2007) note that the impact of the test's removal is uneven across the distribution of employees' earnings. For example, the effect on incomes in lower percentiles is statistically insignificant, while for incomes in the 50th to 80th percentiles, the effect is both large and significant. This indicates that removing the earnings test only has an impact on earnings levels above a certain threshold.

[17] However, two important caveats are in order in this regard. First, to the extent that partners make retirement decisions jointly, Americans age 55–59 may be affected by changes to Social Security through the effects on their partners (Coile 2004). Second, the economic return to working in any given period includes the option value over working in future years, given the State-dependence of labor force status; those who work today are more likely to be employed in the subsequent year. As a result, choices about whether to work at younger ages are not fully independent of changes in policy affecting the return to work at higher ages.

(Karoly and Zissimopoulos 2004; Maestas and Zissimopoulos 2010; Cahill, Giandrea, and Quinn 2013).

## Policy Options to Promote Participation among Older Americans

Unlike younger age groups, the labor force participation rates of older age groups have increased substantially in recent decades, with policy changes playing an important role. Nonetheless, continued progress might be made with additional reforms. A combination of increasing the actuarial adjustment in benefits for those who delay taking Social Security benefits past normal retirement age and eliminating the earnings test for this age group effectively raised labor force participation beyond normal Social Security retirement age. While those who postpone retirement between age 62 and normal retirement age do receive an actuarial adjustment that is approximately actuarially fair, they still face an earnings test. The interaction of the earning test with the actuarial adjustment process over this age range is extremely complicated to understand. The test applies to individuals who (1) claim benefits before they reach the normal retirement age, (2) continue to work, and (3) earn above a certain limit. Individuals who meet these criteria face a temporary reduction in monthly benefits. The benefits withheld under the earnings test are deferred, not forfeited, and future payments are adjusted to be actuarially neutral. Additionally, each year after the initial claim for benefits, new income earned by the employee is reflected in a recomputation of the average indexed monthly earnings and a potential increase in the primary insurance amount.

A 2016 report by the Government Accountability Office (GAO 2016) finds widespread confusion about how the earnings test works and what purpose it serves. Survey results show that more than 70 percent of individuals aged 52–70 who were eligible for Social Security benefits incorrectly believe that the reductions in monthly benefits are permanent. These misconceptions likely lead individuals to incorrectly view the earnings test as an incentive to retire or reduce their earnings so they will stay below the test's threshold. Indeed, the earnings of many claimants cluster around this threshold, suggesting that they believe any additional earnings will be permanently lost. The GAO suggests that more and better information should be provided to individuals to help overcome these misunderstandings. But entirely eliminating the test could be more beneficial to society overall since it would increase labor supply even if it meant more people would take Social Security benefits while doing so. Since the deferred benefits are approximately actuarially fair there should not be much of an effect of eliminating the earnings test on the Social Security Trust Fund.

Additional policy changes beyond Social Security rules might serve to further encourage work at older ages. Clark and Morrill (2017) provide one

policy option: employees who reach the normal retirement age and have sufficient work history could have the option of opting out of continued benefit accrual in the Social Security system. Individuals would receive Social Security (computed through the normal retirement age) and Medicare, but they would not pay further Social Security taxes into the system or receive enhanced benefits from additional work. These employees already paid their "fair share" into the system, and they would continue to receive benefits based on their work history before the normal retirement age. Still, any changes should be weighed against opportunities for tax expenditures to affect employment probabilities of other demographics, as well as the impact of the changes on the solvency of Social Security trust funds.

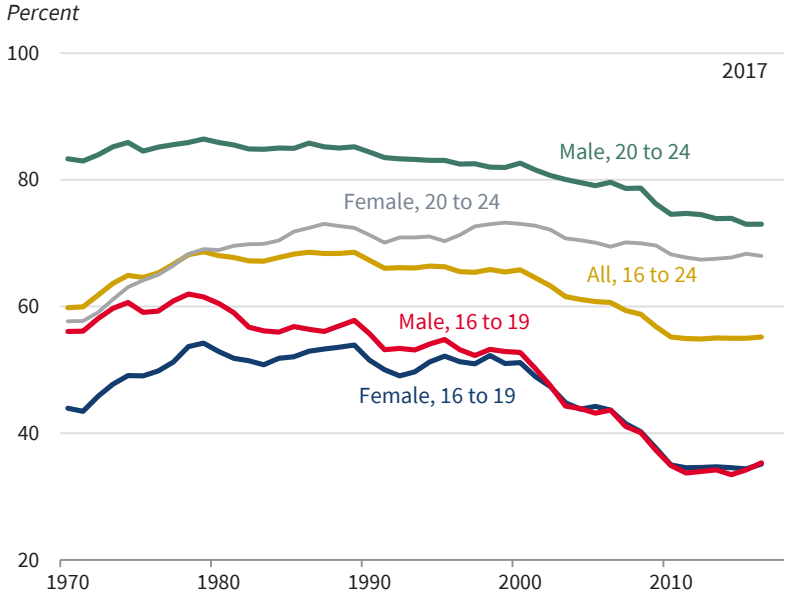
Other suggested changes could be more difficult to enact. For example, employers could be interested in retaining older employees in more limited work hours by changing their job and reducing their pay, including changes to the hourly rate, given productivity adjustments in part-time work and declining productivity at older ages. But these actions put employers in jeopardy of violating age discrimination laws, and employers could instead opt to encourage full retirement (Clark and Morrill 2017). But new research indicates that older employees who can find suitable work arrangements increasingly want to combine work with leisure at older ages (Ameriks et al. 2017). This suggests that policy nudges that induce employer-based changes to work arrangements could help encourage additional labor force participation among America's oldest employees.

## Labor Force Participation among Teenagers and Young Adults

Examining the labor force participation rates of teenagers and young adults is more nuanced than for older adults. Teens and young adults are at prime human capital-building ages. For some youth and young adults, investments in human capital via formal schooling will provide the greatest long-term return. But for others, and in particular lower-income youth, work experience may be a more valuable form of human capital development. Employment at younger ages has been shown to affect the aspirations of youth and their academic achievement, in addition to reducing their participation in violent or delinquent behavior and providing them with noncognitive skills (Duckworth et al. 2007; Heckman 2008; Lillydahl 1990; Mortimer 2010; Heller 2014; Modestino 2018; Kautz et al. 2014). For these and other reasons, early labor force attachment may serve to heighten longer-term labor market outcomes (Carr, Wright, and Brody 1996; Painter 2010; Ruhm 1997).

Compared with older workers, teens (age 16–19) and young adults (20–24) have exhibited much weaker patterns of participation relative to their participation in 1970, particularly during the past 20 years. As figure 3-15 makes

**Figure 3-15. Annual Labor Force Participation Rate for Teens and Young Adults by Sex and Age Group, 1970–2017**




Sources: Bureau of Labor Statistics; CEA calculations.

clear, the participation rates of teens and young adults (those age 16–24) rose steadily during the 1970s and remained steady through the 1980s, before experiencing a steady, 20-year decline that abated in 2010. Within this broader age group, the most dramatic declines have occurred for those age 16–19 and are particularly sharp for males; as a result, the rates for males and females in this youngest age bracket have fully converged.

Over the full post-1970 period, the labor force participation rate for young women age 20–24 has risen, although exhibiting a leveling off and a small decline during the past several years. Rates for males in this age range hovered between 84.5 and 86.4 percent from 1973 through 1989, before declining steadily to 74.1 percent in 2017.

The period from 2001 through 2017 represents a particularly sharp change in the labor force participation rates of young adults and, especially, teenagers. This period contains two substantial macroeconomic downturns which likely reduced the labor market attachment of teenagers. For young Americans without access to college, or without plans to attend college, work experience is a vital tool for human capital development, and the decline in labor force participation shown in figure 3-15 also suggests a weakening of those opportunities. But research has also indicated that the decline in participation among young Americans has been driven by noncyclical factors. The decline may reflect a crowding-out from an increased time investment in developing human capital in other ways, including extracurricular activities

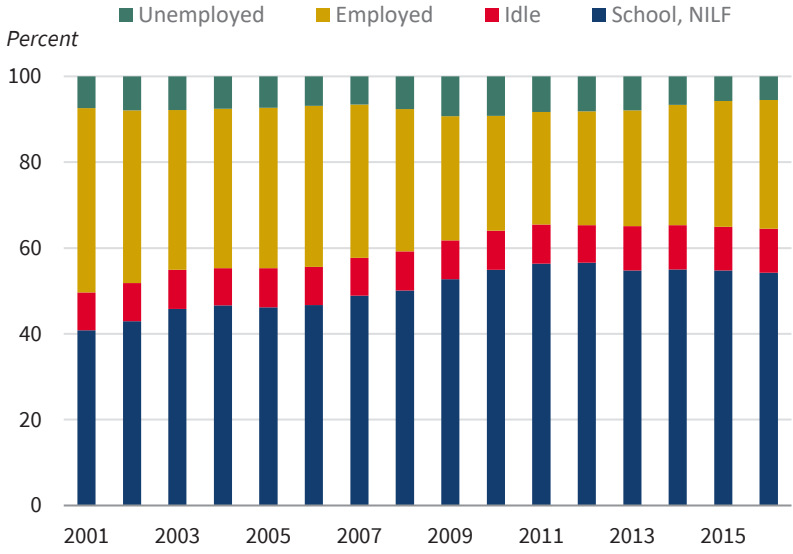
(perhaps as a means to boost college application competitiveness) while in high school and increased college-going. In the analysis below, we find that the increased school attendance of teens has offset some, but not all, of the decline in working hours, while young adults appear to have seen no net change in time devoted to work over this period.

A substantial body of literature points to the "idle rate" of teens, in particular, as a way of controlling for school enrollment when examining employment rates (Neumark 1995; Modestino 2013). If members of this age group have reduced their attachment to the formal labor market, but they have simultaneously increased their investment in secondary or postsecondary education (the "crowding-out" effect), then no change in the idle rate would be apparent. And reduced labor force participation that comes with human capital development through schooling might be an optimal outcome from the perspective of lifetime welfare and, ultimately, for economic growth. The literature finds little evidence of an increase in the idle rate of teens; reductions in their employment have for the most part coincided with increases in their school attendance. Figures 3-16 and 3-17 show these changes for teens and young adults, separately, for the period from 2001 to 2016. The figures subdivide the teen and young adult population in each year into those employed, unemployed, not in the labor force but attending school, and a category for "idle" individuals who are neither in school nor participating in the labor force. (Individuals who are employed or unemployed while in school are categorized by their employment status.) As the figures make clear, the idle group has been a relatively constant share of young adults during the past 15 years; the idle rate rose minimally from 11.2 to 11.7 percent between 2001 and 2016. Teens exhibit more evidence of increased idleness; their idle rate in 2016 was 10.2 percent, compared with 8.8 percent 15 years earlier.

However, other data indicate that a relatively constant idle rate for young adults and an uptick in the rate for teens may not provide a complete picture of the time use of these Americans and may give the false impression that teens and young adults have fully replaced time spent working with education activities. One way to see this is to chart the labor force participation rate for this age group, *conditional on school enrollment*. Figure 3-18 provides the participation rates for those enrolled in high school, in college full time, in college part time, and unenrolled. Participation probabilities conditional on enrollment have declined substantially since 2001. The decline in the participation rate among those not enrolled in school, 10.1 percentage points between 2001 and 2016, was smaller than the drop among full-time college students (10.8 percentage points) and smaller than the drop among high school students (16.4 percentage points). Even for individuals in college part time, the fall in participation was 9.0 percentage points.

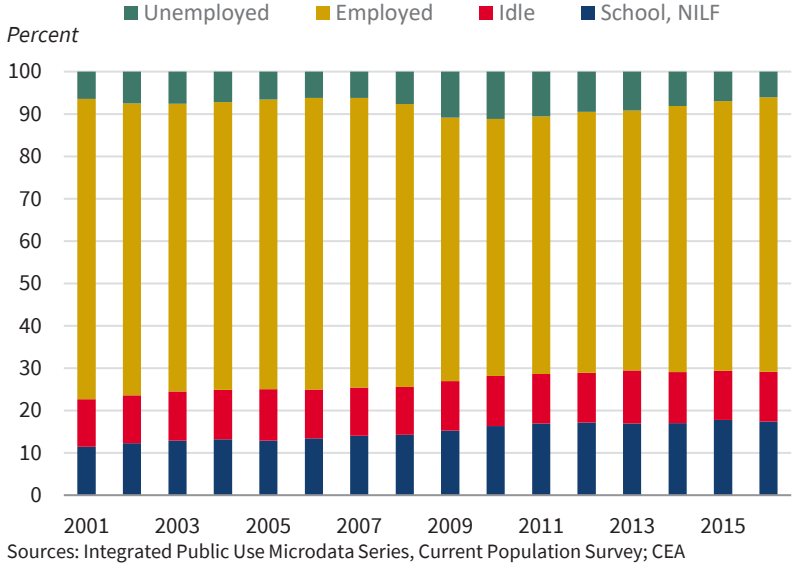
One possible way of explaining the contradiction between relatively stable "idleness," as measured in figures 3-16 and 3-17, and a decline in labor

## Figure 3-16. Employment and Enrollment Status of 16- to 19-Year-Olds, 2001–16




Sources: Integrated Public Use Microdata Series, Current Population Survey; CEA calculations.
Note: NILF means "not in labor force." Enrolled students who are labor force participants are classified by their employment status.

## Figure 3-17. Employment and Enrollment Status of 20- to 24-Year-Olds, 2001–16




Sources: Integrated Public Use Microdata Series, Current Population Survey; CEA calculations.
Note: NILF means "not in labor force." Enrolled students who are labor force participants are classified by their employment status.

force participation conditional on school enrollment, as shown in figure 3-18, is a rising intensity of education-related activities conditional on enrollment. Although a declining participation rate conditional on enrollment would, ceteris paribus, indicate an increase in idle time for teens and young adults, students may be replacing the time they would have otherwise spent doing market work with additional time spent on educational activities conditional on enrollment. If so, teens and young adults have traded one set of human capital-enhancing activities for another.

These possibilities can be explored more fully using the BLS American Time Use Survey (ATUS) to estimate the weekly time spent on specific activities in order to directly capture changes in time allocated to different purposes. The ATUS data are a valuable source for understanding how Americans spend their time, but the data set has some important limitations; the ATUS data were first collected in 2003, and the sample sizes are small. The resulting estimates are therefore somewhat volatile year-to-year, and we combine years of data to achieve higher stability (BLS 2016a, 2016b).

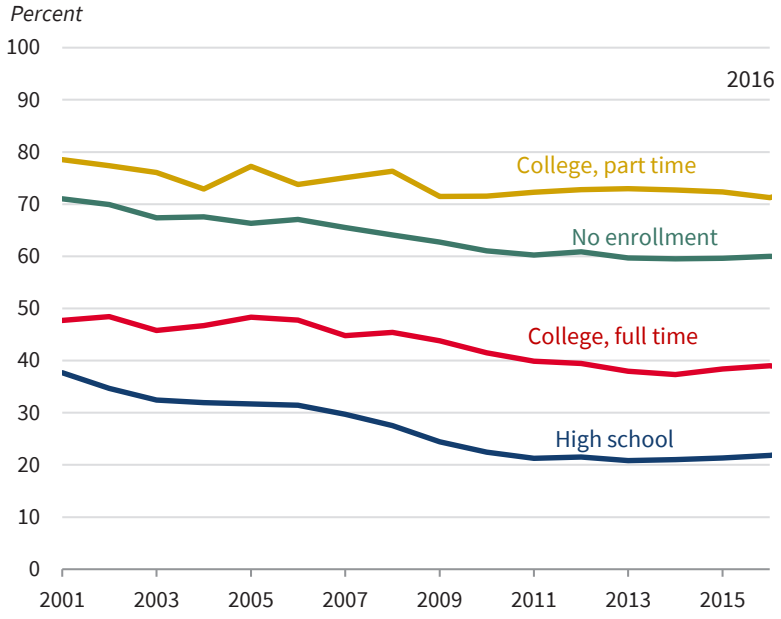
Figure 3-19 details the changes in minutes per day spent on broad activity categories between 2003–5 and 2013–15, separately for teens age 16–19 and those age 20–24. Consistent with the differences by age group apparent in figure 3-13, the reduction in time spent working is far larger for teens than for young adults, who exhibit a slight increase in time spent on work during this period. For teens, the reduction is 16.4 minutes per day over these 10 years.

For those age 20–24, the greater reductions in time use (11.8 minutes per day) came in the "caring for others" category, which includes taking care of family members such as children. This decline is consistent with declining birthrates for females in this age range (Martin et al. 2017).

Both groups experienced declines in time spent on household and leisure activities, and teens, in particular, reduced their time spent on organizational, social, and religious activities. These minutes were replaced primarily with personal care activities, which include sleeping and grooming, and, to a lesser extent, with "other activities" (the set of activities that BLS does not specify elsewhere), eating and drinking, and educational activities. Teens and young adults dedicated an additional 6.6 minutes and 3.7 minutes to educational activities, respectively, over these 10 years.

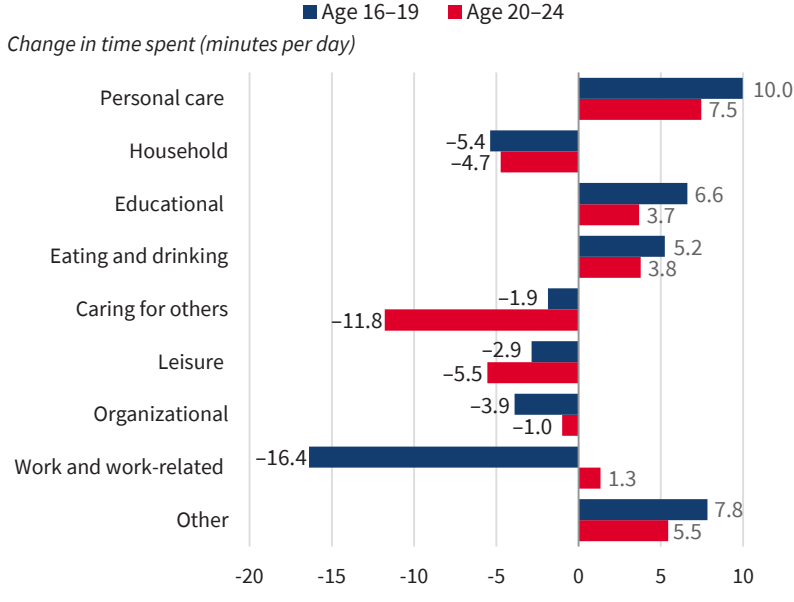
Thus, between 2003–5 and 2013–15, teens substantially reduced the time they spent working and reallocated about 40 percent of that time to education, while the remainder has been dedicated to activities perhaps less critical for longer-term human capital development. Some caution is warranted here as increased time spent in personal care and other activities may well be productive in ways difficult to discern from the broad categorizations in these data and without knowing more about individual circumstances. During the same period, the population age 20–24 does appear to have made a net time investment in educational activities, even without a reduction in time spent

**Figure 3-18. Annual Labor Force Participation Rate for 16- to 19-Year-Olds, by Enrollment Status, 2001–16**




Source: Current Population Survey; CEA calculations.

**Figure 3-19. Change in Time Spent on Types of Activities for People Age 16 to 19 and 20 to 24 Years, 2003–5 to 2013–15**




Sources: American Time Use Survey; CEA calculations.
Note: Organizational activities include those that are social or religious.

on work or work-related activities. This gain has been largely at the expense of time spent on leisure and caring for others in the household. The results for all young adults age 20–24, shown in figure 3-19, stand in contrast with those for males age 21–30 who are not enrolled full time in school, as documented by Aguiar and others (2017), who find that leisure time has grown for this subset of the population, and especially for video game playing, a subcategory of leisure time. The ATUS data do not allow for an easy identification of time spent on social media or surfing the Internet.

## Policy Options to Promote Participation among Teenagers and Young Adults

Understanding the time use of teenagers and young adults is critical for advancing policy proposals that will encourage this population to become attached to the labor market. Declining work hours that have been replaced with other activities promoting human capital development signify a short-term loss in labor force participation that will lead to longer-term gains in employee productivity and likely reflect net positive trade-offs, both for individuals and the U.S. economy. Such investments should be encouraged. The ATUS data detailed above indicate that young adults are making a net investment in education, even without reducing time spent working. But for teens, where sharper drops in participation since 2001 are apparent, the evidence indicates a rising level of time spent in activities outside of education and work. These patterns are apparent across the distribution of parental income, indicating that labor force attachment is declining among populations where the benefits are likely highest.

An additional policy question is whether to encourage teens to increase their labor force participation or to nudge them to reallocate the recent decline in work hours towards formal schooling instead. But some policy levers may bridge the gap between these two competing options. In particular, vocational and technical education can smooth young people's transition into the labor force by providing work experiences while they pursue secondary education. Since 1984, the Carl D. Perkins Career and Technical Education Act has been the main Federal program to encourage practical work training among secondary and postsecondary students; 60 percent of the total funding provided under the act goes to high school programs.

Research indicates that hybrid approaches combining formal learning and work experience may be even more valuable for students, although the evidence base is still thin. In particular, apprenticeships and work-based learning among secondary students may provide a strong boost to future labor market outcomes (Neumark and Rothstein 2005; Lerman 2014). In contrast to systems in other countries, the United States has few formal partnerships between secondary institutions and employers to promote apprenticeships

or other work-based learning, although interest in these programs has been growing. Perkins Act funds could be reallocated to develop these relationships, promoting employment for teens both while in high school and upon graduation.

## Labor Force Participation among Prime-Age Adults

Finally, we turn to the decline in the labor force participation of prime-age workers, a topic which has already received much empirical attention. The decline in the participation rate for men is apparent in figure 3-20, where the participation rate for each year is again indexed to the rate in 1970. Between 1970 and 2017, participation rates fell almost continuously and were at 91.6 percent of their 1970 level for men age 45–54, 93.6 percent for men age 35–44 and 92.1 percent for men age 25–34.

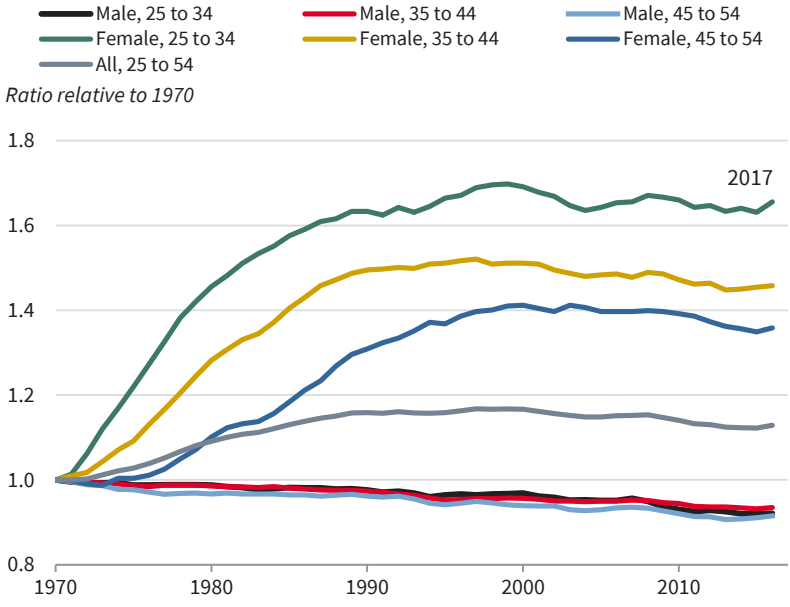
In 1970, women had not yet completed their full integration into the labor force, and the labor force participation rate for all three of their age groups rose steadily, peaking in 1997 for women age 35–44, in 1999 for women age 25–34, and in 2000 for women 45–54, before commencing a multiyear fall. The declines in participation for women age 35–44 and 45–54 since 2000 have been steeper than for men in these age groups.

The weighted sum of the six age/sex trends shown in figure 3-20 produces the aggregate trend for all prime-aged workers over this period. The increase in the labor force participation of women more than offset the decline in the labor force participation of men from 1970 to approximately 1990 increasing overall labor force participation rates. For the next decade the increased in women's participation approximately offset the decline for men, resulting in constant labor force participation rates. But since then all age/sex labor force participation groups are below their 2000 levels, producing a fall in the prime-age participation rate over the past 17 years.

Because prime-age workers are historically the most productive age group, and the most likely to be employed, much attention has been paid to these patterns, especially regarding the causes of so-called missing men. But despite a large body of literature on this topic, considerable uncertainty remains about the underlying causes for these trends or the extent to which numerous factors have interacted. More important, there is little consensus regarding the policy remedies that could be pursued to abate this participation decline.

In this section, we present a brief review of the literature on the causes of the decline in labor force participation of prime-age workers, and refer readers to two previous CEA white papers related to this topic (CEA 2014, 2016). Our review indicates that the reduction in participation is likely multifactorial, including changes in government policy that have served to undermine labor

**Figure 3-20. Annual Labor Force Participation Rate for Prime-Age Workers by Age and Sex, Relative to 1970, 1970–2017**




Sources: Bureau of Labor Statistics; CEA calculations.

supply, along with shifts in labor demand that have reduced labor market returns for low-skilled workers. The particular employment challenges of military spouses are explained in box 3-4.

## *Demand-Side Factors*

Much attention has been paid to the hypothesis that there has been a fundamental change in the U.S. labor market via a reduction in the demand for workers with fewer years of schooling, resulting in a decline in their labor force participation (Autor and Duggan 2003; Juhn and Potter 2006; Daly, Hobijn, and Kwok 2010). Trade and technology may be partially responsible for this decreased demand in certain occupations, as discussed more fully in chapter 5. The relative contribution of trade and automation or technology to the decline in manufacturing employment is the subject of continued debate, but the net effect has been reduced demand for lower-skilled workers and a widening of the skill and education earnings gaps. The declining demand for less-skilled workers is apparent in lower wages, and several studies cite the decline or stagnation of wages for less-skilled workers as a significant factor in the decline in the labor force participation rate of men (CEA 2016; Juhn, Murphy, and Topel 2002; Blank and Shierholz 2006; Krause and Sawhill 2017; Daly, Hobijn, and Kwok 2010). Fifty years ago, participation rates for prime-age workers with

### Box 3-4. Military Spouses in the Labor Market

Spouses of Americans who serve in the military face particular challenges in the labor market. In 2012, more than half of active duty service members were married, representing approximately 725,000 military spouses (GAO 2012). Although some of these spouses live abroad, the vast majority are participants or potential participants in the U.S. labor market; 92 percent are female (U.S. Chamber of Commerce Foundation 2017).

With military service comes frequent geographic relocation, and military families typically move every two to three years. With each move, military spouses become "trailing" spouses, those whose labor market engagement is constrained by the geographic mandates of their military spouse. Trailing spouses must reset their careers in each new location, or find employment which facilitates remote work, and employers may view military spouses as suboptimal hires due to turnover risk, even when these spouses are otherwise attractive job candidates. Alternatively, employers may agree to employ military spouses, but at a lower wage, in reflection of higher turnover expectations.

A survey conducted by the U.S. Chamber of Commerce Foundation indicates that military spouses experience both higher rates of unemployment and lower wages than their nonmilitary peers. In 2017, 16 percent of military spouses in the labor market were unemployed, more than three times the rate for all American labor force participants. Unemployment costs appear to be even higher for younger spouses, and an Institute for Veterans and Military Families report found that 18- to 24-year-old military spouses experienced unemployment rates of 30.3 percent in 2012. Adjustments for demographic characteristics reduce, but do not eliminate, the employment gaps between military spouses and other labor force participants (Lim and Schulker 2010). Evidence from Meadows and others (2016) indicates that military spouses earned substantially less than other labor market participants with similar characteristics.

The Trump Administration has made a priority of supporting those who serve both in and out of uniform. The Department of Defense houses a number of programs charged with facilitating the gainful, rewarding employment of military spouses. Military Spouse Preference provides employment preference for spouses of active duty military members of the U.S. Armed Forces (including the U.S. Coast Guard and full-time Reserve or National Guard) who are relocating to accompany their military sponsor on a Permanent Change of Station move. Relocating military spouses are also eligible for noncompetitive appointment to positions within the Department of Defense or other Federal agencies. Military spouses also have access to individual career coaches at no charge; to scholarships that provide eligible junior spouses with up to $4,000 to be utilized for the pursuit of licenses; to certificates or an associate degree in portable career fields; and the Military Spouse Employment

Partnership, which includes more than 360 companies and businesses that have committed to recruiting, hiring, and retaining military spouses.

Military spouses are more likely than other Americans to find themselves ensnared in this country's patchwork of State-level occupational licensing laws. Occupational licensing refers to mechanisms to impose minimum standards (often educational standards) for entry and the ability to continue working in an occupation. In 2016, 22.3 percent of all employed Americans held a job-related government license, according to the most recent survey from the BLS (2017b). About 35 percent of military spouses in the labor force work in professions that require State licenses or certification, and over 26 percent of military spouses work in healthcare or education, the most licensed industries. Variation in requirements between States raises the cost of cross-State mobility for workers in these occupations, and military spouses are roughly 7 times more likely to move across State lines than civilian spouses are. State-level licensing requirements imply military spouses face relicensing at every interstate move.

Progress is being made on these issues. The State Liaison Office in the Department of Defense works closely with many organizations, including the Council of State Governments, to promote license portability to facilitate the ability of military spouses to gain employment in their new State of residence for those professions that require licensing to practice a profession. The Administration is currently pursuing an Executive Order to strengthen this appointment authority and hold Federal departments and agencies accountable to exercise it to the maximum extent possible.

college degrees and high school degrees or less were similar; but there is now an 11-percentage-point gap in their participation rates.

Although the narrative of declining demand has more frequently been applied to "missing men," it is also consistent with the labor force participation of women starting in the late 1990s. According to the BLS, the female labor force participation rate is higher among those with more education; between 2000 and 2015, the participation rates of women who did not attend college fell by 7.9 percentage points, to 49.1 percent, compared with a decline of 0.6 percentage point, to 82.3 percent, for those with at least a bachelor's degree. Box 3-5 gives more detail on the participation of America's mothers.

## *Supply-Side Factors*

The decline in labor force participation resulting from low-skilled employees dropping out of the workforce in response to falling labor demand is important, but this is an insufficient explanation for the full participation rate decline. Coglianese (2016) summarizes the contribution of reduced labor demand for men, in particular, finding that about 50 percent of the decline in the male

### Box 3-5. Paid Family Leave and the Challenges of Working Families

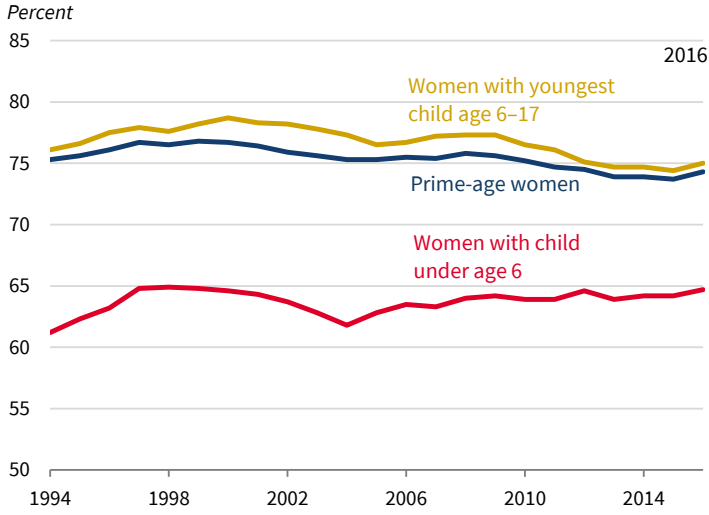
An increasing number of children in the United States live in households where both parents are employed, according to the BLS. American families often struggle to balance the demands of employment schedules against the time requirements of children, with women, in particular, experiencing dips in labor force participation during prime childbearing years. Between 2014 and 2016, labor force participation rates for young women peaked at age 28, and 74.9 percent of women of that age were in the labor force in those three years. But for women just four years older at the time, participation rates were 2.1 percentage points lower, likely reflecting childbearing; the average age of a first-time American mother is 26 (Martin et al. 2017). Declining rates of participation in those prime childbearing years eventually reverse, and by age 40, when children are older, 75.0 percent of women were labor force participants. The 30s decade employment dip is apparent in data from at least 1994, and the magnitude has remained relatively unchanged over this period. (There is no corresponding dip in male participation.)

Falling labor force participation rates for women in their 30s partially reflect the intense time and care needs of children. Data on child time coverage from the 2012 National Survey of Early Care and Education for 2012 indicate that between 63 and 70 percent of childcare for newborns to 4-year-olds in the United States was provided by parents in that year, with two-parent families and low-income families displaying higher rates of parental time coverage than other groups.

Parental time pressures are particularly acute in the first few weeks and years following a child's birth or adoption, as shown in figure 3-iii. In 2016, the labor force participation rate for women with a child under 6 was more than 10 percentage points lower than the rate for women whose youngest child was between 6 and 17. This latter group of mothers, which includes mothers of all ages, had participation rates remarkably similar to the rate for all prime-age women. The participation rate of women with young children has been remarkably steady since roughly 1997, varying between 62.8 and 64.9 percent for the entire period with the exception of a dip to 61.8 percent in 2004. The labor supply effects of young children for women are not apparent for men. Men with young children (under 6) have higher participation rates than those with a youngest child between 6 and 17, and higher rates than all prime-aged men.

In recognition of the high time costs of young children, the Family Medical Leave Act of 1993 gives American workers the right to 12 weeks of unpaid parental leave, with exceptions for worker tenure, employer size, and highly compensated individuals. The BLS estimates that 88 percent of Americans had access to unpaid family leave in 2016. Paid leave is rarer. Only 15 percent of U.S. workers had access in 2016, and workers in the highest income quartile were nearly four times more likely to have access to paid parental leave than workers in the lowest income quartile (BLS 2017a). For the

**Figure 3-iii. Annual Labor Force Participation Rates for Women, by Age of Youngest Child, 1994–2016**




Source: Bureau of Labor Statistics.
Note: Prime-age women (25 to 54) are used as a comparison group. Women with children under 18, however, may not be prime-age.

workers themselves and their children, paid family leave has several benefits, including higher labor force attachment after the first year of a child's life and higher rates of breastfeeding, which has been shown to be beneficial for child development (Rossin-Slater, Ruhm, and Waldfogel 2013; Huang and Yang 2015). These policies also assist parents in smoothing income over the postnatal weeks; for low-income families, this smoothing may carry benefits for all children in the household (Isaacs, Healy, and Peters 2017). Employers, for their part, must cover the costs of worker pay and benefits over the leave period, as well as perhaps replacing those absent workers, costs which may be easier for larger business to absorb.

The Trump Administration is committed to working with Congress to enact a working family agenda, including policies that would extend paid family leave to more American workers. Such an effort would have multiple benefits, including encouraging the labor force attachment of parents in the years following the birth of a child.

labor force participation rates is accounted for by low-skilled men, but only 20 to 30 percent of this fall is attributed to fewer market opportunities for low-skilled labor. Rather, the same study highlights a rising return to leisure time for nonparticipating men. The next subsections examine possible contributors

to higher returns to leisure, along with other supply-side factors depressing the labor supply among prime-age workers.

## *Government Transfers*

As discussed earlier in this chapter, taxes and government transfers played an important role in sheltering the median person's household equivalized income from losses in market income during and after the Great Recession. The increased generosity of government transfers during economic downturns is an important source of household income smoothing over business cycles—but in the face of diminishing utility from income, government transfers also serve to reduce the incentive to work, and one possible explanation for the fall in labor force participation of prime-age workers is a rise in the value of government transfers available for those who are not in the labor force.

Mulligan (2015) finds evidence of a negative relationship between government tax and transfer programs and aggregate labor supply. Mulligan documents an increase in both earnings and employment taxes since 2007, including the effects of expanded unemployment benefits in 2008 and 2009 and the Affordable Care Act's employer penalty. For example, the level of benefits offered through food stamps (SNAP) were temporarily increased as eligibility requirements were relaxed and legislative changes to the Unemployment Insurance program allowed for an increased duration of benefits and an increase in the overall level of benefits while States were encouraged to adopt broader eligibility requirements. Other social safety net programs, such as Medicaid, also adopted more relaxed eligibility rules and became more generous beginning in 2007. Mulligan (2012) finds that the expanded safety net substantially increased the marginal tax on work, not only because some of these programs required new employer-provided benefits (like the Affordable Care Act) but also because they increased the tradeoff workers faced when transitioning from the social safety net into employment. Mulligan concludes that these expansions caused at least half the drop in hours worked between 2007 and 2009, effects concentrated at the lower end of the skill distribution.

Moffitt (2015) presents a counterpoint to Mulligan's analysis, arguing that the marginal tax rates faced by workers moving from the social safety net to employment in Mulligan's analysis are overestimated and that the actual rates imply much smaller reductions in labor supply as a result. Similarly, Moffitt's review of the literature on the labor supply effects of individual programs suggest much weaker labor supply responses to these changes, although Moffitt acknowledges that these effects are generally estimated outside recession periods.

Notably, other authors have highlighted the success of some transfer programs, including the Earned Income Tax Credit (EITC), in encouraging work among single parents by subsidizing employment (Meyer and Rosenbaum 2001; Eissa and Liebman 1996; Grogger 2003). Still, the program appears

to have served as a disincentive to work for married couples (Eissa and Williamson 2004). In addition, while a study by Barnichon and Figura (2015) on the impact of "welfare-to-work" reforms on low-income women during the 1990s—for example, the EITC's expansion in 1993 and the introduction of the Temporary Assistance for Needy Families program in 1996 to replace Aid to Families with Dependent Children (AFDC)—finds evidence of increased labor force attachment for some workers following the reforms, they show that these reforms lowered the desire to work for some nonparticipants. This pattern may reflect a bifurcation among previous AFDC recipients: Those who were closer to employment responded to the enhanced work requirements and the EITC by moving into employment; but those previous AFDC recipients who faced higher employment hurdles moved into disability receipt—although the authors do not test for this directly.

There is somewhat more of a consensus about the depressive effects of Social Security Disability Insurance (SSDI) on labor force participation among prime-age workers (Maestas, Mullen, and Strand 2013; Autor and Duggan 2003; Autor et al. 2016; Gokhale 2014; Juhn, Murphy, and Topel 2002; French and Song 2014). The SSDI incidence rate for all age groups, including prime-age men, has increased during the last 50 years, and this increase cannot be fully explained by an aging workforce or other demographic factors. Autor and others (2015) identify two major channels through which SSDI reduces labor force participation rates: benefit receipt and long application times. SSDI applicants are not allowed to work while receiving SSDI benefits or waiting for their application to process. Applicants who are denied benefits endure wait times for the applications and appeals processes averaging 26 months. Upon denial, their return to the labor force is hampered by atrophied human capital and the negative signal to employers of 6 months of unemployment. At the peak of the Great Recession, approximately 2.3 percent of the prime-age population applied for SSDI. Autor and others (2015) estimate that the depressive effects of SSDI on employment range from 3 percent in the short run to 6.5 percent in the long run—*conditional on application*. The depressive effects of SSDI on labor force participation are particularly acute for prime-age workers, and Liebman (2015) estimates that reforms to reduce application waiting time for SSDI could have a benefit-to-cost ratio of 10 to 1.

## *Physical and Mental Health*

Another explanation for the decline in prime-age participation is deteriorating health. A recent survey finds that taking pain medication and, presumably, physical pain, is highly prevalent among prime-age individuals not in the labor force (Krueger 2017). Prescription pain medication is taken regularly by 44 percent of the prime-age men not in the labor force, compared with 20 percent of those employed, and Krueger estimates that 40 percent of those men not participating in the labor force report that the pain they experience prevents

them from obtaining a job for which they would be qualified. For prime-age women, 35 percent of those not in the labor force report taking prescription pain medication, as opposed to 26 percent of those who are employed. These data imply that pain and physical limitations may be a serious barrier to work for both genders.

In addition to physical pain, mental health issues, such as depression and stress, have become increasingly common. Case and Deaton (2015, 2017) find that midlife mortality rates for white, prime-age males are rising, in conjunction with alcoholism, drug addiction, depression, and suicide. The authors do not indicate a direct link between decreased mental health and labor market inactivity; however, it may be beneficial to further explore these trends and possible relationships.

Beyond painkillers, several studies have concluded that the opioid epidemic, in particular, is related to declining prime-age labor force participation, particularly for men (Mericle 2017). Krueger (2017) explores the relationship between prescription opioids and participation rates for prime-age men and women using 2015 county-level opioid prescription rates and county-level labor force data from 1999 to 2001 and 2014 to 2016. He finds that prescription opioid consumption can account for 20 percent of the decline in participation for men and 25 percent of the decline for women. Anecdotally, employers report difficulty finding job candidates who can successfully pass a drug test, but data from employers on this topic are not readily available. According to information from the drug-testing company Quest Diagnostics (2016), between 2011 and 2015, the positivity testing rate for heroin increased 146 percent for the general U.S. workforce. For safety-sensitive employees facing mandatory Federal drug testing, positivity testing for heroin increased 84 percent over this period.

Ultimately, it is unclear to what extent Americans' opioid abuse, or prescription pain medication habits, causes them to exit the labor force (Mericle 2017). It is possible that other characteristics of these drug users drive their lower labor force participation. Moreover, drug abuse leads to other barriers to work, such as atrophied skills and other social issues. As a result, any estimate of the number of Americans who are absent from the labor force due to drug addiction is not the same as an estimate of the number of Americans who might find work if the illicit drug epidemic were to be fully curtailed. The follow-on effects of abuse would remain as barriers to labor force entry. That said, a curtailment of the illicit drug problem would reduce the flow of individuals into addiction, alleviating the long-term drag on labor force participation even if short-run effects persist.

## *Geographic Immobility*

High levels of unemployment concentrated in particular locations may amplify exit from the labor force, especially when workers are unwilling or unable to

move to a location with a stronger job market. People move to improve their life circumstances, but the share of Americans moving has been declining, and is currently at its lowest value on record (figure 3-21).

In addition to family and social connections, deterrents to moving include (1) search time, (2) State-specific occupational licensing requirements, (3) local land use regulations that raise housing costs in places with the greatest potential growth, and (4) homeowners' limited ability to sell their homes. Such obstacles to finding better employment opportunities, coupled with high local unemployment rates, may lead employees to ultimately exit the workforce. More research is needed to determine the direct relationship between geographic immobility and labor force participation, specifically exploring whether obstacles to moving have increased over time, and how prime-age workers in particular have been affected.

Emerging technologies and investments that allow workers to access job opportunities without geographic relocation—including expanded access to broadband technology, telecommuting, Internet-based employment, and falling commuting times—may make geographic immobility less relevant for labor force participation.

### *Alternative Uses of Time*

Another consideration for the decline in labor force participation, particularly for men, is that people may be choosing to spend more of their time outside the workforce, perhaps substituting their spouse's income for their own. Juhn and Potter (2006) find that this is an unlikely scenario to explain the labor force participation changes for prime-age men. Data on time spent doing housework show that these increases for men have been relatively small, while labor force losses are greater for single men or men whose wives are not employed. For example, participation declined nearly 5 percentage points from 1969 to 2004 for single men and 7.7 percentage points for men with nonworking wives. Conversely, men with working wives only experienced a drop of 3.4 percentage points during the same period.

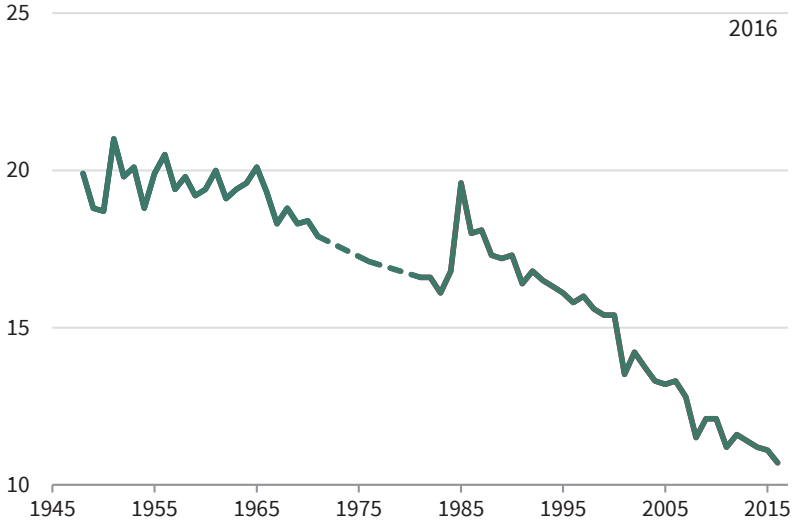
## Policy Options to Promote Participation among Prime-Age Workers

Given the myriad explanations for the decline in labor force participation for prime-age workers, there is no ready consensus on the policies most likely to affect change. But five main options are likely to garner more consensus than others.

First, the decline in demand for workers with fewer years of schooling should be met with a concerted effort to aid workers in their retraining efforts and to increase demand for these workers. Boosts to infrastructure spending would shore up demand for workers without college degrees and would likely

**Figure 3-21. Share of U.S. Residents Who Moved during the Past Year, 1947–2016**

*Percentage of U.S. residents*




Sources: U.S. Census Bureau; Current Population Survey.
Note: The one-year geographic mobility question was not asked between 1972 through 1975 and 1977 to 1980, so the value is interpolated.

result in higher wages for workers in the skilled trades, encouraging more entry into these occupations. The Administration's focus on apprenticeships is one method to help bridge the gap between the skills needed by expanded infrastructure activity and the skills of today's unemployed and labor force nonparticipants. Ensuring government financial support can be used for short-term retraining programs (programs that do not lead to a two- or four-year degree) may be another way to facilitate the re-entry of workers into employment. Given weak performance evaluations of Workforce Investment Act programs in recent years, however, demonstrated effectiveness of particular programs and institutions should be a precursor to receive further Federal support.

Second, the geographic immobility of workers is a conundrum with no easy solution. Encouraging internal migration is one possible tactic; but there has been little research on how the Federal government might do so. In addition, encouraging internal migration is likely to exacerbate the struggles of distressed communities. Indeed, the low proclivity of Americans to migrate points to the need for local economic development and labor market connectedness without relying on workers to change their residence. Place-specific private investment incentives, such as those proposed by Bernstein and Hassett (2015), would resolve issues of geographically concentrated labor force nonparticipation without requiring migration. The newly passed Tax Cuts and Jobs Act (TCJA) is a positive step in this direction. The TCJA allows would-be

for-profit investors to defer capital gains recognition, and the associated tax, from the sale of an appreciated asset if they invest the gains in Opportunity Zones located in "low-income community" census tracts. State governors have 90 days after the enactment of TCJA to designate their State's Opportunity Zones. Similarly, well-designed infrastructure investments that enable workers to connect with jobs without moving would likely facilitate the reentry of some workers to the labor force.

Third, curbing the opioid crisis is of critical importance for ensuring a stable or growing employment rate among prime-age workers, and curtailing the supply of these substances would reduce addiction rates among Americans. Even with a curtailment of the illicit drug flow into the United States, individuals who are currently out of the labor force because of opioid addiction may struggle to reenter without additional investments in skill upgrading. Still, progress on the opioid addiction front might stem the tide of workers into nonparticipation and, over time, prop up the participation rate.

Fourth, there is likely a substantial opportunity to modify government transfers to more directly encourage, rather than discourage, work. One example of this is SSDI. Maestas, Mullen, and Strand (2013) show that SSDI applicants with similar profiles but whose applications are rejected by a "tough" evaluator are significantly more like to return to the labor force than are those whose applications are accepted by an "easy" evaluator, and who thus go onto the SSDI rolls. European countries have long since recognized that movement onto their long-term disability rolls should be a last resort, and thus have substantially reduced their disability beneficiary rates using "work first" reforms. Such reforms have raised eligibility standards and have increased the liability of employers for the disability insurance uptake of their former workers. These reforms have been successfully implemented, especially in Germany and the Netherlands, where the combination of tighter eligibility requirements and cost sharing with private employers has resulted in lower disability insurance uptake (Burkhauser and Daly 2011; Burkhauser, Daly, and Ziebarth 2016).

Fifth and finally, policies that encourage business formation and capital spending could, if successful, drive up the demand for labor and wages and increase labor force participation (CEA 2017). These policies are discussed in chapter 1.

## Conclusion

Headline annual economic growth in real GDP and per capita real GDP during the current business cycle has been the slowest of all post–World War II business cycles. This unprecedentedly slow recovery, especially for middle-class labor incomes, is perhaps the primary economic problem facing our Nation. A marked increase in net government transfers offset to some degree the decline

in the median American's household income. But without substantial increases in economic growth, this level of redistribution is unlikely to be sustainable.

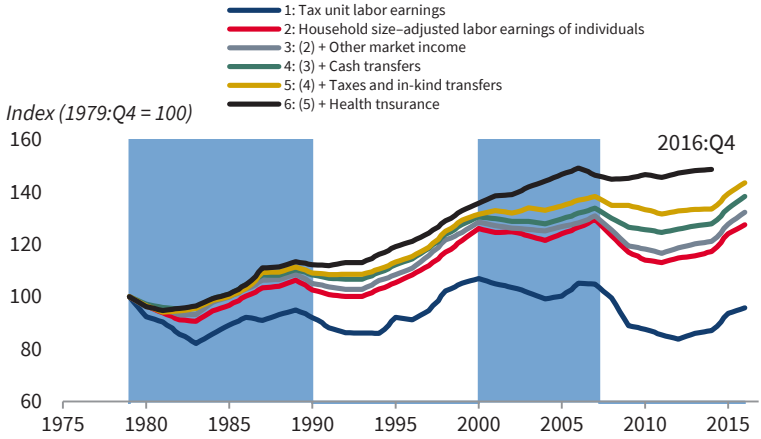
Clearly, the best possible outcome is for labor incomes to return to normal levels of growth. Public policies, as discussed in other chapters, have focused on increasing economic growth—and with it, increasing labor demand. We have argued in this chapter that policies to increase aggregate supply are also necessary to set the United States on a path of higher employment growth. Although demographic factors can account for part of the decline in overall labor force participation rates, they cannot account for it all, and we have shown that demography need not be destiny. Accordingly, a combination of policies and economic conditions that raise labor force participation rates can materially affect overall economic growth. As a simple benchmark, a return of the prime-age participation rate to the rate apparent in 2007 (still well below the rate apparent in 2000) would return about 1.7 million U.S. workers to the labor force over 10 years and raise the overall participation rate by 0.065 percentage point a year, resulting in an increase of 0.1 percentage point a year in the rate of GDP growth.

Because past public policies are responsible for some of the drag on employment growth, changes in these policies can be important ways to get workers off the sidelines and again fully participating in our economy and enjoying its benefits. A coordinated effort encouraging people to do this could significantly reinforce the positive effects of labor demand policies.

## Appendix

As discussed in footnote 8 above, our results for income are not sensitive to the choice of price deflator. Here, the PCE chain price index is used in figure 3-22 in lieu of the CPI-U-RS in figure 3-5. The main conclusions from figure 3-5 are not affected under this alternative measure, despite the fact that the PCE index is a chain-type index while the CPI is Laspeyres index, which systematically overstates inflation and therefore would understate real income growth.

**Figure 3-22. Alternative Measures of Trends in Real Median Income, Deflated Using PCE Chain Price Index, 1979–2016**




Sources: National Bureau of Economic Research (NBER); Elwell and Burkhauser (2017); Bureau of Labor Statistics (BLS), Current Population Survey; BLS, Consumer Price Index; Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Shading denotes NBER business cycle. CEA collapsed the double-dip recessions of 1953:Q2–1957:Q3 and 1957:Q3–1960:Q2, as well as 1980:Q1–1980:Q3 and 1981:Q3–1982:Q4, into single peak-trough-peak periods of the late 1950s and 1980s, respectively. Annual data are linearly interpolated. The six measures of nominal median income are deflated using the PCE Chain Price Index.