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Employment, Education, and the Time Use of American Youth

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MISSION STATEMENT

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments. We believe that today's increasingly competitive global economy requires public policy ideas commensurate with the challenges of the 21st century. Our strategy calls for combining increased public investments in key growth-enhancing areas, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first treasury secretary, who laid the foundation for the modern American economy. Consistent with the guiding principles of the Project, Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces.

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BROOKINGS

Abstract

The labor force participation rate is a key measure of economic health. While the decline in prime-age workers' labor force participation receives much attention from policymakers, it is far outpaced by the decline in participation among *younger* workers. In this analysis we show how changing employment and school enrollment patterns have contributed to declining labor force participation among youth, aged 16 to 24. Youth today are not disengaged; rather, declines in youth labor force participation primarily reflect a long-term but accelerating shift toward schooling and spending more time on education-related activities.

Introduction

For output and living standards to rise over time, either people need to work more hours or people need to be more productive while working. Both these conditions, however, presuppose that people are working. In this economic analysis we examine how the labor force participation of youth (ages 16–24) has changed in the United States in recent decades.[1]

Researchers and policymakers have often focused on prime-age workers (ages 25–54) because this group is generally neither in school nor retired and is therefore most likely to be employed. The aging of the workforce does not dramatically affect the likelihood that members of this group work, making the participation of prime-age workers a useful summary statistic of the health of the labor market. Yet the labor force participation patterns of those younger than this group, including teens (ages 16–19) and young adults (ages 20–24), as well as those older (55 and over) also help explain labor force growth. In previous analyses, The Hamilton Project has explored trends related to teen and senior employment, finding that older workers have partially offset declines in participation for younger workers and that declines in teen employment have been quite large in the past few decades (Bauer, Liu, and Shambaugh 2019; Bauer et al. 2019).

Labor force participation for youth is not an unalloyed good, in that there is generally a trade-off between work and schooling. In other words, *not working* often allows for larger investments in a person's future. In this analysis we show how changing employment and school enrollment patterns have contributed to declining youth labor force participation. Our analysis suggests that this decline is a response to changing incentives, with both high school and college-age youth investing more heavily in their own human capital. Youth labor force participation declined from 2000 to 2018 as youth switched from only employment to only education, and as youth became less likely to work while in school.

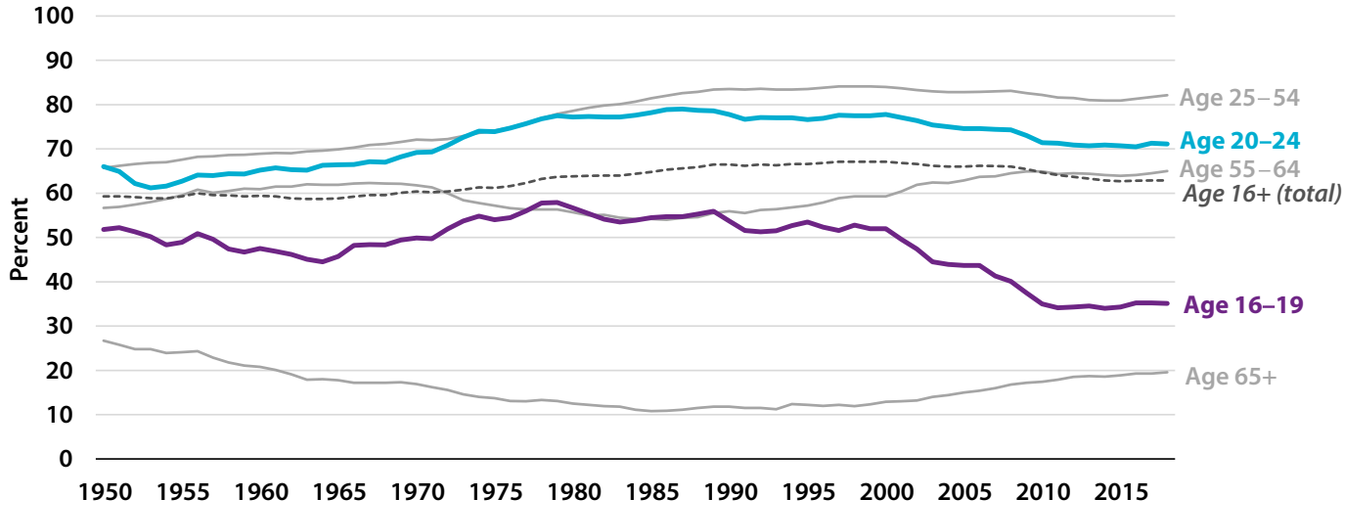
To explore shifts in employment and education, we also analyze how youth are spending their time by comparing time-allocation for those who are participating in the labor force, enrolled in school, both working and in school, or disengaged. We also show how youth time use has changed from the mid-1990s to today.

The trade-offs between work and school are clear. Teens and young adults enrolled in school, participating in the labor force, or both are all engaged in these activities (plus nonmarket labor) roughly 40 hours a week, with those working while in school spending less time on education than those in school alone. For the relatively small share (10.0 percent of teens and 11.7 percent of young adults in 2013–18) neither working nor in school, males have much more leisure time, but females—especially female young adults—engage in as much nonmarket labor (like family care and housework) as those in the labor force spend on paid labor.

Understanding these labor market developments is necessary for assessing the extent to which policymakers should be concerned about declining youth labor force participation, as well as what the appropriate public policy response might be. The Hamilton Project has contributed policy proposals related to both increasing human capital through education and training and to improving labor market participation and outcomes, in both cases aiming to support broadly shared economic growth. When it comes to youth, it is important to accommodate the intensified human capital investments that—while causing a temporary reduction in labor force participation—can have valuable long-term payoffs for individuals and the economy.

FIGURE 1.

Labor Force Participation Rate by Age Group, 1950–2018



Source: Bureau of Labor Statistics 1950–2018 (Current Population Survey).

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Trends in Youth Labor Force Participation and School Enrollment

The labor force participation rate (LFPR) for youth has always been lower than that of prime-age workers. This is evident in figure 1, which shows trends in labor force participation from 1950 to 2018 by age group. More striking is the plunge in labor force participation by teens—and to a lesser extent, young adults—from 2000 to 2010. For all the attention that the decline in the prime-age participation rate receives, it is dwarfed by these drops among younger populations.

Teen LFPR peaked in 1979 and trended down slowly over the next two decades, declining 5.9 percentage points through 2000. Since 2000 teen labor force participation has dropped 16.9 percentage points. Today, just over one-third of teens are labor force participants. The largest contribution to this decline is a decrease in the share of youth simultaneously working and in school, both during the academic year and during the summer (Bauer et al. 2019).

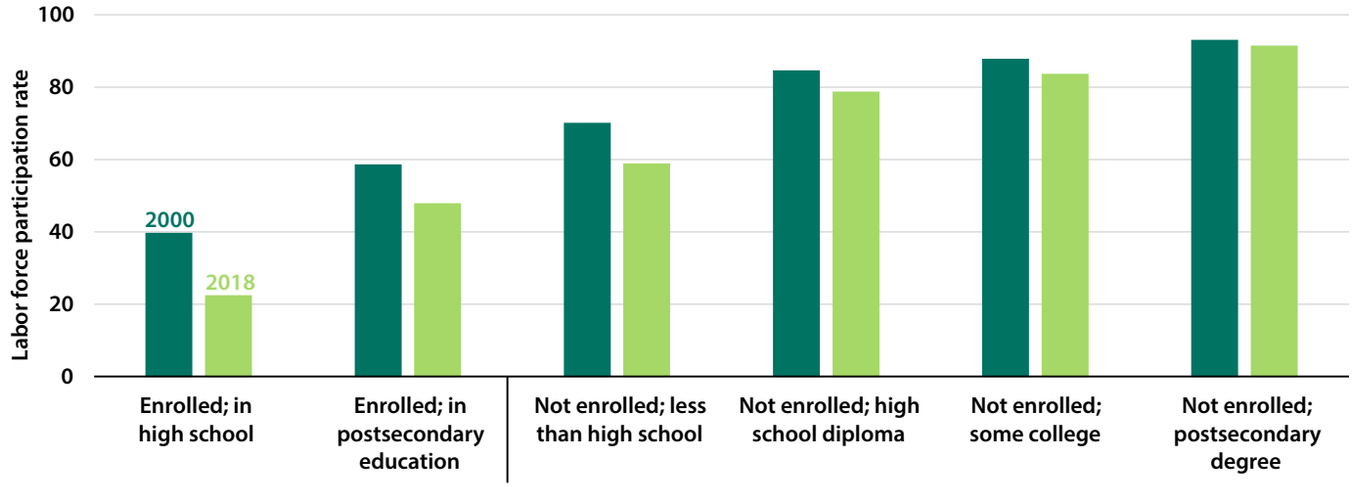
Young adult labor force participation has also been on a downward trend. Young adult LFPR peaked in 1987 at 79.0 percent and has declined 7.9 percentage points since then; this downward trend precipitated declines in prime-age (25–54) LFPR, which peaked at 84.1 percent in the mid-1990s. There was a precipitous drop of 3.0 percentage points in young adult LFPR during and after the Great Recession from 2007 to 2010; since 2010 LFPR for young adults has held steady at about 71 percent. As recently as 1979 prime-age adults and young adults had similar LFPRs. The gap is now more than 10 percentage points.

The downward trend in youth labor force participation is occurring against a backdrop of increasing school enrollment (Dennett and Modestino 2013). More students are graduating from high school and enrolling in postsecondary institutions; high school dropout rates have fallen over the past 40 years (U.S. Department of Education 2016), and from 2006 to 2017 fell from 9.7 percent to 5.4 percent among youth (U.S. Department of Education 2019b). In October of 2018, 69.1 percent of the high school class of 2018 was enrolled in college (Bureau of Labor Statistics 2019). Overall, the postsecondary enrollment rate—the share of 18- to 24-year-olds enrolled in two-year and four-year degrees programs—has risen from 35 percent in 2000 to 40 percent in 2017 (U.S. Department of Education 2019a). Enrollment is also occurring at later ages, driven in part by graduate school enrollment that increased by 39 percent (from 2.2 million to 3.0 million students) between 2000 and 2017 (U.S. Department of Education 2019c). Increasing academic intensity further limits young people's ability to engage in other non-school activities such as work (Morisi 2017).

As previous research has found, summer school enrollment for youth has also risen (Bauer et al. 2019; see appendix figures 1c and 1d). Many more teens are formally enrolled in school during the summer than in the recent past—an increase of

FIGURE 2.

Youth Academic Year Labor Force Participation by Educational Status, 2000 and 2018



Source: Bureau of Labor Statistics 2000–18 (Current Population Survey); authors' calculations.

Note: All data are restricted to youth (ages 16–24) in the academic year, which refers to the months January–May and September–December within a given calendar year. Individuals enrolled in school include both full-time and part-time students. Postsecondary degree includes associate degrees, bachelor degrees, and graduate degrees.

THE HAMILTON PROJECT
BROOKINGS

18.0 percentage points since 2000 (a 16.7 percentage point rise in teens enrolled in school but not working in the summer, plus a 1.3 percentage point increase in teens simultaneously participating in the labor force while enrolled in summer school). The share of young adults enrolled in school during the summer has increased by 8.5 percentage points since 2000. Part of this increase is a 5.6 percentage point rise in young adults who are only enrolled in summer school; the remainder is a 2.8 percentage point increase since 2000 in the rate of young adults who are simultaneously participating in the labor force while enrolled in school during the summer.[2]

Youth enrolled in school are the group for whom academic-year labor force participation has fallen the most, though participation rates have also decreased for dropouts and those with high school diplomas and college degrees (figure 2). The largest drop was in the LFPR of youth enrolled in high school: it fell by 17.2 percentage points from 2000 to 2018. The LFPR of youth enrolled in postsecondary education also declined substantially (10.7 percentage points) over the same period. Those with less than a high school diploma and not enrolled also experienced a participation decline (11.3 percentage points), but this group now constitutes a smaller share of the youth population than in the past.[3]

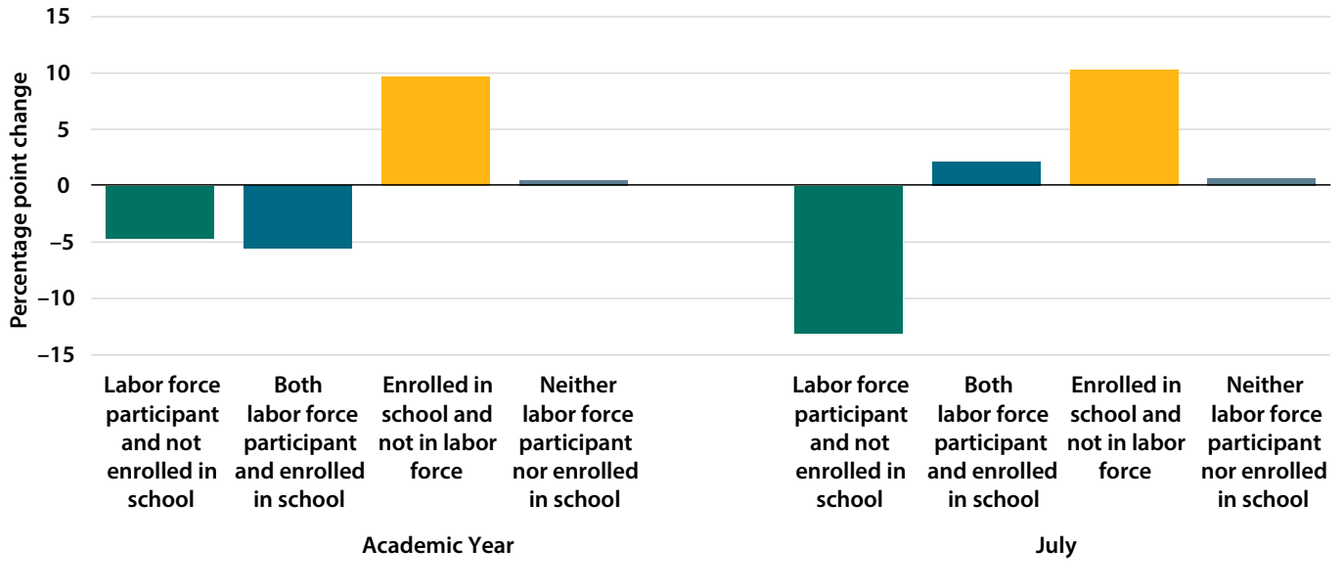
For any given youth, work and school can be combined in one of four ways: a youth can be (1) a labor force participant and not enrolled in school, (2) a labor force participant and enrolled in school, (3) not a labor force participant and enrolled in school, or (4) disengaged, meaning that they are neither a labor force participant nor enrolled in school. In the following analysis, we describe changes in shares of these groups, rather than changes in LFPR.

As figure 3 shows there has been a very small increase in the share of youth who are neither labor force participants nor enrolled in school (gray) since 2000. Thus, the sharp decrease in labor force participation is not a sign of substantially rising disengagement. The share working while in school (blue) has shrunk along with the group of non-enrolled labor force participants (green) during the academic year, although during the summer joint enrollment and work has increased. Meanwhile, the share of youth only enrolled in school and not working (yellow) has increased 9.7 percentage points in the academic year and 10.3 percentage points in the summer. Throughout the calendar year youth are becoming less engaged with the labor market and more engaged in schooling.

The trend away from work and toward school is not driven by any one demographic group (figure 4); the patterns vary across race and gender. Shifts were especially large for Hispanic youth. The share of male Hispanic youth enrolled in school but not participating in the labor force increased by 13.7 percentage points from 2000 to 2018; for young female Hispanic youth in school the share increased by 12.1

FIGURE 3.

Change in Youth Labor Force Participation and Enrollment Status, 2000–18



Source: Bureau of Labor Statistics 2000–18 (Current Population Survey); authors' calculations.

Note: All data are restricted to youth (ages 16–24). Data in the academic year are restricted to the months January–May and September–December within a given calendar year. Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment.

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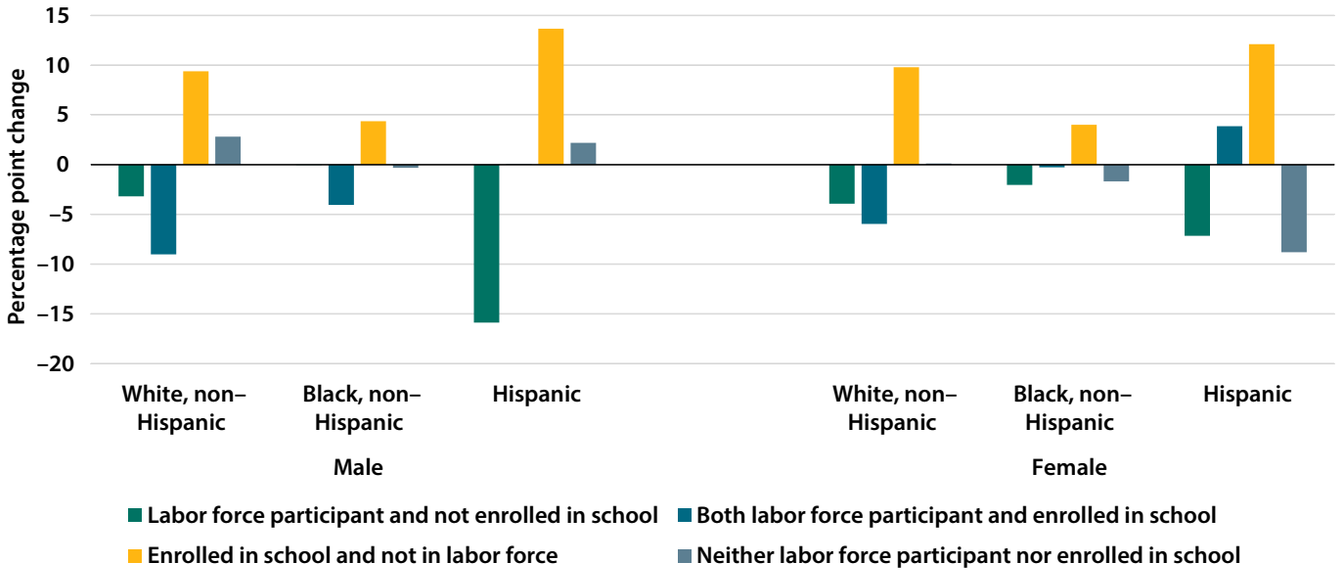
FIGURE 4.

Change in Youth Academic Year Labor Force Participation and Enrollment Status by Gender and Race/Ethnicity, 2000–18



Source: Bureau of Labor Statistics 2000–18 (Current Population Survey); authors' calculations.

Note: All data are restricted to youth (ages 16–24) in the academic year, which refers to the months January–May and September–December within a given calendar year. Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment.

THE HAMILTON PROJECT
BROOKINGS

percentage points. Female Hispanic youth are also now 8.8 percentage points less likely to be disengaged—neither participating in the labor force nor enrolled in school—than they were in 2000.

The share of white youth who are enrolled but not working has risen by nearly 10 percentage points for both males and females. However, white male youth are now slightly more likely to be disengaged. Black youth have also increased school enrollment, but the shifts are smaller. Black male youth have shifted away from dual enrollment and work, while black female youth have shifted away from both disengagement and exclusive labor force participation.

In previous work The Hamilton Project reviews evidence that investments in education and human capital carry strong wage returns (Shambaugh, Bauer, and Breitwieser 2018). Higher levels of education result in higher employment, productivity, and wage growth. While there is evidence that working part-time does not necessarily adversely affect educational outcomes (Ruhm 1997; Singh, Chang, and Dika 2007; Hamilton and Sumner 2012), there is also evidence that the labor market returns to working as a teen have diminished over time (Baum and Ruhm 2016). Additional benefits to working include building employment networks and learning job skills and non-cognitive skills.

Prior research has examined the increase in the college wage premium, which raised the returns to education relative to work (Aaronson et al. 2014; Oreopoulos and Petronijevic 2013; Schanzenbach et al. 2016). However, the college premium stopped increasing around 2000 (Shambaugh et al. 2017), which is around the same time that the fall in youth participation began to accelerate. Thus, the shifts from work toward school could be a slow response to changing returns to education—but they could also be influenced by other factors, such as weakening job prospects. Researchers have explored the roles of increased labor market competition from immigrants (Smith 2012) and older workers (Fernandes-Alcantara 2018), as well as increases in the minimum wage (Clemens, Kahn, and Meer 2018; Neumark and Shupe 2019).

Even after the shift towards schooling that we observe, 32.9 percent of young adults (ages 20–24) in 2018 have a high school degree or less. It is important to ensure that the employment prospects of those without a postsecondary degree are rewarding and that they have opportunities for training and advancement (Ross et al. 2018).

DECOMPOSING THE DECLINE IN YOUTH LABOR FORCE PARTICIPATION

The youth labor force participation rate decreased 10.2 percentage points from 2000 to 2018 during the academic year.[4] How much of this decline can be accounted for by changes in LFPRs among those enrolled or not enrolled in school, as opposed to shifts in the composition of these groups? Following Aaronson et al. (2006), we decompose the decline in youth labor force participation into (1) the shifting participation within a given age-gender-enrollment group from 2000 to 2018, and (2) the changes in the share of the population for each group over that time (see appendix table 1a for teens and appendix table 1b for young adults). The contributions of within-group participation shifts reflect the changing LFPRs of youth within each age-gender-enrollment group. The group share contributions are broken down by age group (teens and young adults), by gender, and by school enrollment status interacted with educational attainment.[5]

Looking just at increases and decreases in group LFPRs is straightforward. For example—as discussed above—teen male labor force participation by students enrolled in high school fell substantially during this period, which contributed in large measure to the decline in overall youth participation. The contributions of shifting enrollment and demographic factors are more complicated. For example, the fraction of the youth population who are female young adults with a high school diploma and not enrolled in college decreased substantially from 2000 to 2018 (largely because more female young adults today are in college or have a college degree). In a mechanical sense, this decrease is associated with a reduction in youth labor force participation because female young adults who have a high school diploma but are not enrolled are more likely to work (72.1 percent) than the average youth (55.2 percent), and a reduction of their population share reduces labor force participation. Yet this shift will likely result in an increase in labor force participation in future years: by then, those female college graduates will work at very high rates (over 90 percent). In another example, the share of youth who are male teens enrolled in high school has declined. Because their labor force participation is low, this decline is associated with higher youth labor force participation.[6]

The decomposition shows that, of the overall 10.2 percentage point decrease in youth LFPR from 2000 to 2018, changes in LFPRs *within* age-gender-enrollment groups (e.g., among female teens enrolled in high school) contributed 10.6 percentage points to this decline. Offsetting this contribution were shifts in group shares of the youth population (e.g., shifts in the shares of female teens enrolled in high school and disengaged) that would have led to a slight increase in total youth labor force participation *if* within-group labor force participation had not changed. The overwhelming bulk of the decline in the youth LFPR (8.1 percentage points) stems from a decrease in the propensity to work of those enrolled in school.

The decline in youth labor force participation is also more attributable to teens than to young adults, and the decreasing

propensity to work of male teens has been the predominant driver of the overall decline in youth labor force participation. Declines in male teen labor force participation led the overall youth participation rate to decline by 3.8 percentage points; an additional 2.3 percentage points of decline is accounted for by male young adults (compared to 2.9 percentage points and 1.5 percentage points for female teens and young adults, respectively). We find that changes in teens' propensity to work contribute to two-thirds (6.8 percentage points) of the 10.2 percentage point decline, while young adults' changes in participation account for the remaining 3.9 percentage point reduction. Again, almost all the decline is due to a decrease in working while enrolled in high school, though young adults enrolled in college now work less as well.

Critically, declines in youth labor force participation are not a consequence of rising disengagement; in other words, there was no sizable increase in the share of people neither enrolled in school nor working. However, conditional on not being enrolled in school, young adults are now less likely to work than before. While falling participation rates of those not enrolled in school were not the driving force behind participation declines, neither were they inconsequential. Declining labor force participation among those not enrolled in school contributed a 2.5 percentage point decrease to overall youth participation (with men making up 69.7 percent of that decrease). By contrast, the growing population share of young adults who have attained postsecondary degrees offset some (1.0 percentage point) of the decline in the overall youth LFPR.

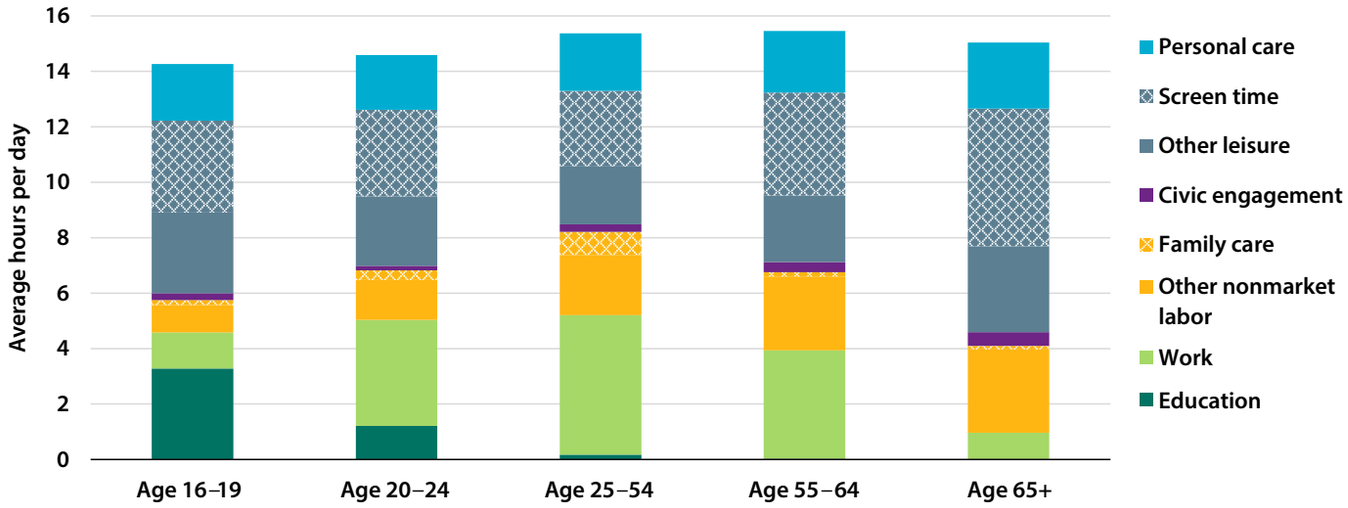
Exploring How Youth Spend Their Time

The trends in labor force participation and school enrollment status analyzed above can only provide a certain measure of insight into the underlying factors that have driven shifts from work to school. Detailed time use diaries are helpful to observe how youth allocate their time across these competing commitments. Aside from school or work, do youth choose to spend their remaining time on leisure activities or on home production obligations? How do these obligations vary by gender, as they age, and over time? Answers to these questions allow us to assess whether a declining youth LFPR reflects youth disengaging from the labor market to increase leisure, other nonmarket commitments, or educational investments.

Studies leveraging time use data have explored changes in the amount and composition of leisure time of prime-age workers (Krueger 2017; Wallsten 2013)—particularly, of young men (Aguiar et al. 2018)—focusing on implications for their labor supply. In addition, as women's allocation of time toward

FIGURE 5.

Time Use by Age Group, 2013–18



Source: American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: Data are restricted to ages 16 and older in the years 2013–18. All activities in the ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified; any remaining hours out of a 24-hour day are attributable to sleep. Respondents with nonzero minutes recorded as unclassified time are not included. See the technical appendix for the full list of activities within each time use category.

THE HAMILTON PROJECT BROOKINGS

home production has lessened in recent decades, researchers have studied women's increasing human capital investments (Pabilonia 2017) and time spent on market work (Aguiar and Hurst 2016).

There has been less focus, however, on whether these patterns are evident among the *youth* population.

Furthermore, while considerable attention has been devoted to time allocation among working-age individuals who are disengaged from the labor force, less attention has been paid to how those who are working or enrolled in school allocate their remaining hours. For those currently enrolled in school, Greene and Maggs (2015) demonstrate the trade-off that youth must make between allocating time toward education versus market work; more time spent on employment was associated with less time spent on academics.

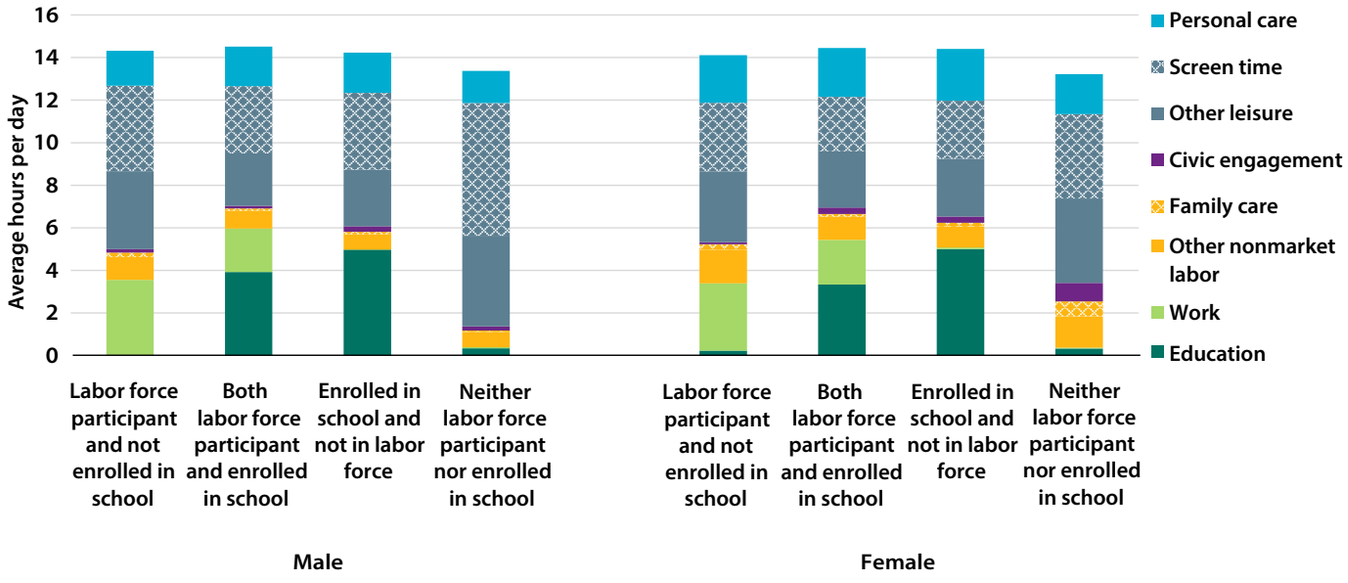
In this section, we explore the ways in which youth report spending their time.[7] We aggregate reported time use into six categories: (1) personal care, (2a) screen time,[8] (2b) other leisure, (3) civic engagement, (4a) family care, (4b) other nonmarket labor, (5) work, and (6) education. (Any remaining hours out of a 24-hour day are attributed to sleep.)[9] Figure 5 illustrates how those of different ages spend their time on an average day by these categories, pooled for the 2013–18 time period. Estimates are for the average hours per day—both weekdays and weekend days—for each time use category, rather than for a typical weekday.

As expected, figure 5 shows that teens and young adults spend the most time on education-related activities (relative to other age groups) while prime-age adults spend the most time on work-related activities. Prime-age and older adults also spend more time on nonmarket labor than youth, which likely reflects their increased household responsibilities. It is worth noting that the remaining time use categories—including other leisure—are relatively constant across age groups; though adults 65 years and older actually spend more than an hour and a half more per day on screen time than teens. Even those aged 55 to 64, who work more than youth, spend more time than youth do on screens for leisure. That older individuals spend the most time on screens and that all ages spend a relatively consistent amount of time on other leisure underscore that the decline in youth labor force participation is not predominantly driven by a substitution of leisure for work.

Next, we focus on teens' time use, examining how male and female teens who are in the labor force, enrolled in school, both in the labor force and enrolled in school, or disengaged spend their time (figure 6).[10] Most teens are enrolled in school; 54.8 percent of all teens are exclusively enrolled, while 20.1 percent of teens are simultaneously enrolled and

FIGURE 6.

Male and Female Teen Time Use by Labor Force Participation and Enrollment Status, 2013–18



Source: American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: Data are restricted to teens (ages 16–19) in the years 2013–18. Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment. All activities in the ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified; any remaining hours out of a 24-hour day are attributable to sleep. Respondents with nonzero minutes recorded as unclassified time and respondents with missing employment or enrollment status are not included. See the technical appendix for the full list of activities within each time use category.

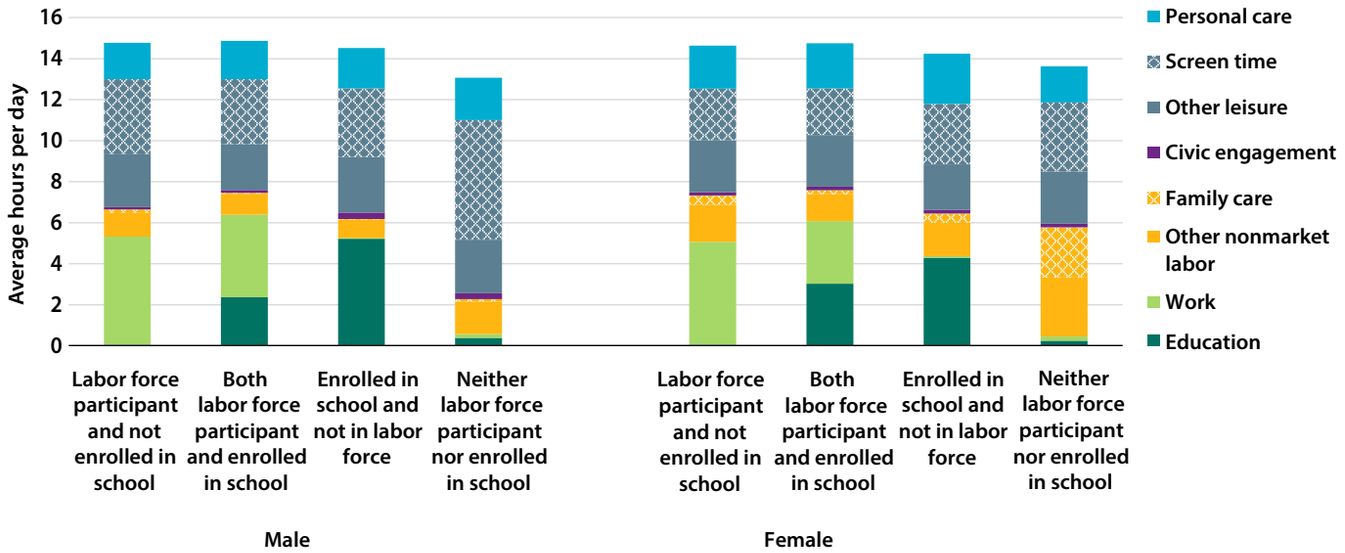
participating in the labor force. As for teens not enrolled in school, 15.2 percent of all teens are exclusively participating in the labor force, while 10.0 percent of teens are neither participating in the labor force nor enrolled in school (appendix figure 2a).[11, 12] Across all teens, a number of key features stand out:

- Both male and female teens in the labor force (but not enrolled) are generally part-time employees, spending less than thirty hours a week on activities related to paid labor, and have more leisure and more screen time than their counterparts who are enrolled in school.
- Teens engaged in both work and school spend the least time on total leisure (screen time plus other leisure)—especially female teens, who have more nonmarket labor commitments than male teens. Yet this group spends less time on school than those who are enrolled only, demonstrating the trade-off between work and school for those juggling both.
- Female teens in each work-by-enrollment status spend more time than their male counterparts on home production. Disengaged female teens who are neither labor force participants nor enrolled in school spend about 45 minutes more on nonmarket labor relative to disengaged male teens, female teen labor force participants not enrolled in school spend about 30 minutes more on nonmarket labor relative to their male counterparts, and female teens exclusively enrolled in school spend about 15 minutes more on nonmarket labor relative to their male counterparts.
- Male teens engage in more screen time: male teens exclusively enrolled in school spend almost one hour more on screen time relative to their female counterparts; male teen labor force participants not enrolled in school spend over 45 minutes more on screen time relative to their female counterparts; and male teens who work while in school spend over 30 minutes more on screen time relative to their female counterparts. Disengaged male teens spend over two hours more on screen time than disengaged female teens, and more than any other group, over ten hours a day with more than half of that on screens. It is important to recall, though, that this group is just 10 percent of male teens and just 11 percent of all youth in the 2013–18 period.

Slightly more than half (52.7 percent) of the young adult population are unenrolled but participating in the labor force, 18.2 percent are both participating in the labor force and enrolled in school, 17.4 percent are enrolled in school and not participating in the labor force, and 11.7 percent are neither participating in the labor force nor enrolled in school.[13] Patterns for young adults differ from patterns for teens in some notable ways (figure 7):

FIGURE 7.

Male and Female Young Adult Time Use by Labor Force Participation and Enrollment Status, 2013–18



Source: American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: Data are restricted to young adults (ages 20–24) in the years 2013–18. Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment. All activities in the ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified; any remaining hours out of a 24-hour day are attributable to sleep. Respondents with nonzero minutes recorded as unclassified time and respondents with missing employment or enrollment status are not included. See the technical appendix for the full list of activities within each time use category.

THE HAMILTON PROJECT
BROOKINGS

- Male and female young adults who are exclusively in the labor force work similar hours, but females spend 40 more minutes in an average day on nonmarket labor while males spend more than an additional 60 minutes per day on screen time.

- For young adults who are engaged in both work and school, males are more likely to spend time working than on educational activities, while females' hours are split more evenly between work and school.

- Among young adults who are only enrolled in school, males spend almost an hour more on education-related activities while females spend almost an hour more on nonmarket labor.

- Most notably, females neither in the labor force nor enrolled in school dedicate a considerable amount of time toward nonmarket labor and family care, spending more than three times as many hours in an average day on nonmarket labor and family care relative to their male counterparts. In fact, female young adults who are neither participating in the labor force nor enrolled in school spend more time on nonmarket labor and family care than any other group—male or female—and spend as much time on nonmarket labor as youth who are labor force participants spend at work. Disengaged male young adults also spend more time on nonmarket labor than male young adults who are working or in school, but they spend even more time on leisure activities and sleep—reaching the highest leisure and sleep time use among all young adults.

COMPARISON IN YOUTH TIME USE 1993–98 VERSUS 2013–18

Comparisons between groups' time uses are illuminating, but are youth spending their time differently today than they did 20 years ago? In figures 8 and 9 we use the American Heritage Time Use Study (AHTUS), a dataset of historical time use data that began in 1965, to compare time use patterns in 1993–98 to those in 2013–18.[14] The University of Minnesota's IPUMS has reconciled time use categorizes for diary studies for comparability with the ATUS, which we use to create comparable time use category designations across the two periods.[15] For harmonization across the two time periods, we compare shares of non-sleep time rather than minutes.

Figures 8 and 9 yield three key insights into how youth spend their time today relative to the past.

- First, screen time has increased, especially for males and females who are exclusively labor force participants. The share of non-sleep hours spent on screen time has roughly doubled since 1993–98 for male and female youth who are only participating in the labor force. For those participating in the labor force, this increase in screen time came in part from an increase in leisure more broadly and is not just a substitution within leisure. Interestingly, this increase in leisure did not seem to crowd out work hours for the employed or education for the enrolled. The increase in leisure was accommodated by a decrease in nonmarket labor.

- Second, female youth now spend less time on total nonmarket labor (family care plus other nonmarket labor) across all work-by-enrollment statuses. Declining youth birth rates as well as more-efficient home production could contribute to this trend.

- Finally, however, the proportion of total nonmarket labor dedicated to family care has *increased* over time for female youth neither participating in the labor force nor enrolled in school. Family care represented 24.9 percent of disengaged females' time spent on nonmarket labor in 1993–98 but rose to 43.0 percent of their total nonmarket labor in 2013–18. This suggests that while domestic obligations may have lessened for female youth since 1993, family care demands continue to compete for their time.

An important trend that is not apparent in the figure is the increase in youth average education time that occurs as youth shift across categories (i.e., away from work and towards enrollment). Males spend 2.3 percentage points more and females spend 8.1 percentage points more of their waking hours on education in 2013–18 compared to 1993–98.

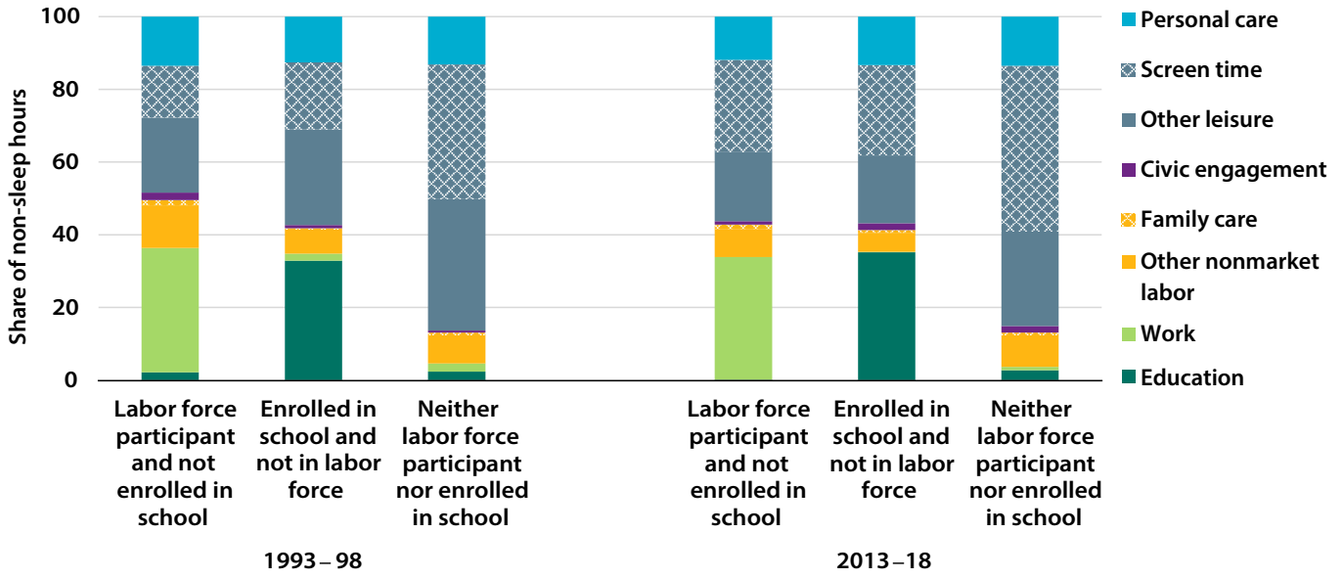
DISTRIBUTION OF TIME SPENT ON LEISURE AND NONMARKET LABOR

The estimates presented above are averages across entire groups. As such, they might conceal substantial variation in the distribution of hours spent on different activities; indeed, we find this to be the case for nonmarket labor and leisure. Looking at variation in time spent by male and female youth over time reveals two findings. First, female youth are disproportionately represented among those who spend the most time on nonmarket labor. Second, of the youth who spend the most time on leisure, only a small fraction are disengaged.

In figure 10 we focus on total nonmarket labor (family care plus other nonmarket labor), dividing youth into five quintiles of hours spent on total nonmarket labor and showing the average number of hours per day spent on total nonmarket labor for each quintile in 1993–98 and 2013–18. A substantial number of survey respondents did not report any time spent on nonmarket labor activities, which explains the zero estimate in the bottom quintile. (Fewer than four-in-ten individuals in the lowest quintile are females in each period.) Yet females make up more than two thirds of the

FIGURE 8.

Male Youth Time Use by Labor Force Participation and Enrollment Status, 1993–98 and 2013–18



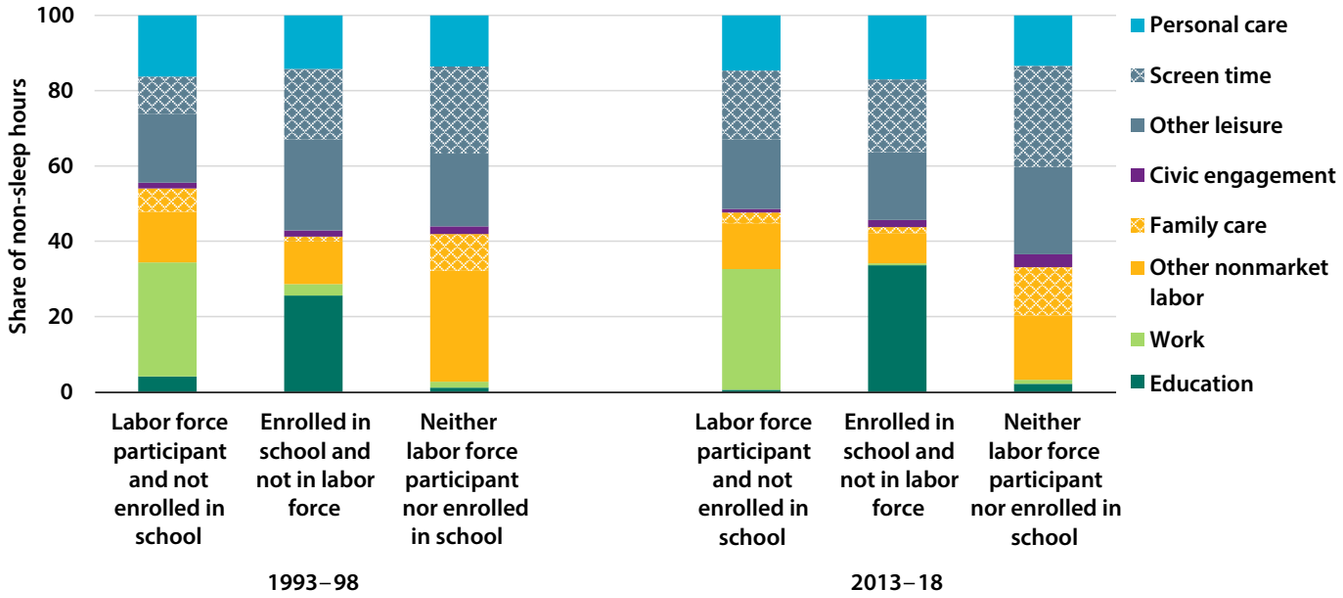
Source: American Heritage Time Use Survey (AHTUS) 1993–98; American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: The AHTUS includes samples from the years 1993, 1995, and 1998; the ATUS includes samples from the full range of years 2013–18. Data are restricted to youth (ages 16–24). Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment. Respondents with nonzero minutes recorded as unclassified time, zero-weighted incomplete AHTUS diaries, and respondents with missing employment or enrollment status are not included. All activities in the AHTUS and ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified. See the technical appendix for the full list of activities within each time use category.

THE HAMILTON PROJECT BROOKINGS

FIGURE 9.

Female Youth Time Use by Labor Force Participation and Enrollment Status, 1993–98 and 2013–18



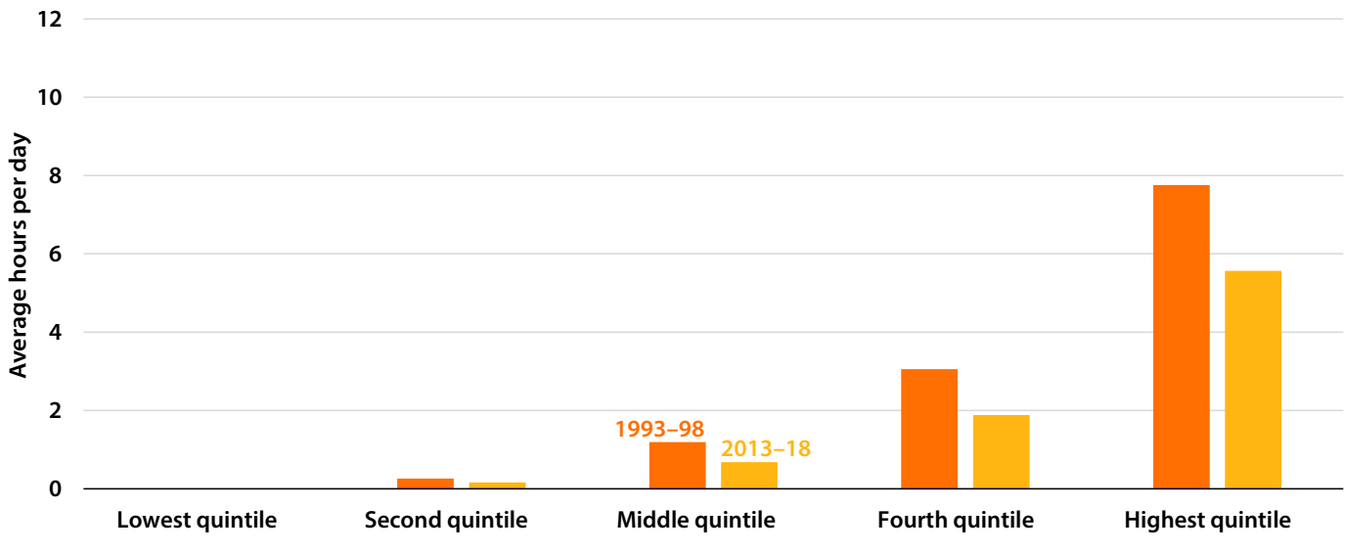
Source: American Heritage Time Use Survey (AHTUS) 1993–98; American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: The AHTUS includes samples from the years 1993, 1995, and 1998; the ATUS includes samples from the full range of years 2013–18. Data are restricted to youth (ages 16–24). Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment. Respondents with nonzero minutes recorded as unclassified time, zero-weighted incomplete AHTUS diaries, and respondents with missing employment or enrollment status are not included. All activities in the AHTUS and ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified. See the technical appendix for the full list of activities within each time use category.

THE HAMILTON PROJECT BROOKINGS

FIGURE 10.

Youth Distribution of Time Spent on Total Nonmarket Labor, 1993–98 and 2013–18



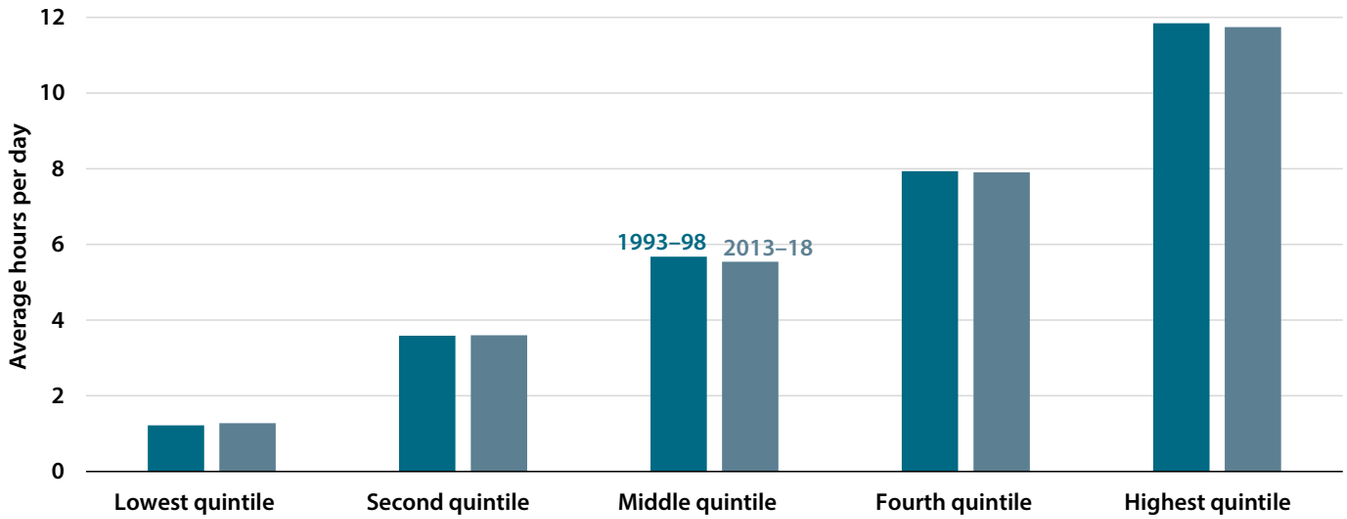
Source: American Heritage Time Use Survey (AHTUS) 1993–98; American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: Total nonmarket labor includes the sum of family care and other nonmarket labor. The AHTUS includes samples from the years 1993, 1995, and 1998; the ATUS includes samples from the full range of years 2013–18. Data are restricted to youth (ages 16–24). Respondents with nonzero minutes recorded as unclassified time, zero-weighted incomplete AHTUS diaries, and respondents with missing employment or enrollment status are not included. All activities in the AHTUS and ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified. See the technical appendix for the full list of activities within each time use category. The population of the lowest quintile is 37 percent female in 1993–98 and 38 percent female in 2013–18; the population of the second quintile is 50 percent female in 1993–98 and 44 percent female in 2013–18; the population of the middle quintile is 60 percent female in 1993–98 and 50 percent female in 2013–18; the population of the fourth quintile is 64 percent female in 1993–98 and 58 percent female in 2013–18; the population of the highest quintile is 77 percent female in 1993–98 and 67 percent female in 2013–18.

THE HAMILTON PROJECT
BROOKINGS

FIGURE 11.

Youth Distribution of Time Spent on Total Leisure, 1993–98 and 2013–18



Source: American Heritage Time Use Survey (AHTUS) 1993–98; American Time Use Survey (ATUS) 2013–18; authors' calculations.

Note: Total leisure includes the sum of screen time and other leisure. The AHTUS includes samples from the years 1993, 1995, and 1998; the ATUS includes samples from the full range of years 2013–18. Data are restricted to youth (ages 16–24). Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment. Respondents with nonzero minutes recorded as unclassified time, zero-weighted incomplete AHTUS diaries, and respondents with missing employment or enrollment status are not included. All activities in the AHTUS and ATUS have been assigned to one of the six time use categories, to sleep, or as unclassified. See the technical appendix for the full list of activities within each time use category. The population of the lowest quintile is 12 percent disengaged (neither participating in the labor force nor enrolled in school) in 1993–98 and 5 percent disengaged in 2013–18; the population of the second quintile is 10 percent disengaged in 1993–98 and 6 percent disengaged in 2013–18; the population of the middle quintile is 11 percent disengaged in 1993–98 and 7 percent disengaged in 2013–18; the population of the fourth quintile is 18 percent disengaged in 1993–98 and 10 percent disengaged in 2013–18; the population of the highest quintile is 27 percent disengaged in 1993–98 and 12 percent disengaged in 2013–18.

THE HAMILTON PROJECT
BROOKINGS

youth in the highest quintile of hours spent on nonmarket labor: an average of nearly eight hours per day in 1993–98 and six hours per day in 2013–18. Average time spent on nonmarket labor has declined over time, but females continue to be disproportionately represented among those spending the most time on nonmarket labor.

Next, we examine the distribution of time spent on leisure. Figure 11 reports the average time youth spent on total leisure (screen time plus other leisure) within five quintiles of time spent on total leisure in 1993–98 and 2013–18. Two important facts come from this figure:

First, the distribution of hours spent on leisure changes little over time, ranging from an average of approximately 1.25 hours per day in the lowest quintile to nearly 12 hours per day in the highest quintile. That is, youth today do not show a greater propensity to binge on leisure—even among those who allocate the most time to leisure.

Second, those spending the most time on leisure are not all disengaged youth. In fact, youth who are neither participating in the labor force nor enrolled in school represent only a modest proportion (just 12 percent in 2013–18) of the population in the highest quintile of time spent on leisure, only slightly more than their total share of the youth population (11 percent in 2013–18).

Conclusion

Fewer American youth are working than worked just two decades ago. The decline is largest among teens, whose labor force participation rate (LFPR) fell from roughly half to a third of the population from 2000 to 2018; young adults' LFPR also dropped by 7.7 percentage points. The decrease in youth LFPR has been predominantly driven by an increase in school enrollment and time spent on education-related activities.

The shift toward higher school enrollment rates means that youth today are investing more in their human capital. Remaining engaged with school, and increasingly focusing only on school, has contributed to declines in labor force participation—especially during the summer—and in the share of students juggling work and school. If enhanced time spent on education contributes to lower high school dropout rates and increasing degree completion rates, then this investment in human capital will likely contribute to higher labor force participation and wages for these youth for decades to come, offsetting temporary losses in aggregate labor force participation that comes from fewer youth working today. There has not been a meaningful increase in the share of youth who are neither working nor in school. There is a small population of disengaged youth and they spend a great deal of time on leisure, but even among that group—especially for female young adults—many are also engaged in substantial amounts of nonmarket labor including direct care for family members.

Changing patterns in school enrollment and time use suggest that while declines in labor force participation mean lower output in the present, these patterns suggest unrealized future gains—unlike declines in prime-age labor force participation or declines experienced during economic slowdowns. To the extent that American youth are spending more time in school, they may be increasing their prospects for good labor market outcomes later in life. This of course requires that the time spent on education be used in valuable ways, with students picking good postsecondary programs and schools improving skills and knowledge. In addition, because working itself imparts knowledge and skills, reductions in employment can affect human capital investment as well. It will be important to ensure that whichever pathway youth follow—education, training, or employment—they are provided opportunities to learn and prepare themselves for their future.

Endnotes

1. Throughout this economic analysis we use the following terms: "teens" refers to ages 16–19; "young adults" refers to ages 20–24; "prime-age" refers to ages 25–54. In addition, to include both teens and young adults we use the term "youth", which refers to ages 16–24.
2. Note that the percentage point change in young adults only enrolled in school (5.64 percentage point increase) and in young adults simultaneously participating in the labor force while enrolled in school during the summer (2.81 percentage point increase) do not sum to the total change in the share of young adults enrolled in school during the summer (8.45 percentage point increase) as written above due to rounding.
3. The composition of educational groups has shifted over time as educational attainment has risen. See Carneiro and Lee (2011) for an examination of composition effects in the postsecondary context.
4. Note that technical factors—such as the particular microdata weights used and the fact that we restrict our analysis to months of the academic year rather than the complete calendar year—result in slight differences from published estimates of the youth LFPR. See appendix tables 1a and1b for the full decomposition calculations for teens and young adults by gender.
5. For this decomposition the six enrollment-education categories are (1) enrolled in high school, (2) enrolled in postsecondary education, (3) not enrolled and completed less than high school, (4) not enrolled and obtained a high school diploma, (5) not enrolled and completed some college, and (6) not enrolled and obtained a postsecondary degree.
6. In fact, the teen population shrank relative to the young adult population over this period because the Baby Boom echo led to a high number of teens around 2000, and this echo had faded by 2018.
7. Our data come from the American Time Use Survey (ATUS), an adjunct survey to the Current Population Survey for the 2013–18 period. A single and randomly selected member of a Current Population Survey household is called in the months following their final month-in-sample to complete the ATUS. A professional surveyor walks the household member through their most recent 24 hours, with half the sample asked about a weekday and half about a weekend day. Each activity is then coded to meet a time use category. We assign all activities in the ATUS to one of the six time use categories, to sleep, or as unclassified. In keeping with Aguiar and Hurst (2016), we include only diaries for which there is complete information. Any respondents with unclassified hours were dropped from the data; 16.4 percent of the year- and age-restricted sample were dropped from the data due to unclassified time. It is worth noting the relatively small sample size. Sample sizes range from approximately 500 to 800 observations in a given year—and from approximately 5 to 150 complete observations in a given work-by-enrollment status within a given year—which is why we pool the data across five years.
8. Note that the time use surveys do not distinguish between video games and other games in defining "games." Nevertheless, following Krueger (2017), we categorize game playing under screen time.
9. See the technical appendix for more details on the activities within each time use category.
10. Figure 6 shows that, for both male and female youths, the status designations are validated: those who say that they are only in the labor force are spending their time in work activities and those who say that they are enrolled in school are spending time in education activities.
11. Note that the shares of teens exclusively enrolled in school (54.75 percent), both participating in the labor force and enrolled in school (20.06 percent), exclusively participating in the labor force (15.15 percent), and neither participating in the labor force nor enrolled in school (10.03 percent) do not sum to 100 percent as written above due to rounding.
12. The shares of teens in each work-school status are similarly distributed by gender. Among teen males, 16.4 percent are participating in the labor force and not enrolled in school (compared to 13.8 percent of teen females), 18.2 percent are both participating in the labor force and enrolled in school (compared to 21.9 percent of teen females), 55.4 percent are enrolled in school and not participating in the labor force (compared to 54.1 percent of teen females), and 10.0 percent are neither participating in the labor force nor enrolled in school (compared to 10.1 percent of teen females). See appendix figures 2a and 2b for the full distribution of labor force participation and enrollment statuses across the teen and young adult populations in 1993–98 and 2013–18.
13. A greater share of male young adults (57.3 percent) exclusively participate in the labor force compared to that of female young adults (48.1 percent). Among female young adults, a greater share simultaneously participate in the labor force and enroll in school (20.3 percent of female young adults relative to 16.1 percent of male young adults) or neither participate in the labor force nor enroll in school (14.1 percent of female young adults relative to 9.3 percent of male young adults). The share of young adults exclusively enrolled in school is similar by gender: 17.3 percent of male young adults and 17.5 percent of female young adults are enrolled in school and not participating in the labor force. See appendix figures 2a and 2b for the full distribution of labor force participation and enrollment statuses across the teen and young adult populations in 1993–98 and 2013–18.
14. The 1993–98 sample we use is smaller than the 2013–18 sample due to limited sample sizes of the AHTUS, so we report only data of youths within status groups of sufficient sample sizes: youths who are labor force participants not enrolled in school, youths enrolled in school only, or youths who are neither students nor labor force participants.
15. The categories were generated in the same way as described above, and we present our analyses of hours spent on each time use category as percent shares of non-sleep hours to reconcile differences between the AHTUS and ATUS time use coding for sleep. To maintain adequate sample size, we pool teens and young adults.

References

Aaronson, Stephanie, Tomaz Cajner, Bruce Fallick, Felix Galbis-Reig, Christopher Smith, and William Wascher. 2014. "Labor Force Participation: Recent Developments and Future Prospects." *Brookings Papers on Economic Activity* Fall: 197–275.

Aaronson, Stephanie, Bruce Fallick, Andrew Figura, Jonathan Pingle, and William Wascher. 2006. "The Recent Decline in the Labor Force Participation Rate and Its Implications for Potential Labor Supply." *Brookings Papers on Economic Activity* Spring: 69–154.

Aguiar, Mark, Mark Bils, Kerwin Kofi Charles, and Erik Hurst. 2018. "Leisure Luxuries and the Labor Supply of Young Men." Working Paper.

Aguiar, Mark, and Erik Hurst. 2016. "The Macroeconomics of Time Allocation." In *Handbook of Macroeconomics*, edited by John B. Taylor and Harald Uhlig. Amsterdam: Elsevier.

Bauer, Lauren, Patrick Liu, Emily Moss, Ryan Nunn, and Jay Shambaugh. 2019. "All School and No Work Becoming the Norm for American Teens." Blog. The Hamilton Project, Brookings Institution, Washington, DC.

Bauer, Lauren, Patrick Liu, and Jay Shambaugh. 2019. "Is the Continued Rise of Older Americans in the Workforce Necessary for Future Growth?" Blog. The Hamilton Project, Brookings Institution, Washington, DC.

Baum, Charles L., and Christopher J. Ruhm. 2016. "The changing benefits of early work experience." *Southern Economic Journal* 83 (2): 343-363.

Bureau of Labor Statistics (BLS). 1950–2018. "Current Population Survey." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC. Retrieved from Haver Analytics, New York, NY.

———. 1993–98. "American Heritage Time Use Study (AHTUS)." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC. Retrieved from IPUMS-Time Use, University of Minnesota.

———. 2000–18. "Current Population Survey." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC. Retrieved from IPUMS-CPS, University of Minnesota.

———. 2013–18. "American Time Use Survey (ATUS)." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC. Retrieved from IPUMS-Time Use, University of Minnesota.

———. 2019. "College Enrollment and Work Activity of Recent High School and College Graduates – 2018." USDL-19-0697. Washington, DC.

Carneiro, Pedro, and Sokbae Lee. 2011. "Trends in Quality-Adjusted Skill Premia in the United States, 1960–2000." *American Economic Review* 101(6): 2309–2349.

Clemens, Jeffrey, Lisa B. Kahn, and Jonathan Meer. 2018. "Dropouts Need Not Apply: The Minimum Wage and Skill Upgrading." Working Paper.

Dennett, Julia, and Alicia Sasser Modestino. 2013. "Uncertain Futures? Youth Attachment to the Labor Market in the United States and New England." New England Public Policy Center Research Reports 13(3), Federal Reserve Bank of Boston, Boston, MA.

Fernandes-Alcantara, Adrienne L. 2018. *Youth and the Labor Force: Background and Trends*. Congressional Research Service, Washington, DC.

Greene, Kaylin M., and Jennifer L. Maggs. 2015. "Revisiting the Time Trade-off Hypothesis: Work, Organized Activities, and Academics during College." *Journal of Youth and Adolescence* 44(8): 1623–1637.

Hamilton, Stephen F. and Rachel Sumner. 2012. "Are School-Related Jobs Better?" *Southern Regional Education Board*, Atlanta, Georgia.

Krueger, Alan B. 2017. "Where Have All the Workers Gone? An Inquiry into the Decline of the U.S. Labor Force Participation Rate." *Brookings Papers on Economic Activity* Fall: 1–87.

Morisi, Teresa L. 2017. "Teen labor force participation before and after the Great Recession and beyond." Monthly Labor Review, U.S. Bureau of Labor Statistics, Washington, DC.

Neumark, David, and Cortnie Shupe. 2019. "Declining teen employment: minimum wages, returns to schooling, and immigration." *Labour Economics* 59: 49–68.

Oreopoulos, Philip, and Uros Petronijevic. 2013. "Making College Worth It: A Review of the Returns to Higher Education." *The Future of Children* 23(1): 41–65.

Pabilonia, Sabrina Wulff. 2017. "Teenagers' risky health behaviors and time use during the great recession." *Review of Economics of the Household* 15(3): 945–964.

Ross, Martha, Kristin Anderson Moore, Kelly Murphy, Nicole Bateman, Alex DeMand, and Vanessa Sacks. 2018. "Pathways to High-Quality Jobs for Young Adults." *Metropolitan Policy Program at Brookings and Child Trends,* Washington, DC.

Ruhm, Christopher J. 1997. "Is high school employment consumption or investment?" *Journal of Labor Economics*, 15(4): 735-776.

Schanzenbach, Diane Whitmore, David Boddy, Megan Mumford, and Greg Nantz. 2016. "Fourteen Economic Facts on Education and Economic Opportunity." Economic Facts. The Hamilton Project, Brookings Institution, Washington, DC.

Shambaugh, Jay, Lauren Bauer, and Audrey Breitwieser. 2018. "Returning to Education: The Hamilton Project on Human Capital and Wages." Framing Paper. The Hamilton Project, Brookings Institution, Washington, DC.

Shambaugh, Jay, Ryan Nunn, Patrick Liu, and Greg Nantz. 2017. "Thirteen Facts about Wage Growth." Economic Facts. The Hamilton Project, Brookings Institution, Washington, DC.

Singh, Kusum, Mido Chang, and Sandra Dika. 2007. "Effects of part-time work on school achievement during high school." *The Journal of Educational Research* 101 (1): 12-23.

Smith, Christopher L. 2012. "The Impact of Low-Skilled Immigration on the Youth Labor Market." *Journal of Labor Economics* 30(1): 55–89.

U.S. Department of Education. 2016. "Trends in High School Dropout and Completion Rates in the United States." National Center for Education Statistics, U.S. Department of Education, Washington, DC.

———. 2019a. "College Enrollment Rates." The Condition of Education. National Center for Education Statistics, U.S. Department of Education, Washington, DC.

———. 2019b. "Dropout rates." Fast Facts. National Center for Education Statistics, U.S. Department of Education, Washington, DC.

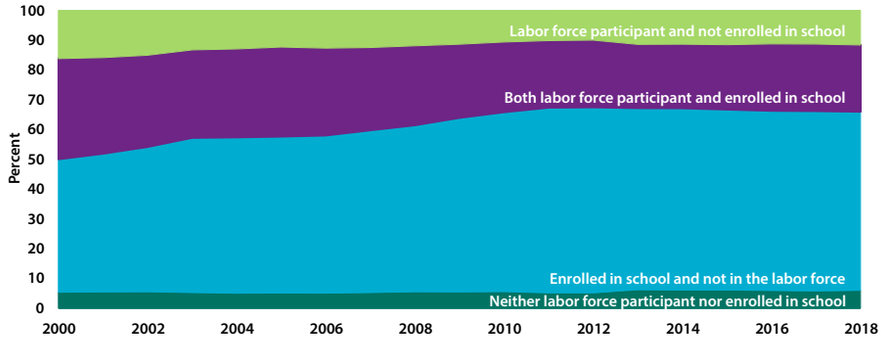
———. 2019c. "Postbaccalaureate Enrollment." The Condition of Education. National Center for Education Statistics, U.S. Department of Education, Washington, DC.

Wallsten, Scott. 2013. "What Are We Not Doing When We're Online." Working Paper 19549, National Bureau of Economic Research, Cambridge, MA.

Appendix

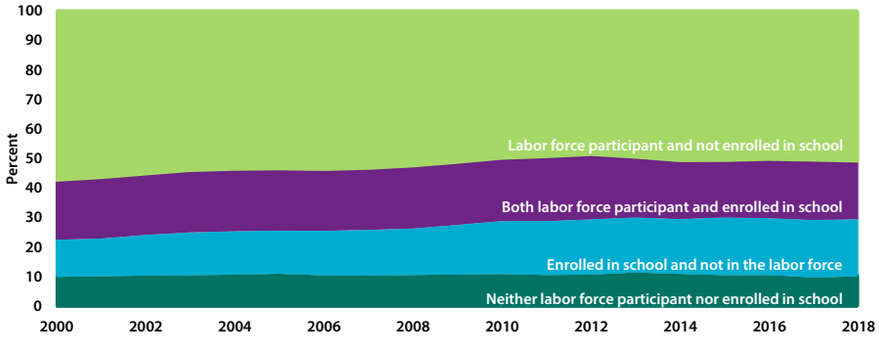
APPENDIX FIGURE 1A.

Teen Academic Year Labor Force Participation and Enrollment, 2000–18



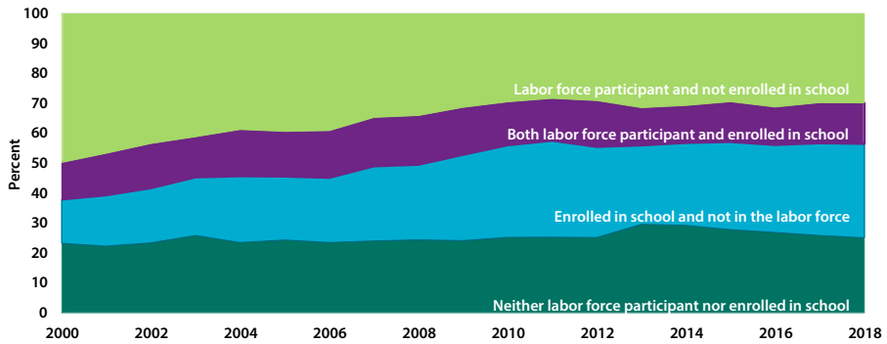
APPENDIX FIGURE 1B.

Young Adult Academic Year Labor Force Participation and Enrollment, 2000–18



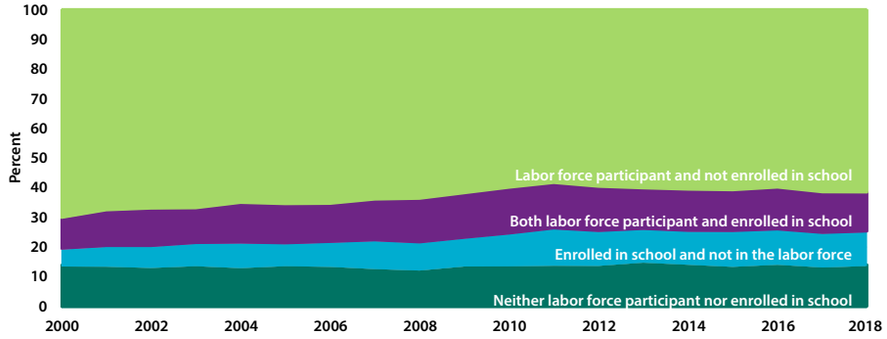
APPENDIX FIGURE 1C.

Teen July Labor Force Participation and Enrollment, 2000–18



APPENDIX FIGURE 1D.

Young Adult July Labor Force Participation and Enrollment, 2000–18



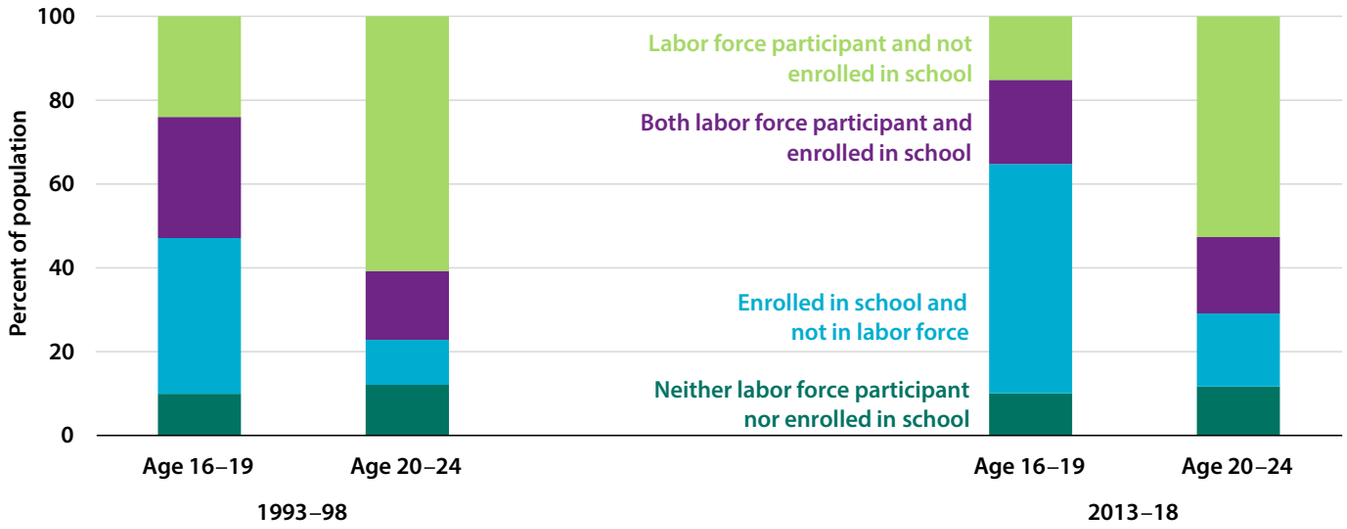
Source: Bureau of Labor Statistics 2000–18 (Current Population Survey); authors' calculations.

Note: Teens are ages 16–19; young adults are ages 20–24. Data in the academic year are restricted to the months January–May and September–December within a given calendar year. Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment.

THE HAMILTON PROJECT
BROOKINGS

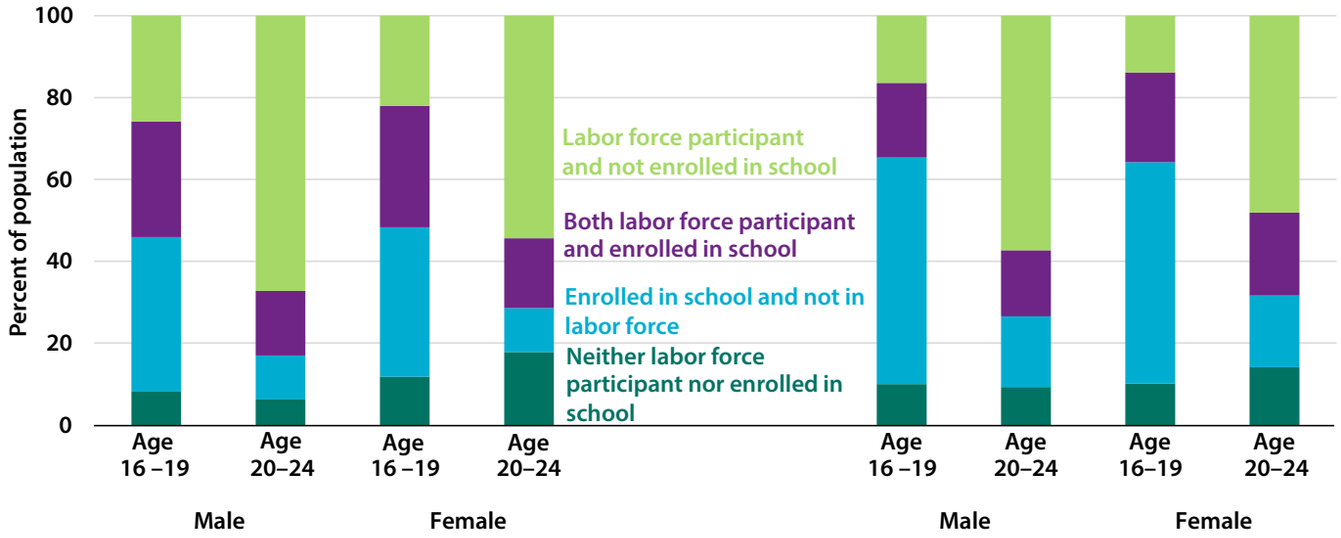
APPENDIX FIGURE 2A.

Labor Force Participation and Enrollment Status by Age, 1993–98 and 2013–18



APPENDIX FIGURE 2B.

Labor Force Participation and Enrollment Status by Age and Gender, 1993–98 and 2013–18



Source: Bureau of Labor Statistics 1993–98 and 2013–18 (Current Population Survey); authors' calculations.

Notes: Teens are ages 16–19; young adults are ages 20–24. To match the samples of the time use surveys, the data include years 1993, 1995, 1998 as well as the full range of years 2013–18. Individuals enrolled in school include both full-time and part-time students. Labor force nonparticipants are neither working nor seeking employment.

THE HAMILTON PROJECT
BROOKINGS

APPENDIX TABLE 1A.

Contribution of 2000–18 Changes in Teens' Academic Year Enrollment and Participation Status to Youth Labor Force Participation by Gender

	Male					Female				
Education	Δ Share of population age 16–24, 2000–18 (p.p.)	Labor force participation rate, 2018 (%)	Contribution of changing status (p.p.)	Contribution of changing participation (p.p.)	Interaction term (p.p.)	Δ Share of population age 16–24, 2000–18 (p.p.)	Labor force participation rate, 2018 (%)	Contribution of changing status (p.p.)	Contribution of changing participation (p.p.)	Interaction term (p.p.)
Enrolled; in high school	-0.64	20.19	0.20	-2.70	0.00	0.34	25.00	-0.10	-2.02	0.05
Enrolled; in postsecondary education	0.19	38.01	-0.03	-0.50	0.00	-0.07	41.83	0.01	-0.62	-0.02
Not enrolled; less than high school	-0.93	52.58	-0.04	-0.36	-0.07	-0.83	46.80	0.09	-0.12	-0.06
Not enrolled; high school diploma	-0.16	76.83	-0.04	-0.22	-0.02	-0.57	71.02	-0.09	-0.14	-0.03
Not enrolled; some college	0.07	68.20	0.02	-0.05	-0.01	0.02	78.04	0.00	-0.01	0.00
Not enrolled; postsecondary degree	0.09	89.78	0.03	0.00	0.00	0.07	82.76	0.02	-0.01	0.00
Total contributions of enrolled			0.17	-3.19	0.00			-0.09	-2.65	0.03
Total contributions of non-enrolled			-0.03	-0.64	-0.10			0.02	-0.29	-0.09
Total contributions to age 16–24 labor force participation rate, 2000–18			**0.14**	**-3.83**	**-0.10**			**-0.07**	**-2.93**	**-0.05**

Source: Bureau of Labor Statistics 2000–18 (Current Population Survey); authors' calculations.

Note: All data are restricted to youth (ages 16–24) in the academic year, which refers to the months January–May and September–December within a given calendar year. Teens are ages 16–19; young adults are ages 20–24. Individuals enrolled in school include both full-time and part-time students. Postsecondary education includes associate degrees, bachelor's degrees, and graduate degrees. Labor force nonparticipants are neither working nor seeking employment. To calculate the contribution of each group's changing participation rates to the overall change in the youth labor force participation rate, we follow the decomposition method described in Aaronson et al. (2006).

APPENDIX TABLE 1B.

Contribution of 2000 to 2018 Changes in Young Adults' Academic Year Enrollment and Participation Status to Youth Labor Force Participation by Gender

	Male					Female				
Education	Δ Share of population age 16–24, 2000–18 (p.p.)	Labor force participation rate, 2018 (%)	Contribution of changing status (p.p.)	Contribution of changing participation (p.p.)	Interaction term (p.p.)	Δ Share of population age 16–24, 2000–18 (p.p.)	Labor force participation rate, 2018 (%)	Contribution of changing status (p.p.)	Contribution of changing participation (p.p.)	Interaction term (p.p.)
Enrolled; in high school	0.05	21.99	-0.01	-0.10	0.01	0.11	21.27	-0.03	-0.06	0.01
Enrolled; in post-secondary education	1.82	48.07	-0.06	-1.12	0.05	2.35	54.47	0.04	-0.97	0.06
Not enrolled; less than high school	-2.36	76.10	-0.56	-0.34	0.00	-1.72	54.15	0.08	-0.01	-0.03
Not enrolled; high school diploma	0.32	85.64	0.10	-0.47	0.00	-1.11	72.10	-0.17	-0.37	-0.04
Not enrolled; some college	0.27	88.38	0.09	-0.19	0.01	-0.12	81.49	-0.03	-0.09	0.00
Not enrolled; post-secondary degree	1.33	93.28	0.50	-0.11	0.00	1.49	90.27	0.50	-0.01	0.00
Total contributions of enrolled			-0.07	-1.23	0.06			0.01	-1.04	0.06
Total contributions of non-enrolled			0.13	-1.12	0.00			0.38	-0.48	-0.08
Total contributions to age 16–24 labor force participation rate, 2000–18			**0.06**	**-2.34**	**0.06**			**0.39**	**-1.51**	**-0.01**

Source; Bureau of Labor Statistics 2000–18 (Current Population Survey); authors' calculations.

Note: All data are restricted to youth (ages 16–24) in the academic year, which refers to the months January–May and September–December within a given calendar year. Teens are ages 16–19; young adults are ages 20–24. Individuals enrolled in school include both full-time and part-time students. Postsecondary education includes associate degrees, bachelor's degrees, and graduate degrees. Labor force nonparticipants are neither working nor seeking employment. To calculate the contribution of each group's changing participation rates to the overall change in the youth labor force participation rate, we follow the decomposition method described in Aaronson et al. (2006).

Technical Appendix

FIGURES 5–11. TIME USE CATEGORIZATION, 2013–18

Source: American Time Use Survey (ATUS).

Below are definitions for the eight activities that fall under each time use category: (1) personal care, (2) screen time, (3) other leisure, (4) civic engagement, (5) family care, (6) other nonmarket labor, (7) work, and (8) education. Any remaining hours out of a 24-hour day are attributed to *sleep,* which includes sleeping; sleeplessness; and sleeping not elsewhere classified. All activities in the ATUS have been assigned to one of these categories. Respondents with nonzero minutes recorded as unclassified time (code 500000) are not included.

Personal care includes grooming; health-related self care; personal activities; personal care emergencies; personal care not elsewhere classified; purchasing food (not groceries); medical and care services; personal care services; eating and drinking; travel related to personal care; travel related to purchasing food (not groceries); travel related to using medical services; travel related to using personal care services; travel related to eating and drinking.

Screen time includes household and personal e-mail and messages; television and movies (not religious); television and movies (religious); playing games; computer use for leisure (excluding games); attending movies or film.

Other leisure includes shopping, except groceries, food, and gas; socializing and communicating; attending or hosting social events; relaxing, thinking; tobacco and drug use; listening to the radio; listening to or playing music (not radio); arts and crafts as a hobby; collecting as a hobby; hobbies, except arts and crafts and collecting; reading for personal interest; writing for personal interest; relaxing and leisure not elsewhere classified; attending performing arts; attending museums; attending gambling establishments; security procedures related to arts and entertainment; arts and entertainment not elsewhere classified; waiting associated with socializing, relaxing, and leisure; socializing, relaxing, and leisure not elsewhere classified; sports, exercise, and recreation; telephone calls to or from family members; telephone calls to or from friends, neighbors, or acquaintances; telephone calls (to or from) not elsewhere classified; waiting associated with telephone calls; telephone calls not elsewhere classified; travel related to shopping, except groceries, food, and gas; travel related to socializing, relaxing, and leisure; travel related to sports, exercise, and recreation; travel related to phone calls; security procedures related to traveling; traveling not elsewhere classified. (Although *screen time* is considered a subcategory of *leisure*, the two activity groups are unique in content.)

Civic engagement includes government services and civic obligations; religious and spiritual activities; volunteer activities; telephone calls to or from government officials; travel related to using government services and civic obligations; travel related to religious or spiritual activities; travel related to volunteering.

Family care includes caring for and helping household members; travel related to caring for and helping household members.

Other nonmarket labor includes housework; food and drink preparation, presentation, and clean-up; interior maintenance, repair, and decoration; exterior maintenance, repair, and decoration; lawn, garden, and houseplants; animals and pets; vehicles; appliances, tools, and toys; financial management; household and personal organization and planning; household and personal mail and messages (except e-mail); home security; household management not elsewhere classified; household activities not elsewhere classified; caring for and helping non-household members; grocery shopping; purchasing gas; waiting associated with shopping; shopping not elsewhere classified; researching purchases; security procedures related to consumer purchases; consumer purchases not elsewhere classified; child care services; financial services and banking; legal services; real estate; veterinary services (excluding grooming); security procedures related to professional or personal services; professional and personal services not elsewhere classified; household services; telephone calls to or from salespeople; telephone calls to or from professional or personal care services providers; telephone calls to or from household services providers; telephone calls to or from paid child or adult care providers; travel related to household activities; travel related to caring for and helping non-household members; travel related to grocery shopping; travel related to other shopping, inclusive; travel related to purchasing gas; travel related to consumer purchases not elsewhere classified; travel related to using child care services; travel related to using financial services and banking; travel related to legal services; travel related to using real estate services; travel related to using veterinary services; travel related to using professional and personal care services not elsewhere classified; travel related to using household services. (Although *family care* is considered a subcategory of *nonmarket labor,* the two activity groups are unique in content.)

Work includes work and work-related activities; travel related to work.

Education includes education; telephone calls to or from education services providers; travel related to education.

FIGURES 8–11. TIME USE CATEGORIZATION, 1993–98

Source: American Heritage Time Use Survey (AHTUS).

Below are the activities that fall under each time use category: (1) personal care, (2) screen time, (3) other leisure, (4) civic engagement, (5) family care, (6) other nonmarket labor), (7) work, and (8) education. Any remaining hours out of a 24-hour day are attributed to *sleep*, which includes sleep; imputed sleep; naps and rest. All activities in the AHTUS have been assigned to one of these categories. Respondents with nonzero minutes recorded as unclassified time (code -998) are not included.

Personal care includes general or other personal care; imputed personal or household care; wash, dress, personal care; personal medical care; other meals and snacks; purchase personal services; purchase medical services; personal or adult care travel.

Screen time includes go to cinema; other in-home social, games; watch television, video; use computer.

Other leisure includes general out-of-home leisure; attend sporting event; theater, concert, opera; museums, exhibitions; attend other public event; restaurant, café bar; parties or receptions; imputed time away from home; sports and exercise; walking; cycling; outdoor recreation; physical activity, sports with child; hunting, fishing, boating, hiking; general indoor leisure; imputed in-home social; receive or visit friends; play musical instrument, sing, act; artistic activity; crafts; hobbies; relax, think, do nothing; read books; read periodicals; read newspapers; listen to music (CD etc.); listen to radio; writing by hand; conversation, phone, texting; imputed travel; other travel. (Although *screen time* is considered a subcategory of *leisure*, the two activity groups are unique in content.)

Civic engagement includes general voluntary acts; political and civic activity; union and professional activities; volunteer with child/family organization; volunteer with fraternal organization; other formal volunteering; acts for religious organization; worship and religious acts; travel for volunteering or worship.

Family care includes child care; travel related to child care.

Other nonmarket labor includes food preparation, cooking; set table, wash/put away dishes; cleaning; laundry, ironing, clothing repair; home repairs, maintain vehicle; other domestic work; purchase routine goods; purchase consumer durables; purchase repair, laundry services; financial/government services; purchase other services; adult care; gardening; pet care, walk dogs; travel related to consumption. (Although *family care* is considered a subcategory of *other nonmarket labor,* the two activity groups are unique in content.)

Work includes meals at work; paid work; travel as part of paid work; travel to/from work and other work travel.

Education includes education; travel related to education.

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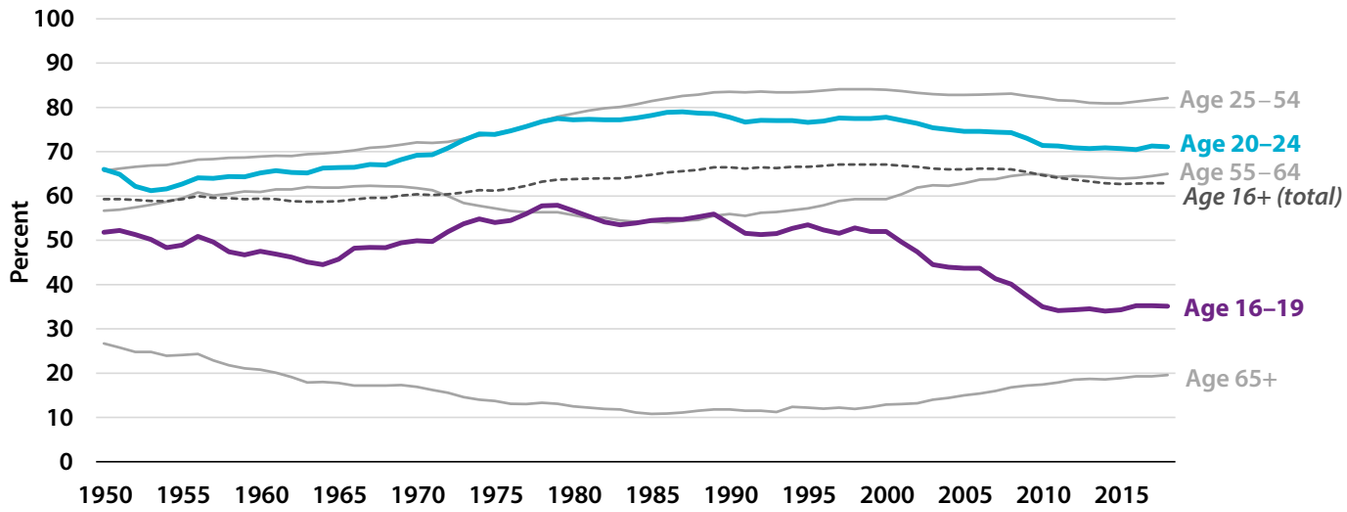
Abstract

The labor force participation rate is a key measure of economic health. While the decline in prime-age workers' labor force participation receives much attention from policymakers, it is far outpaced by the decline in participation among *younger* workers. In this analysis we show how changing employment and school enrollment patterns have contributed to declining labor force participation among youth, aged 16 to 24. Youth today are not disengaged; rather, declines in youth labor force participation primarily reflect a long-term but accelerating shift toward schooling and spending more time on education-related activities.

FIGURE 1.

Labor Force Participation Rate by Age Group, 1950–2018



Source: Bureau of Labor Statistics 1950–2018 (Current Population Survey).

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