

THE ECONOMIC SECURITY OF AMERICAN HOUSEHOLDS



Issue Brief Two: Labor Market Transitions of Young Adults

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Tiffany Chou was the principal drafter of this report. Inquiries should be directed to the Office of Economic Policy at (202) 622-2200

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This report is the second in a series examining the current economic situation of Americans in the wake of the Great Recession. This economic security brief looks at changes in how young adults are transitioning into the labor market. What happens to them once they leave school? How much do they earn? How long are they unemployed or entirely out of the labor force? Have those trends changed over time?

The cohort of Americans who came of age in the late 1990s had early labor market experiences influenced by the Great Recession. As with every generation, education and early work experience are important determinants of income growth and retirement security. Understanding the current economic security of this generation, and comparing it to a past generation, will help us better understand the current economy and anticipate this generation's overall economic security moving forward.

In this brief, we look at two cohorts from the National Longitudinal Survey of Youth (NLSY) – those coming of age in the late 1970s and those coming of age in the late 1990s. These surveys follow individuals over the early parts of their careers and therefore allow us to better understand how educational decisions and the transition to the labor market are evolving across generations, including changes in earnings, homeownership and partnership. Our analysis includes an examination of non-traditional college students — those who attend college but not immediately after high school - which is an increasingly important group that is often overlooked in studies of the transition to the labor market.

First, we examine how income trajectories evolve over time for young people. Second, we investigate how individuals spend their time in the early years after leaving school – whether they are employed, looking for work, or not in the labor force at all. We also look at the degree to which salaries change from one year to the next and how this earnings volatility differs by education. Finally, we look at homeownership and marriage, two other measures of the transition to adulthood.

Key Findings

- Young adults in the 2000s who were working full-time at age 20 earned less than 20-year-olds in the 1980s, but this gap reverses by age 30. In other words, 30-year-olds in the most recent decade have slightly higher earnings than 30-year-olds of a generation ago.
- This trend in early adulthood earnings is primarily driven by the fact that young adults in the 2000s are more likely to have attended college, which means fewer of them work at

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age 20. College-goers have strong earnings potential when they eventually begin working.

- Real earnings among those with the same level of education have not changed much between the two cohorts. Ten years after leaving school, men who completed college immediately after high school and worked full-time earned about \$80,000 per year while those who finished high school and never attended college earned about \$40,000, and this earnings gap is relatively similar between the 1979 and 1997 cohorts.
- Individual earnings sometimes fluctuate dramatically from one year to the next, but those who began working in the 2000s experienced fewer large declines within the first six years of working compared with those who started working in the 1980s.
- The likelihood of being in the labor force for young men and women is trending in opposite directions as young women in the 2000s have been spending more time in the labor force relative to those in the 1980s. The opposite pattern is true for men.
- Early labor market outcomes for students who work before earning an AA or BA (a group we will call Non-traditional Completers) used to be similar to those who started but did not complete college (a group we will call Non-completers). But the outcomes of these two groups have diverged in the more recent cohort, with Non-traditional Completers looking more like those who finished college immediately after high school and Non-completers looking more like those who never attended college.
- Although the labor market outcomes are converging between Non-completers and those who never went to college, 39 percent of Non-completers borrowed to attend college.
- Homeownership and living with a spouse are much less common among young people than in the past.

Data: National Longitudinal Surveys of Youth

This brief uses data from the 1979 and 1997 cohorts of the NLSY. For each cohort, individuals are selected for the sample if they were teenagers or in their early 20s in the baseline survey year.¹ For the 1979 NLSY, this corresponds to people born in 1957-64 while individuals in the 1997 NLSY were born in 1980-84.² In other words, the 1979 NLSY cohort was finishing school and starting work in the early 1980s while the 1997 NLSY cohort did so in the early 2000s. The

¹ For the 1979 wave, respondents had to be 14-22 when first surveyed. For the 1997 wave, respondents were 12-16 by the end of 1996.

² The NLSY oversamples particular subpopulations, so our results are all weighted to account for the sampling design. The 1979 cohort also includes a military oversample, which we exclude from this analysis.

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latest available data are in 2012 for the 1979 cohort and 2013 for the 1997 cohort.³ Price levels were different during the 1980s and 2000s, so all dollar values in this brief are converted to 2013 dollars.⁴

Most importantly for our purposes, each of the NLSY panels follows the same individuals over time, meaning we observe how both education and income change over time for the same person. This differentiates the NLSYs from many other household surveys, which include information on education only at a particular point in time and do not follow the same person from year to year. Because we have individual educational histories rather than just education at a particular point in time, we can classify people based on not just their current education, but also on their ultimate educational attainment. Since the last wave of the 1997 NLSY was in 2013, we can only observe education through about age 30, though most people have completed their education by this point.⁵

College Attendance Overall

Young adults today are much more likely to have attended some college compared to the previous generation. Figure 1 shows how college attendance and completion have changed between the two NLSY cohorts. The total height of each bar is the share of high school completers who attend some college. In the 1979 cohort, 60 percent of high school graduates attended at least some college, and this increased to 76 percent in the 1997 cohort. However, college completion, denoted by the orange segments, did not change much – approximately 40 percent of high school graduates in both cohorts had completed some kind of college degree. The lack of change in overall college completion obscures different trends between men and women. The share of women who complete an Associate’s or Bachelor’s degree increased from 43 percent to 46 percent between the two cohorts. For men, however, the share of completers fell from 38 percent to 34 percent.

For both genders, the gray segments, denoting the share who attended but never completed a degree, make up most of the increase in attendance between the 1979 and 1997 cohorts. Non-completers were 22 percent of the 1979 subsample but 36 percent of the 1997 one, and the magnitude of this change is similar between men and women.

³ Individuals in the NLSY are usually surveyed each year, but the 1979 NLSY switched to biennial waves starting in 1994. The most recent available wave for this cohort is 2012. The 1997 NLSY surveys are still conducted annually, although there was no survey in 2012, and the most recent wave is 2013.

⁴ 2013 dollar conversion is done by using the CPI-U-RS. See <http://www.bls.gov/cpi/cpiurs.htm>.

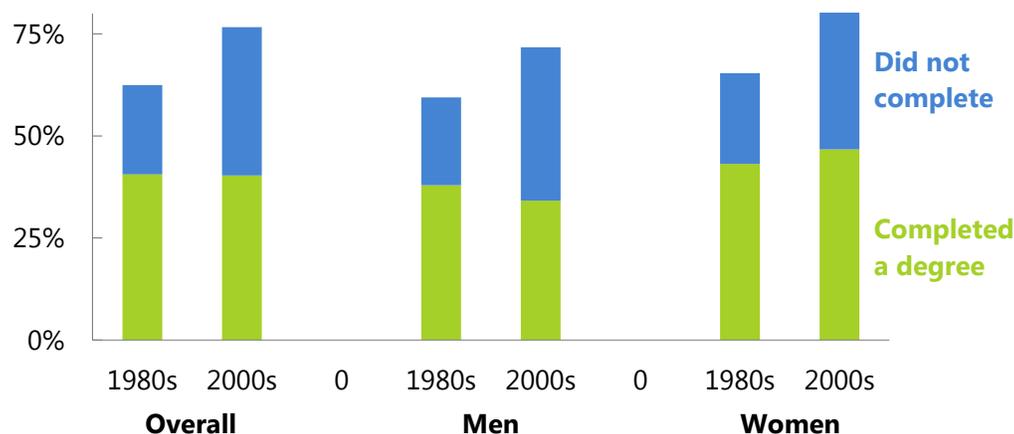
⁵ In the 1979 cohort, 83 percent of the sample had reached their final educational attainment by age 30. While individuals in the 1997 cohort may be more likely to remain in school through their 30s, this is probably limited to people obtaining graduate degrees, who we omit from the analysis.

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Figure 1: College Attendance and Completion among Those Who Finished High School

Share of young adults who attended college



Notes: Based on the 1979 and 1997 National Longitudinal Surveys of Youth. Survey respondents in the 1979 cohort were finishing high school and starting work in the early 1980s; those in the 1997 cohort were completing high school and starting work in the early 2000s. Includes all individuals with at least a high school diploma, including graduate degree holders and those with terminal Associate's degrees. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. "Completed a degree" includes those who completed either an Associate's or Bachelor's degree, regardless of whether they were continuously enrolled.

Classifying Individuals Who Go Back to College

We consider the first time an individual stops enrollment after receiving a high school diploma to be the year they first potentially enter the workforce (denoted $T=0$) and categorize individuals based on their eventual educational attainment. These categories are static, so individuals do not move around over time. The four mutually exclusive categories are:

- Traditional BA: those who completed a four-year degree immediately after high school and thus "enter" the work force with a Bachelor's degree;
- Non-traditional Completers: individuals who entered the work force with a high school diploma but eventually returned to college and completed either an Associate's or Bachelor's degree;
- Non-completers: individuals who attended some college (either right after high school or later) but did not receive a college degree of any kind; and
- HS only: individuals who completed high school and never enrolled in college.

We think of "Traditional BAs" as what many perceive to be the "typical" college student – someone in their late teens and early 20s who enrolls in college immediately after high school, attends college continuously, and then enters the labor force with a Bachelor's degree after

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graduation.⁶ “Non-traditional Completers” are individuals who stop school after high school but eventually enroll in and earn some kind of college degree. The distinction between non-traditional and traditional completers is important because these students likely differ in unobserved dimensions (e.g., type of school attended and age at completion) that affect future income trajectories.⁷ “Non-completers” are individuals who attended some college (possibly right after high school) but never earned a two-year or four-year degree.⁸ “High school only” individuals complete high school or the equivalent and never enroll in postsecondary education.

For simplicity, we omitted some education groups from our analysis: those who earn a terminal Associate’s degree immediately after high school, graduate degree holders, and those who never finish high school. In the NLSY, it is relatively rare to see individuals immediately go from high school to complete a two-year degree, so we omitted this group for brevity. Individuals with a graduate degree are about 6 percent of each cohort, and high school non-completers are about 12-13 percent. Since workers with advanced degrees tend to have higher earnings and labor force attachment (while the opposite is true for high school dropouts), these omissions mean we underestimate the differences in outcomes between college graduates and the other education categories. Leaving out three education categories means that results in this brief based on the analytical sample will not be representative of the population of young adults as a whole. However, where more representative statistics are of interest, we provide them.

One drawback of the NLSY is small sample size; Table 1 shows that while there are almost 9,000 individuals in the 1979 cohort that we will analyze, the comparable figure is only 6,300 for the 1997 cohort.⁹ The time coverage of the 1979 NLSY means we have up to 30 years of labor market experience for that cohort. However, the 1997 NLSY covers at most 16 years, meaning we will not have many observations past T=10 (i.e. ten years after first leaving school) in this cohort. Comparisons across cohorts therefore will primarily look at outcomes through Year 10. Further splitting the sample, say by education, gender, or time in the labor force, will result in some cells that have very few observations. Year-to-year differences may be due to small sample sizes, so our analysis will emphasize overall trends.

⁶ We cannot differentiate between undergraduate and graduate enrollment, so “Traditional BA” could include individuals who finished a four-year degree and dropped out of a graduate program.

⁷ Note that students who take a “gap year” between high school and college would not be included in the Traditional BA bin. Insofar as students who take a gap year are more similar in unobservables to those who directly enroll in college, this will underestimate the difference in earnings between Traditional BA and the other education groups.

⁸ This Non-completer group also includes people who complete a certificate program since they have some college enrollment but no degree.

⁹ The analytical sample, where we excluded graduate degree holders, high school dropouts, and those who completed an Associate’s degree immediately after high school, preserves the majority of respondents in the original data. The 1979 NLSY’s non-military sample was approximately 11,000 individuals, and the 1997 cohort was about 9,000, implying that the subset of observations we use here are 70-80 percent of the original.

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Table 1: Sample Size, by Education and NLSY cohort

	1979 NLSY			1997 NLSY		
	Total	Men	Women	Total	Men	Women
Analytical sample	8,806	4,260	4,546	6,259	3,256	3,003
Traditional BA	1,143	555	588	965	426	539
Non-trad Completer	1,581	674	907	925	392	533
Non-completer	2,223	1,018	1,205	2,531	1,306	1,225
High school only	3,859	2,013	1,846	1,838	1,132	706

Note: Analytical sample limited to those who have at least a high school degree and less than a graduate degree. Individuals who have a terminal Associate's degree immediately after high school are also omitted. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college.

Cyclical Considerations

One potential issue with a cohort-level analysis is that people in each cohort would experience roughly the same economic conditions, but that these conditions may differ substantially between the 1979 and 1997 cohorts. For example, the older cohort would have started working in the 1980s, and the first few years of labor market experience may have been affected by the 1980s recession, depending on when exactly they finished school. However, the younger cohort, because they started working in the early 2000s, would probably not have been affected by a recession and would have experienced a period of economic growth in their first few years. Then it would be difficult to tell the extent to which differences in earnings between the two cohorts were due to changes in the age-earnings profile or just due to differences in macroeconomic factors at the time these individuals started working. While we do not adjust for this issue in the following figures, we explicitly marked the observations that might have been directly affected by cyclical downturns with squares.¹⁰

¹⁰ An education-year bin is marked if more than half of the observations in that bin occurred during a recession. The 2001 recession is included in this calculation but does not appear in the figures because the 1997 cohort was graduating high school in 1998-2002. Since most of this cohort had not finished high school by 2001, none of those education-year bins will have more than half of observations happening in 2001.

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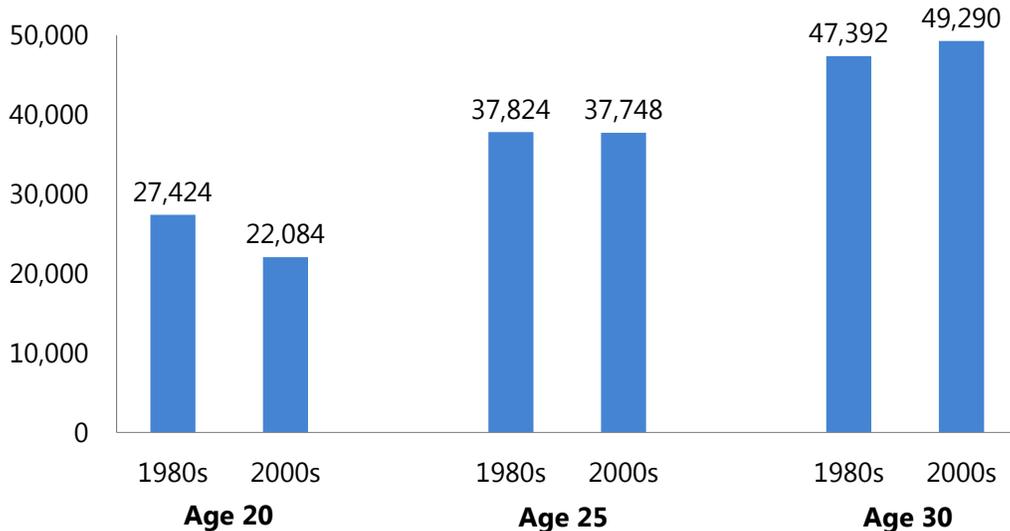
Comparing the Early Earnings of the 1979 and 1997 Cohorts

Typical Earnings of Young Adults

We start by looking at how much young adults typically earn and how that has changed over time. Figure 2 shows the average annual earnings at age 20, 25, and 30 in 2013 dollars. This figure is based on the NLSY datasets, which follow cohorts reaching early adulthood in the 1980s and early 2000s. At age 20, the typical full-time worker in the 1979 cohort earned approximately \$27,000 (inflation adjusted), which grew to \$38,000 at age 25, and \$47,000 at age 30. Twenty-year olds working full-time in the 1997 cohort, by contrast, earned \$22,000, substantially less than the prior cohort at the same age. However, the 1997 cohort's earnings rapidly catch up – at 25 years old they are about the same, and earnings at age 30 are slightly higher than the 1979 cohort.

Figure 2: Earnings of Young Adults by Age

Average Annual Earnings (\$2013)



Notes: Based on the 1979 and 1997 National Longitudinal Surveys of Youth. Survey respondents in the 1979 cohort were finishing high school and starting work in the early 1980s; those in the 1997 cohort were completing high school and starting work in the early 2000s. Includes only full-time full year workers, defined as working at least 35 hours a week for 50 weeks a year.

These differences in the early age-earnings profile between the 1979 and 1997 cohorts reflect many factors, including changes in the characteristics of full-time workers at each age. For example, in the 1979 NLSY, 21 percent of people working full-time at age 20 had not graduated high school, compared to 32 percent in the 1997 cohort. Because the education levels of those who choose to work at age 20 is different between the two cohorts, the typical earnings of working 20-year-olds will also be different. Because higher education has large effects on when

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individuals in their 20s start working and how much they earn, the remainder of our analysis will look at how labor market outcomes changed over time within particular education groups.¹¹

Earnings by Education

Figure shows the salaries for full-time men (upper panels) and full-time women (lower panels) for the two NLSY cohorts. Looking first at men, the salaries for full-time workers at each level of education in the 1997 cohort start at lower levels in inflation-adjusted dollars than those of the 1979 one. In the 1979 cohort, three of the four education categories earn about \$40,000 upon labor market entry, but this figure has dropped to about \$30,000 in the 1997 cohort. Traditional BAs in the 1997 cohort start at about \$40,000, but it is difficult to tell whether this is a drop from the 1979 cohort since the early cohort's starting value is imprecisely estimated.¹²

By Year 10, incomes for Traditional BAs and High school only look relatively similar across cohorts, suggesting that even though starting incomes were lower in the more recent cohort, they grew fast enough to reach about the same level by Year 10.

For women, the story is relatively similar. Starting incomes were somewhat lower in the 1997 cohort, but Year 10 incomes among Traditional BAs and High school only were approximately the same. This implies that the gender gap in earnings within each education level is similar within each cohort. Traditional BA women earn about 77 percent of Traditional BA men through Year 10 in the 1979 cohort, compared to 80 percent in the 1997 cohort. High school only women in the 1979 cohort earned 69 percent of what similarly educated men earned, and slightly more (73 percent) in the 1997 cohort.

¹¹ There may also be macroeconomic differences where, for example, 20 year olds are in a recession in one cohort but not another. While we cannot directly account for the cyclical impact on earnings profiles, we will briefly return to this issue in our comparisons of earnings between the two cohorts.

¹² The T=0 average salary for Traditional BAs in 1979 is comprised 55 observations. In addition, we do not see a drop in the average salaries for all men, suggesting that the early decline among men is probably due to sample size.

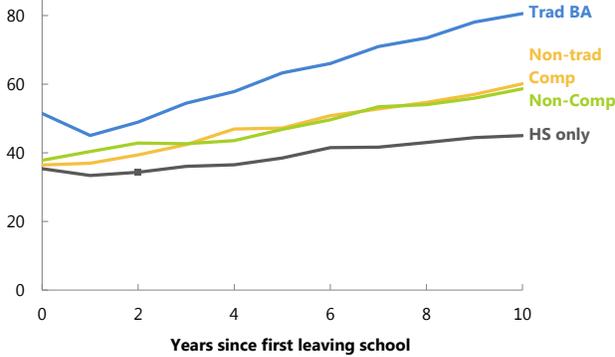
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Figure 3: Labor Earnings through Year 10, By Gender and Cohort

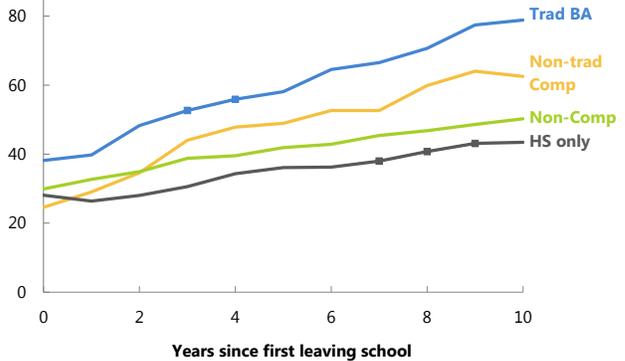
1979 Cohort, Men

Average Earnings (Thousands of \$2013)



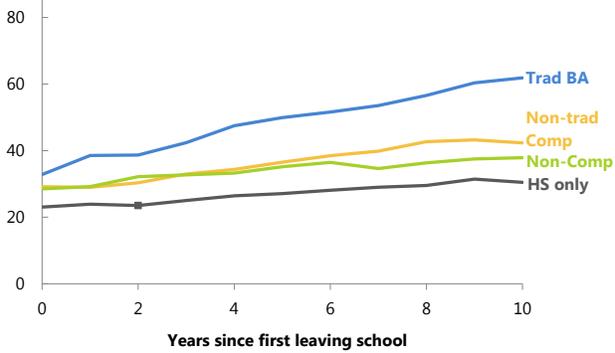
1997 Cohort, Men

Average Earnings (Thousands of \$2013)



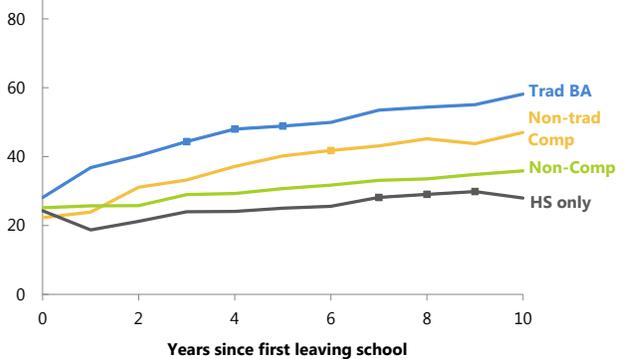
1979 Cohort, Women

Average Earnings (Thousands of \$2013)



1997 Cohort, Women

Average Earnings (Thousands of \$2013)



Notes: Based on the 1979 and 1997 National Longitudinal Surveys of Youth. Includes only full-time full year workers, defined as working at least 35 hours a week for 50 weeks a year. Squares denote education-year combinations where more than half of the observations were during a recession. Averages include only positive reported salaries.

The squares associated with the Great Recession can be seen in both right-hand panels. Because different education groups tend to enter the labor market in different years, the recession affects them at slightly different points in their working lives. Years 3-5 for Traditional BAs may all have been heavily influenced by the timing of the recession, as well as Year 7-9 for the High school only group. Therefore, these outcomes were probably worse than they would have been if economic times were normal. There are not very many squares in the left-hand panels, so the average earnings in the 1979 cohort are not as severely impacted by the difference in macroeconomic conditions at the time of labor market entry.¹³

¹³ While the squares mark years observed during a recession, downturns may influence earnings for many years after. For example, economic recoveries may happen at different speeds, so earnings may stay lower for workers

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While the patterns of salary changes look similar between men and women, there are clear differences by education. As discussed earlier, workers with a Traditional BA earn significantly more than the Non-traditional Completers and the Non-completers in every panel. But the outcomes of Non-traditional Completers have diverged from those of Non-completers in the 1997 cohort, even though they were very similar in the 1979 cohort. In the 1979 cohort, both Non-traditional Completers and Non-completers earned more than workers with a terminal high school diploma. In the 1997 cohort, however, the earnings trajectories for Non-traditional Completers were closer to that of Traditional BA workers while that of Non-completers looked more like High school only workers. After T=10, this gap between Non-traditional Completers and Non-completers is unlikely to close since the earnings gaps typically widened with labor market experience, as we will see at the end of this brief.

Changes in Labor Market Attachment

So far, most of this brief has focused on full-time workers. But earnings are only one labor market outcome, and changes in how young adults transition into the labor market more broadly also affect economic security. How much time do young adults spend unemployed or out of the labor force entirely instead of working? Have those tendencies changed over time? For this analysis, we look at the average number of years individuals spend employed, unemployed, and out of the labor force in the first six years after leaving school.

Figure 4 shows how the young adults in the analytical sample spent their early working years. As mentioned earlier, the focus on just the analytical sample means we underestimate the difference in outcomes between college and non-college individuals. Overall, there are few differences in labor market attachment between the 1979 and 1997 cohorts, with both spending about one-third of a year unemployed, one year out of the labor force, and 4.5 years employed. The Unknown category, which reflects incomplete data, makes up about 2 weeks out of the full 6 year period.¹⁴

coming out of the Great Recession compared to those existing the 1980s recession. New workers who start working during recessions may also experience labor market “scarring”, meaning their earnings take longer to recover compared to workers with similar characteristics who began to work just before the downturn.

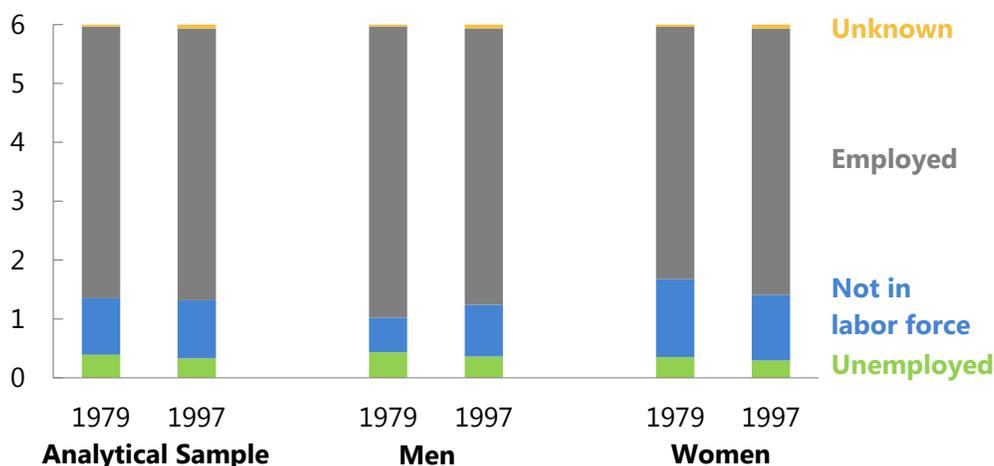
¹⁴ “Unknown” observations could be “not employed, reason unknown”, which means the NLSY could not determine whether the individual was unemployed or entirely out of the labor force, or missing entirely from that week’s work history.

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Figure 4: Labor Market Attachment through T=5, By Gender and Cohort

Average number of years



Notes: Analytical sample limited to those who have at least a high school degree and less than a graduate degree. Individuals who have a terminal Associate's degree immediately after high school are also omitted. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group never attended college. The year a student last enrolled in school is T=0, so there are up to six years of observations through T=5. "Employed" includes serving in the military. "Not in LF" includes students who do not report another labor market status. Calculated from the weekly work histories in the NLSY.

The overall pattern, however, masks differences between men and women. Young men now spend more time out of the labor force than before, while women have become more likely to work. As a result, the 1997 cohort has similar, though not identical, labor force participation patterns for young men and women. The increase in women's labor force participation between the 1979 and 1997 cohorts is partially due to women having children later—54 percent of women in the 1997 cohort have a child by Year 5, compared with 58 percent in the 1979 cohort—and partly due to increased employment among women with children.¹⁵ There is little change in unemployment over time, with both men and women in both cohorts spending about 4-5 months unemployed within the first six years of work.

Figures 7 and 8 disaggregate the labor force status of men and women by education. For simplicity, these figures show only unemployment and being out of the labor force; the rest of the bar up to six years would primarily be "employed." For both men and women in both cohorts, those with higher levels of education have shorter bars, meaning those with higher education spend more time employed and less time unemployed or out of the labor force. For both men and women, High school only individuals spend at least twice as much time in non-employment than Traditional BA. Non-traditional Completers and Non-completers are in between, consistent with many of the other trends we have seen thus far.

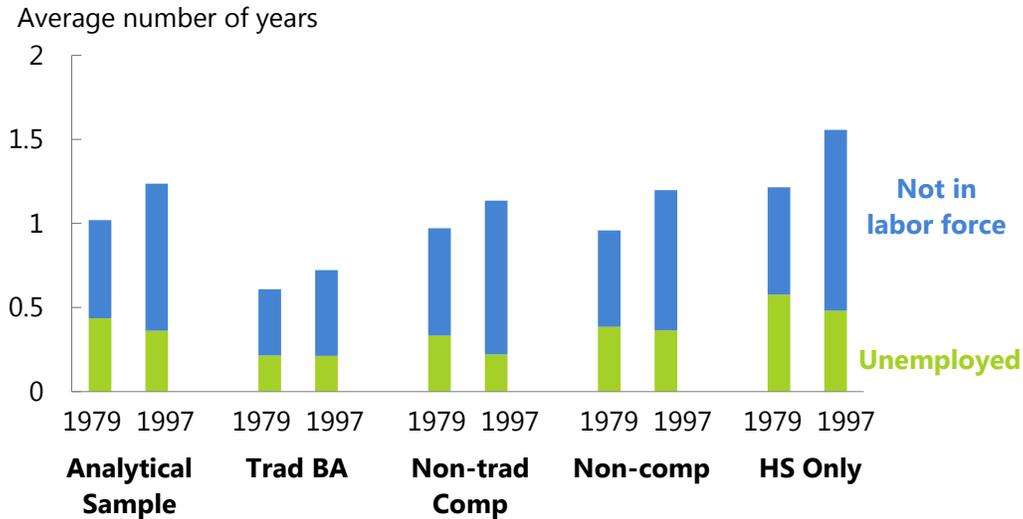
¹⁵ The probability of having a child at home has also declined for men, from 37 percent to 31 percent.

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The gender patterns seen in the overall results also occur within education categories. Young men in every education group in the 1997 cohort spend more time out of employment than those from in 1979 cohort. This is because of a decline in labor force participation that is evident in all education groups and most evident among the least educated.

Figure 5: Non-Employment through T=5, Men



Notes: Analytical sample limited to those who have at least a high school degree and less than a graduate degree. Individuals who have a terminal Associate's degree immediately after high school are also omitted. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college. The year a student last enrolled in school is T=0, so there are up to six years of observations through T=5. "Employed" includes serving in the military. Calculated from the weekly work histories in the NLSY.

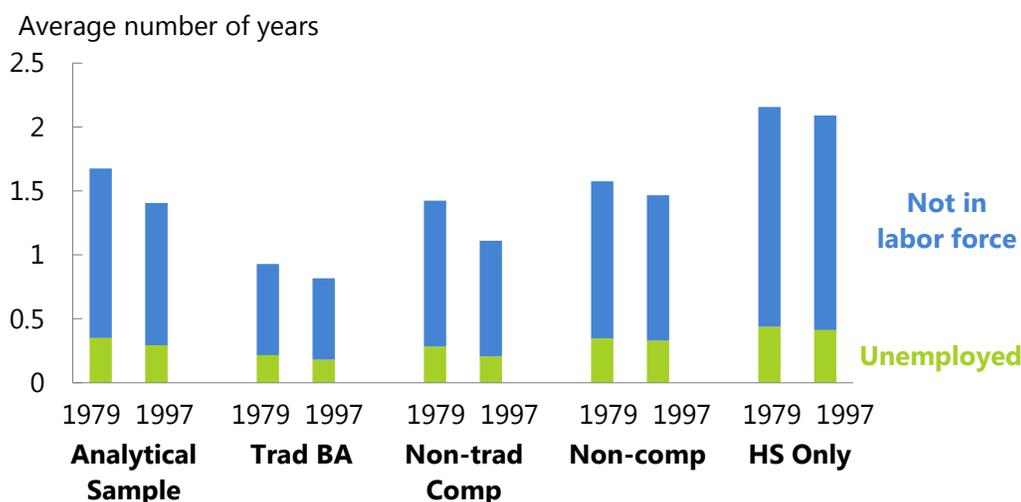
While young men's employment was falling, women's employment was rising. Increases in women's employment are largest among Non-traditional Completers, who work an additional 0.3 years, and about an additional 0.1 years employed among Traditional BAs and Non-completers.¹⁶

¹⁶ Employment for High school only women was relatively unchanged, due to increases in the "Unknown" status between 1979 and 1997 (not shown).

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Figure 6: Non-Employment through T=5, Women



Notes: Analytical sample limited to those who have at least a high school degree and less than a graduate degree. Individuals who have a terminal Associate's degree immediately after high school are also omitted. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college. The year a student last enrolled in school is T=0, so there are up to six years of observations through T=5. "Employed" includes serving in the military. Calculated from the weekly work histories in the NLSY.

Volatility in Incomes

The final aspect of early labor market outcomes we explore is year-to-year volatility in salaries and how it varies by education and across cohorts. Earnings volatility is an important aspect of financial well-being because even if average earnings are increasing, individuals may experience large drops in earnings that may cause financial hardship. For this section, we define an income "shock" as the percentage change between this year and last year's reported earnings. We condition on having positive earnings in both years to minimize the effects of misreported zeroes and missing values on our results.¹⁷ However, we note that doing so limits our analysis because it means that we are ignoring correctly reported zeroes that would indicate a year without income, which in many cases would be associated with great hardship. Also, earnings may be reported with substantial error, as is typical in self-reported surveys, which leads to higher measured volatility. If measurement error is relatively similar across education levels and cohorts, the qualitative comparisons should hold.

¹⁷ In the 1979 cohort, 18 percent of person-year observations are missing and 20-25 percent are reported as zeros. In the 1997 cohort, 40 percent of person-year observations are missing and less than 1 percent are reported as zeros. For consistency between the two cohorts, we treated all reported zeros as missing values in this analysis.

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Table 2 presents the distribution of year-over-year percent changes in salary between T=2 and T=5 for both NLSY cohorts.¹⁸ Looking first at the 1979 cohort, the median shock is +7 percent, meaning that a typical individual will have salary that is 7 percent higher this year than last, and the 75th percentile is +35 percent. The bottom quarter of income shocks are negative and quite large (-9 percent at the 25th percentile), meaning that substantial salary declines are not uncommon for young adults just entering the labor market.

Table 2: Distribution of Year-to-Year Changes in Real Annual Salary through T=5

	1979 cohort			1997 cohort				
	N	25th percentile	50th percentile	75th percentile	N	25th percentile	50th percentile	75th percentile
Analytical sample	32,736	-8.5%	7.0%	35.4%	21,272	-8.7%	8.3%	41.9%
Traditional BA	4,367	-3.3%	7.9%	25.8%	3,430	-3.3%	8.0%	33.2%
Non-trad Completer	6,015	-8.4%	7.8%	40.2%	3,091	-8.5%	8.7%	45.1%
Non-completer	7,938	-6.9%	6.7%	34.7%	8,578	-11.7%	7.5%	41.3%
High school only	14,416	-12.9%	6.1%	40.9%	6,173	-12.1%	10.5%	50.1%

Notes: Analytical sample limited to those who have at least a high school degree and less than a graduate degree. Individuals who have a terminal Associate's degree immediately after high school are also omitted. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college. An observation is a person-year. The panel is unbalanced; some individuals have complete work histories through T=5 while others only have a few years of salary observations. Observations that report zero or missing salary are excluded.

The median shock is relatively similar across all education levels, but the distribution is compressed for those with more schooling, meaning that those with more education tend to have smaller changes in earnings from one year to the next. Traditional BAs have relatively few negative shocks (the 25th percentile is -3 percent) and relatively few large shocks (the 75th percentile is +26 percent). Non-traditional Completers and Non-completers look relatively similar, with a 25th percentile that is slightly more negative than that of Traditional BAs, and a 75th percentile that is noticeably higher. Those with only a high school diploma have the most negative 25th percentile (-13 percent) and also the highest 75th percentile (+41 percent).

Compared with the 1979 cohort, the distribution of shocks in the 1997 cohort is slightly higher on the high end. The 25th percentile and median are about the same as the previous cohort and the 75th percentile is higher. The median salary shock is +8 percent, compared to 7 percent previously, but the bottom end is -9 percent, which is close to the previous cohort. The top quarter of shocks in the 1997 cohort is about +42 percent, which is larger than the +35 percent before. In general, a rightward shift in the distribution means more positive shocks with

¹⁸ We start at T=2 because that is the first income shock (i.e., between T=1 and T=2) that reflects a full year of potential labor market experience. Changes in salary between T=0 and T=1 are confounded by the fact that the T=0 salary reflects individuals who worked only a portion of the year and were in school for the remainder.

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little change in negative shocks, so in this sense, the 1997 cohort is better off than the 1979 one. One important caveat is that the analysis is conditioned among those who had positive earnings in two consecutive years, which may have been less likely during the Great Recession.

Within education levels, most of the distributions for the 1997 cohort are relatively similar to those from the 1979 cohort, except with a higher 75th percentile. The exception seems to be for Non-completers, whose 25th percentile is more negative than before. In other words, Non-completers are more likely to experience salary declines (and they are likely to be larger) in the 1997 cohort than in the 1979 cohort. This is potentially another reason to focus on non-completers as a policy priority.

In addition to looking at the distribution of year-over-year shocks, we can focus on just the probability of large negative shocks, defined here as larger than 10 percent from one year to the next. Per Table 2, this is near the 25th percentile in both cohorts, so this definition identifies salary declines that are somewhat large but not extraordinarily rare.

The first row of Table 3 shows the probability of having a large negative shock across the different categories. In the 1979 cohort, there is approximately a one-in-four chance of a large (10 percent) decline in salary in any given year, but this ranges between 16 percent for Traditional BA to nearly 28 percent for those with a high school diploma. In other words, those with more education are less likely to experience large drops in earnings from one year to the next. The probability of having a large earnings decline is not very different between the two cohorts conditional on education.

Table 3: Probability of Large Decline in Real Annual Earnings through T=5

	1979 cohort				1997 cohort			
	Trad BA	Non-Trad	Non-Comp	HS only	Trad BA	Non-Trad	Non-Comp	HS only
<i>Chance of:</i>								
10+ pct earnings drop	15.9%	23.7%	22.3%	27.5%	16.5%	23.1%	26.7%	26.9%
Having unemp spell	7.6%	14.3%	14.7%	22.3%	7.2%	9.8%	15.1%	18.5%
<i>Chance of an Earnings Drop Conditional on:</i>								
Unemp spell	48.1%	45.3%	40.5%	46.3%	37.0%	39.1%	40.2%	35.3%
No unemp spell	13.3%	20.1%	19.2%	22.0%	14.9%	21.3%	24.2%	25.0%

Notes: Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college. An observation is a person-year. Observations that report zero or missing salary are excluded. Large negative shocks are defined as a decline in salary between this year and last year of 10 percent or more. Unemployment spells are defined as having a 4+ week consecutive spell of unemployment in the year.

Negative income shocks could reflect changes in earnings (without a meaningful unemployment spell) or changes in employment, and here we attempt to differentiate between them by looking at whether employment status changed in the year of the shock. We define an

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“employment lapse” as a year where the individual had a 4+ week spell of continuous unemployment. Note that this definition tends to underestimate the probability of an employment lapse since short spells of unemployment and any spells of non-participation (e.g., becoming discouraged or leaving work to attend school) are not counted as unemployment. The second row of Table 3 shows that there is a 7-8 percent probability of unemployment for Traditional BAs and much higher probabilities (19-22 percent) for those who are High school only (22 percent).

The bottom two rows of the table show that the probability of having a significant earnings decline differs depending on whether there was an unemployment spell in the same year. Those with an unemployment spell had a 35-48 percent chance of having a substantial earnings drop in both cohorts. Without an unemployment spell, Traditional BAs have a 13-15 percent chance of an earnings drop whereas other groups have a 20-25 percent chance of earnings loss in the absence unemployment. It appears that earnings drops are somewhat less likely to be due to unemployment spells than in the past. Note that the conclusions for Table 3 do not change much if we include the zeros and missing earnings as income changes.¹⁹

Student Loans

As we have seen, higher education is strongly connected to higher earnings. However, the cost of college has increased much faster than typical family incomes. For example, median household income in 1986 was about \$25,000²⁰ while a year of tuition and room and board at a public four-year school that year was \$3,900.²¹ Since then, both have increased, with median household income nearly doubling by 2015 but the cost of college increasing almost fivefold. As a result, one year at an in-state public four-year college now costs nearly 32 percent of the median household’s income in 2015 compared to 16 percent in 1986. Some of this increase reflects macroeconomic factors, but a substantial rise in the cost burden of college occurred even before the Great Recession.²²

Given this rise in the cost of college relative to incomes, it is not surprising that many more students might need to borrow to attend college. The average cumulative debt for an undergraduate finishing a four-year degree in 2000 was \$20,400 (in 2013 dollars) and this had

¹⁹ Specifically, if we treated missing values as infinitely large earnings changes, the absolute level of earnings shocks increases by 2-3 percentage points across the board, but the trends over time and across educational categories remain the same.

²⁰ U.S. Census Bureau, Table H-6 regions-by Median and Mean Income. <http://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html>.

²¹ College Board, Trends in College Pricing 2015, Table 3. <https://trends.collegeboard.org/sites/default/files/cp-2015-table-3.xls>.

²² In 2000, the cost would have been about 20 percent of household income, but by 2005, it was already 25 percent.

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increased to \$23,400 in 2012.²³ The NLSYs have few questions about student lending, but from those data, we can see that probability of having student debt has increased between the two cohorts. Table 4 shows that in the 1997 cohort overall, 37 percent of all young adults had ever had a student loan, up from 30 percent in the 1979 cohort.²⁴ The likelihood of borrowing increased substantially for Non-traditional Completers, from 50 percent to 70 percent.

Note that while Non-traditional Completers had the largest increases in borrowing between the two cohorts, their income trajectories became closer to those of traditional graduates. This suggests that at least some of this increase in borrowing results in increased human capital (e.g., students spending more time in school in order to get four-year degrees instead of two-year ones), and this kind of borrowing may be financially sustainable and less of a policy concern.²⁵

Table 4: Share that Ever Had a Student Loan

	Total		Men		Women	
	NLSY 79	NLSY 97	NLSY 79	NLSY 97	NLSY 79	NLSY 97
All young adults	30.2	36.7	28.7	31.4	31.8	42.2
Analytical sample	29.2	37.7	28.3	32.3	30.1	43.7
Traditional BA	61.2	65.1	61.8	62.6	60.5	67.1
Non-trad Completer	50.4	69.5	49.8	66.4	50.9	72.0
Non-completer	36.9	38.5	38.3	35.6	35.5	41.9
High school only	2.7	0.6	2.2	0.5	3.3	0.7

Notes: The “All young adults” row is the population estimate for the entire NLSY cohort, including those who received a graduate degree, went directly from high school to a terminal AA degree, or did not complete high school. Analytical sample limited to those who have at least a high school degree and less than a graduate degree. Individuals who have a terminal Associate’s degree immediately after high school are also omitted. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college.

²³ Computed using the 2000 and 2012 National Postsecondary Student Aid Surveys. Some of the increase in cumulative debt at graduation is driven by changes in the type of school students attend. For those finishing at public four-year schools, cumulative debt has not increased much (from \$23,400 to \$25,000) while at for-profits, debt increased from \$14,500 to \$23,300.

²⁴ While there are other questions about the level of student loan debt in the NLSY, this one is the only one that is asked consistently across both cohorts and over time.

²⁵ The degree composition among Non-traditional Completers in the NLSYs has indeed shifted from two-year Associate’s degrees and toward four-year Bachelor’s degrees. In the 1979 cohort, nearly one-third of Non-traditional Completers completed a four-year degree, but this has doubled in the 1997 cohort.

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Although the borrowing propensity of Non-completers did not change as much, from 37 to 39 percent, these individuals are a much larger share of young people today. Thus, given the much lower earnings trajectories of Non-completers, many more individuals may be at risk of having a debt-financed postsecondary experience that does not pay off, on net, in the long-run. Completion is a key concern, both for individuals deciding whether to attend (and especially how to pay for) college and for higher education policymakers. In particular, many college students pay for higher education using student loans, and student loans must be repaid regardless of completion status. Given the decline in the earnings premium to attending without completing, prospective borrowers should carefully consider their own completion probability before taking on student debt. Another reason that college completion is an important policy priority is that non-completers may not earn enough to repay their loans, which could lead to economic hardship, including lack of access to other forms of credit later in life.

Non-Labor Market Markers of Adulthood

So far, this brief has examined labor market outcomes for young adults. However, working is only one aspect of the transition into adulthood, and in this section, we look at other markers of adulthood to see how those have changed between the two NLSY cohorts.

Homeownership

Homeownership patterns of young adults are of interest to policymakers. While the financial crisis exposed some of the risks associated with homeownership, owning a home is still an important means for households to build wealth. The earlier households begin to own a home, the earlier this wealth can begin to accumulate. Table 5 shows the share of individuals who report owning their current residence at a particular age.²⁶

²⁶ The asset questions in the 1997 NLSY are only asked when the individuals reach specific ages, so we cannot construct annual homeownership rates.

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Table 5: Share that Own Current Home

	1979 NLSY			1997 NLSY		
	Age 20	Age 25	Age 30	Age 20	Age 25	Age 30
All young adults	8.2	25.0	47.4	2.4	14.4	28.2
Analytical Sample	8.0	26.3	49.1	2.5	14.6	28.2
Traditional BA	3.7	20.1	58.4	1.6	17.4	39.6
Non-trad Completer	6.5	23.0	50.6	1.7	15.8	34.2
Non-completer	6.9	24.8	46.5	2.5	14.2	25.2
High school only	10.5	31.3	45.9	3.6	12.6	20.9

Notes: The “All young adults” row is the population estimate for the entire NLSY cohort, including those who received a graduate degree, went directly from high school to a terminal AA degree, or did not complete high school. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college.

Unsurprisingly, individuals become more likely to own a home as they get older. Nearly half of individuals in the 1979 cohort owned a home in the year they turned 30, up from a quarter at age 25. There is also a very clear education pattern. At age 20 and 25, those who had only a high school diploma were the most likely to own a home, presumably because they had completed their education and were settling down. However, this group was the least likely to own a home at age 30, implying that homeownership rates among college-goers eventually caught up and surpassed that of the High school only group. The gap in ownership between Traditional BA and High school only was about 13 percentage points by age 30 in the 1979 cohort.

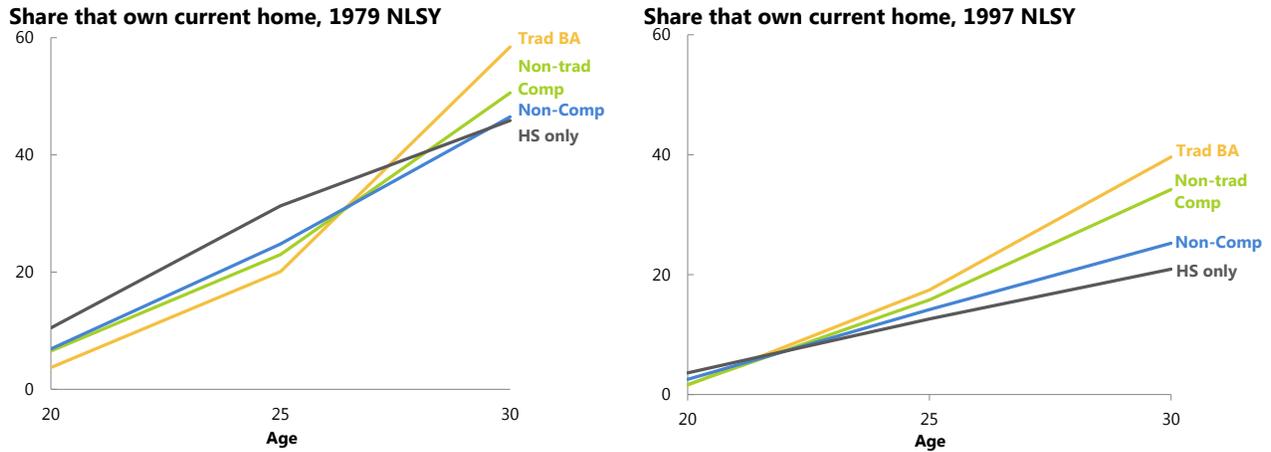
The 1997 cohort shows the same increase in the propensity to own a home with age and also showed those with more education catching up and surpassing their less educated counterparts. However, one very notable change is that homeownership rates for young adults fell substantially between the 1979 and 1997 cohorts, and this is pervasive across all education levels. This decline is shown in Figure . Whereas a quarter of individuals in the 1979 cohort owned a home at age 25, this has fallen to 15 percent for the 1997 cohort. Homeownership at age 30, which was 50 percent in the old cohort, has fallen to 28 percent. Traditional BAs have the highest homeownership rates at age 25 and 30 while high school only individuals are the least likely to own at age 30. The Traditional BA-high school gap has increased to 19 percent, so the ownership gap between those who finish college and those who do not has grown over time rather than decreased. While fewer 30-year-olds today own a home compared to a generation ago, we cannot tell if this decline reflects delays in home buying or more permanent

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declines in homeownership. It is also not clear whether these trends will persist as economic conditions normalize.

Figure 7: Homeownership at Age 20, 25, and 30



Notes: Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college.

Living with a Spouse

Another adulthood milestone is family formation, which we examine here using spousal cohabitation. Cohabitation, as opposed to marriage alone, is interesting because it can relate to homeownership and because it can be compared with other living situations. Table 6 shows the share of individuals living with a spouse. As with the homeownership figures, we present the share currently living with a spouse at a given age. In the 1979 NLSY, 18 percent of 20 year olds lived with a spouse, and this increased to 46 percent at age 25 and 62 percent at age 30. Traditional BAs were the least likely to live with a spouse at ages 20 and 25, likely because they were still in school, but they caught up and passed the other education categories by age 30.

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Table 6: Share that Live With A Spouse

	1979			1997		
	Age 20	Age 25	Age 30	Age 20	Age 25	Age 30
All young adults	19.3	45.0	60.9	7.3	30.3	48.7
Analytical sample	17.9	45.6	61.8	6.7	29.5	48.3
Traditional BA	2.7	35.9	67.1	1.6	32.4	62.9
Non-trad Completer	12.2	43.3	61.7	4.6	28.6	47.0
Non-completer	16.7	44.3	57.8	8.0	30.4	45.3
High school only	27.1	51.3	61.8	10.0	26.8	43.5

Notes: The “All young adults” row is the population estimate for the entire NLSY cohort, including those who received a graduate degree, went directly from high school to a terminal AA degree, or did not complete high school. Completion status determined by last observed highest educational attainment, typically ages 19 to 25 in both cohorts. Traditional BAs are students who completed a BA without any gap in enrollment before or during college. Non-traditional Completers completed an AA or BA but had an enrollment gap before completion. Non-completers attended with or without continuous enrollment but did not complete a degree. The HS only group finished high school but never attended college.

Spousal cohabitation declined at all ages and across all education categories between 1979 and 1997. Overall, 48 percent of 30 year olds in the 1997 cohort lived with a spouse, a 13 percentage point decline from 1979. Declines were the largest for those with less education; spousal cohabitation at age 30 fell 4 percentage points among Traditional BAs (from 67 to 63 percent) but 18 percentage points for High school only individuals.

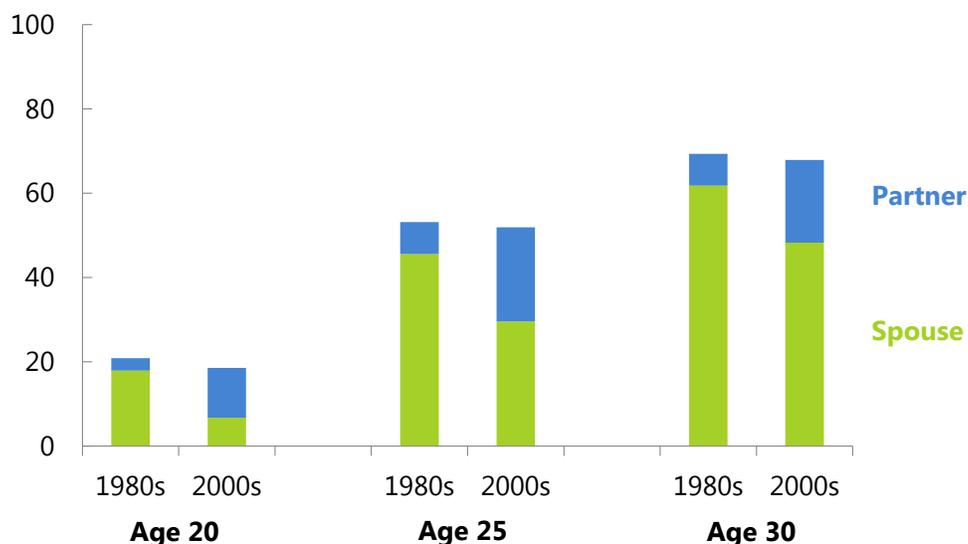
Interestingly, rates of cohabitation did not change much if we include those living with an unmarried partner (see Figure 8). Nearly 70 percent of 30 year olds in the 1997 cohort lived with a spouse or partner, which is almost the same level as 30 year olds in the 1979 cohort. While the definition of “partner” is left unspecified by the survey, these trends suggest that living arrangements for young adults may not be changing as much as delays in marriage would imply.

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Figure 8: Cohabitation at Age 20, 25, and 30, All Young Adults

Share that live with spouse/partner



Notes: Based on the 1979 and 1997 National Longitudinal Surveys of Youth, including those who received a graduate degree, went directly from high school to a terminal AA degree, or did not complete high school. Survey respondents in the 1979 cohort were finishing high school and starting work in the early 1980s; those in the 1997 cohort were completing high school and starting work in the early 2000s.

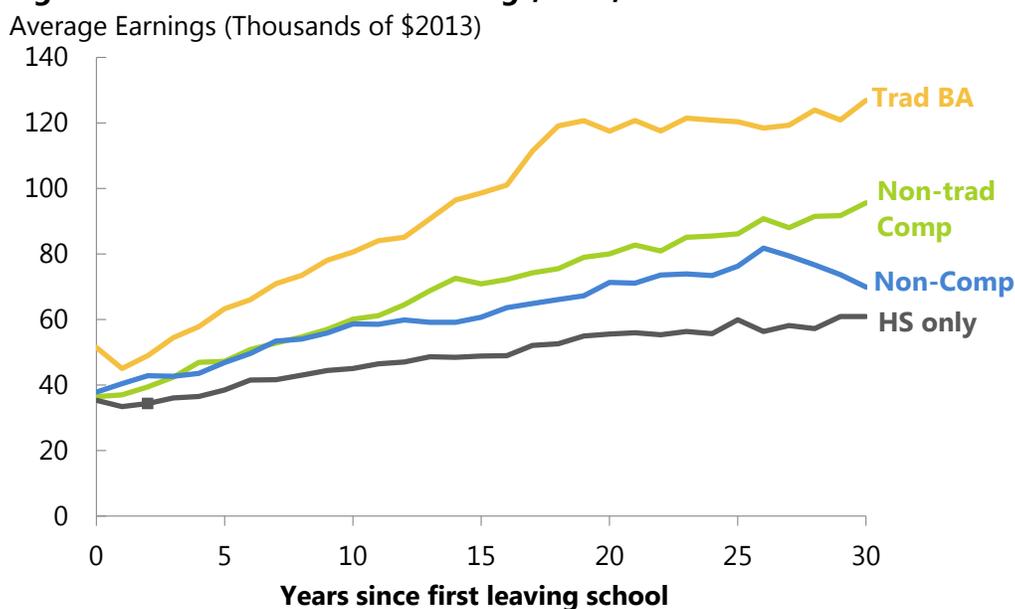
Earnings over the First 30 Years of Work for the 1979 NLSY Cohort

Thus far, we have only looked at early adulthood outcomes since the 1997 cohort is still relatively young and that is as far as their data go. However, the 1979 cohort has a much longer time series, and we can look at long-run earnings at different levels of higher education. Figure 9 shows a clear education-earnings pattern – those with more education have higher inflation-adjusted salaries than those with less formal schooling. For example, at Year T=10 (meaning ten years after first leaving school), the average salary income for a Traditional BA male working full-time was nearly \$80,000, compared with about \$45,000 for someone with a terminal high school diploma.

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Figure 9: Evolution of Labor Earnings, Men, 1979 NLSY



Notes: Based on the 1979 National Longitudinal Survey of Youth. Includes only full-time full year workers, defined as working at least 35 hours a week for 50 weeks a year. Squares denote education-year combinations where more than half of the observations were during a recession. Averages include only positive reported earnings.

Figure 9 also shows the income profiles for Non-traditional Completers and Non-completers. Both groups appear to do better than those with only a high school diploma at all years of (potential) labor market experience, but Non-traditional Completers and Non-completers appear relatively similar through Year 10. After that, a moderate earnings gap appears between those who finish college and those who do not. Non-traditional Completers never reach the earnings of the Traditional BA group, but some of this is likely due to the fact that Traditional BA individuals all have a four-year degree, while Non-traditional Completers are a mix of Associate's and Bachelor's degrees.²⁷

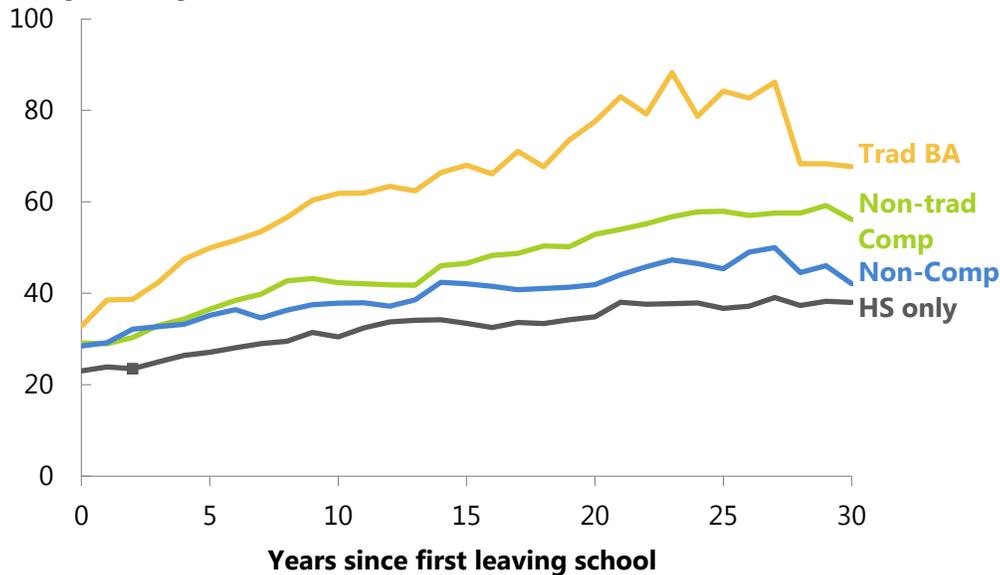
²⁷ The data allow us to differentiate between Associate's and Bachelor's degrees among Non-Traditional Completers, but for sample size reasons, we pooled them together.

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Figure 10: Evolution of Labor Earnings, Women, 1979 NLSY

Average Earnings (Thousands of \$2013)



Notes: Based on the 1979 National Longitudinal Survey of Youth. Includes only full-time full year workers, defined as working at least 35 hours a week for 50 weeks a year. Squares denote education-year combinations where more than half of the observations were during a recession. Averages include only positive reported salaries.

In the 1979 cohort, women had lower earnings than men at every education level, even among those working full-time (see Figure 10). For example, women who finished college right after high school earned about \$60,000 by Year 10, compared to \$80,000 for men at the same education level. However, the educational patterns among women are roughly similar to those for men – women with more education have higher salaries over their working lives compared with those with less education, and for both genders Traditional BAs earn about 65 percent more over the first 30 years than those who attended high school only.

Conclusion

Changes in the labor force and the U.S. economy have altered the experience of workers who entered the labor market in the 1980s compared with those who started working in the 2000s, though perhaps not as much as one might expect. Salaries among young workers with the same level of education and working years have not changed much between these two cohorts. Thus, much of the income growth that has been observed is due to the fact that young people are pursuing more education than before. In addition, the benefits of overall economic growth were concentrated among graduate degree holders, who are omitted from the earnings analysis.

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The results also show that some other markers of adulthood are delayed in the more recent cohort. At every education level, young people are less like to own a home at age 30 than in the past. Similarly, they are less like to be married, though this largely reflects a substitution toward unmarried cohabitation. Women are also somewhat less likely to have a child within five years of leaving school.

The results suggest some segments of the population may merit closer policy focus. First, the changes in labor force attachment are trending in opposite directions for men and women. This increase in men's non-participation is strongest among those without any higher education, so it is not solely driven by workers returning to school.

Second, the labor market outcomes of college non-completers appear to be diverging from those who leave school temporarily but eventually complete a degree. Non-completers in the 1997 cohort had better labor market outcomes than those with only a high school diploma, but this group fared less well than in the past. This fact, coupled with rising tuition costs, makes attention to non-completion an important policy issue. More broadly, support for higher education is critical given the persistent high return to a college degree and the stagnating prospects at the low end of the educational distribution. Support for low-income students is especially important given that higher education plays a crucial role in upward mobility, yet disadvantaged students may find it difficult to pay out of pocket for college or navigate the various processes involved.