Assessing the Benefits of the Success Sequence for Economic Self-Sufficiency and Family Stability

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ASSESSING THE BENEFITS OF THE SUCCESS SEQUENCE FOR ECONOMIC SELF-SUFFICIENCY AND FAMILY STABILITY

OPRE Report 2021-148

September 2021

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This research uses data from the National Longitudinal Survey of Youth, 1997 Cohort (NLSY97) and National Longitudinal Study of Adolescent to Adult Health (Add Health). The NLSY97 is sponsored and directed by the U.S. Bureau of Labor Statistics and managed by the Center for Human Resource Research (CHRR) at The Ohio State University. Interviews are conducted by the National Opinion Research Center (NORC) at the University of Chicago. Add Health is a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Information on how to obtain the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.

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Overview

Since the early 2000s, researchers and policymakers have used the term *success sequence* to describe a policy approach for reducing poverty and improving economic opportunity for adolescents and young adults. The term refers to a series of milestones in life—most commonly defined to include high school completion, full-time employment, and waiting for marriage to have children—that are associated with escaping poverty and joining the middle class. These milestones are described as a sequence to emphasize that their order also matters.

In fall 2018, the U.S. Department of Health and Human Services (HHS) contracted with Mathematica to conduct a literature review and an economic analysis of the success sequence. The literature review found that most studies on the success sequence use descriptive methods applied to cross-sectional survey data to compare families on measures of poverty and middle-income status. These studies provide correlational evidence that families meeting the definitions of the success sequence milestones have lower relative poverty rates and higher relative rates of middle-income status than families who do not meet the definitions. However, a key aspect of the success sequence model— and how it differs from other theories and research on the individual milestones— is that the order and combination of milestones define a uniquely important pathway that young adults should follow in their transition to adulthood to ensure economic self-sufficiency. Therefore, previous studies provide less evidence on whether these associations reflect causal pathways or whether the sequencing of the milestones matters.

This report presents findings from an economic analysis of the success sequence model. The analysis examined the following research questions: (1) By age 30, what portion of young adults have completed high school, had a full-time job, gotten married, and had children? What are the most common sequences in which young adults complete these milestones? (2) How do these sequences vary according to gender, race/ethnicity, and parental level of education? and (3) To what extent are these sequences associated with economic self-sufficiency and family stability when people are in their late 30s? To answer these questions, we relied on two longitudinal data sources: the National Longitudinal Survey of Youth 1997 (NLSY97) cohort and the National Longitudinal Study of Adolescent to Adult Health (Add Health). We used these data sources to measure three economic outcomes—non-poverty status, middle-class status, and household income—and three family stability outcomes—presence of at least two adults in the household, number of residential partner transitions, and relationship satisfaction—all measured when majority of the respondents were in their late 30s.

Our results show significant diversity in the pathways young adults take in their transitions to adulthood. By age 30, 83 percent of youth have completed high school and 89 percent reported having worked full time for a full year. Just over half reported they had gotten married (53 percent) or had at least one biological child (58 percent) by age 30. When looking at the milestones in combination, without accounting for the specific sequence in which they were completed, we found that the most prevalent combination among young adults (just over 30percent) consisted of the completion of all four milestones. Accounting for the sequence of milestone completion uncovers significant diversity in the pathways young adults take in their transitions to adulthood. Of the 65 possible sequences that account for the order of milestone completion, we found nearly all of them (64 out of 65) reflected in the data.

Our analysis shows that the most common combinations and sequences of milestones vary by gender, race/ethnicity, and parental level of education. For example, we found that the proportion of young adults who reported having completed all four milestones by age 30 was higher for females than males (33.9

percent versus 27.7 percent), higher for non-Hispanic Whites (34.7 percent) than non-Hispanic Blacks (19.4 percent) and Hispanics (28.5 percent), and higher for young adults whose parents had some college education (32.8 percent) than those whose parents did not attend college (29.0 percent).

For the association between milestones and economic self-sufficiency at ages 35–40, our results suggest that the individual milestones, regardless of sequence, appear to be the main factors associated with economic outcomes in adulthood. Consistent with prior research, we find that high school completion, full-time employment, and marriage are all associated with an increased chance of avoiding poverty in young adulthood, whereas childbearing is associated with a reduced chance of avoiding poverty. Consequently, the groups of young adults with the lowest poverty rates are those who have completed some combination of high school, employment, and marriage. In comparison, we find that the specific sequence of milestone completion has a more modest association with economic outcomes in young adulthood.

We find less evidence of an association between milestone completion and family stability outcomes, with only the marriage milestone having a consistent individual relationship with them. When looking at the associations for each milestone individually, only getting married by age 30 had a consistent association with family stability outcomes in young adulthood. We did not find evidence of an additional meaningful association between family stability outcomes and the completion of milestones either in combination or in order.

Based on the findings of this report, additional research on the success sequence is needed on two main fronts. First, research to identify the factors influencing the pathways adolescents take may provide important insights into the circumstances that eventually lead to economic self-sufficiency in adulthood. Second, research that considers other outcome domains, such as physical or subjective well-being, with which milestone completion might be associated, may help enhance the success sequence model's ability to empower youth.

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A. Introduction

Since the early 2000s, researchers and policymakers have used the term *success sequence* to describe a policy approach for reducing poverty and improving economic opportunity for adolescents and young adults. The term refers to a series of milestones in life associated with escaping poverty and joining the middle class. These milestones are described as a sequence to emphasize that their order also matters. Although specific definitions of the success sequence vary, the most widely cited one is attributed to Ron Haskins and Isabel Sawhill, who popularized the term in their 2009 book *Creating an Opportunity Society*. They explained that the success sequence "describes what young people need to do [to reach the middle class] and in what order they need to do it. First comes education … Then comes a stable job that pays a decent wage … Finally comes marriage, followed by children" (Haskins and Sawhill 2009, p. 15). They argued that federal policies and programs should encourage young adults to follow the success sequence as a way to achieve self-sufficiency as adults. Currently, at least two federal grant programs (the Family and Youth Services Bureau Sexual Risk Avoidance Education Program and Office of Family Assistance Healthy Marriage and Relationship Education Program) encourage or require grantees to incorporate the success sequence into the educational programming they offer to adolescents and young adults (Humes et al. 2020; Scott et al. 2017).

In fall 2018, the U.S. Department of Health and Human Services (HHS) contracted with Mathematica to conduct a literature review on the success sequence. The recently published literature review found that further research is needed on the success sequence (Goesling et al. 2020). Many studies in the academic fields of demography, economics, and sociology have examined how the milestones of the success sequence—graduating from high school, getting a full-time job, getting married, and having children—relate to economic outcomes later in adulthood (see Appendix A for a summary of relevant studies on individual milestones). However, these studies have examined the milestones individually, not necessarily in combination, and not in a specific order. A key aspect of the success sequence model—and how it differs from other theories and research on each success sequence milestone— is that the order and the combination of milestones define a uniquely important pathway that young adults should follow in their transition to adulthood to ensure economic self-sufficiency.

Prior empirical studies on the success sequence provide limited evidence on whether the specific ordering of the milestones matters. Research to date has not tested the different pathways individuals may take as they transition to adulthood; doing so might help to explain the differential impact the pathways may have on economic self-sufficiency. Much of the existing research on the success sequence has used cross-sectional data to compare families on measures of poverty and middle-income status by education, employment status, and marital status (for example, Haskins and Sawhill 2003, 2009; Reeves et al. 2015). These studies commonly found that families with employed, married parents with at least a high school education have lower poverty rates and higher rates of middle-income status than do families without these characteristics. However, these analyses define family characteristics in reference to adult employment and marital status at a single point in time, rather than in reference to a sequence of milestones (for example, Wang and Wilcox 2017). These studies did not account for the timing of education or employment in relation to marriage or childbearing.

Prior studies also provide limited evidence on the range of outcomes that might be influenced by the success sequence milestones. Because researchers and policymakers typically have described the success sequence as a policy approach for reducing poverty, empirical studies have focused entirely on economic outcomes in adulthood. Most commonly they have measured rates of family poverty and middle-income

status by comparing a family's household income against the federal poverty level (for example, Haskins and Sawhill 2003, 2009; Reeves et al. 2015; Sawhill and Rodrigue 2015; Wang and Wilcox 2017). One study looked at rates of economic mobility as an alternative outcome (Reeves and Grannis 2014).

Looking beyond economic outcomes, there is some research to suggest that the success sequence as a whole might also have associations with other important outcomes, such as mental health. Studies from the academic fields of demography, economics, and sociology show that the individual milestones that make up the success sequence can play an important role in shaping adult outcomes, ranging from mental and physical health to relationship quality and stability (for example, Zajacova and Lawrence [2018] for education; Inanc [2018] for employment; Wood et al. [2007] for marriage; and Umberson et al. [2010] for childbearing). More research is needed to determine whether such an association exists between the success sequence and other outcomes. The literature review concluded that there was a need for additional research to assess whether the key features of the success sequence—milestone combination and sequencing—are associated with positive outcomes.

To fill the gaps identified through the literature review and expand available evidence on the success sequence, HSS also contracted with Mathematica to conduct an economic analysis of the success sequence. This report presents findings from the economic analysis, which examined the following research questions:

1. By age 30, what portion of young adults have completed high school, had a full-time job, gotten married, and had children? What are the most common sequences in which young adults complete these milestones?
2. How do these sequences vary according to gender, race/ethnicity, and parental level of education?
3. To what extent are these sequences associated with economic self-sufficiency and family stability when people are in their late 30s?
    a. How do the individual milestones of high school completion, full-time employment, marriage, and childbearing each relate to economic self-sufficiency and family stability in young adulthood?
    b. How much does the completion of these milestones in combination matter relative to completion of the individual milestones? For example, how does the strength of the association between outcomes and milestones change when accounting for people who complete all four milestones versus those who complete only some?
    c. How much does the ordering of the milestones matter in determining the association? For example, does the strength of the association vary depending on where employment or marriage occurs in the sequence?

We use nationally representative longitudinal data to determine the proportion of young adults who complete each milestone of the success sequence model; identify the most common sequences in which young adults complete the milestones; and examine how milestone completion and common sequences vary based on a person's gender, race/ethnicity, and parental level of education. We also examine the association between the success sequence milestones and an expanded range of adult outcomes. Specifically, in addition to economic outcomes, we examine outcomes related to family stability in adulthood. We describe these outcomes in greater detail in Section C of the report.

We begin the report by describing the data and methods used for the study (Sections B and C). Next, we present the results for the main research questions (Sections D, E, and F). We end by summarizing key

findings and discussing their implications for future research (Section G). The appendixes to the report provide more detailed information on the study methods and findings.

B. Data

We conducted the analysis using longitudinal data from the National Longitudinal Survey of Youth, 1997 Cohort (NLSY97) and the National Longitudinal Study of Adolescent to Adult Health (Add Health), both of which are national in scope and provide representative samples of cohorts of young adults of similar ages. The two surveys have different strengths. The NLSY97 provides more detailed information than Add Health on the completion and exact timing of the milestones. For example, it provides more detailed information on employment history, including weekly hours worked in all jobs and the beginning and end dates of each job. In comparison, a relative strength of Add Health is that it measures outcomes over a longer age range than the NLSY97. The most recent available wave of the Add Health data captures most survey respondents at ages 35–40, whereas the most recent available data of the NLSY97 for our sample captures most respondents through ages 33–37 (Table 1). Add Health therefore enables us to assess outcomes relatively later in life.

Table 1. Respondent ages at key survey dates

NLSY97		Add Health			
Round 18, 2017–2018		Wave 4, 2008–2009		Wave 5, 2016–2018	
Age	Percent	Age	Percent	Age	Percent
32	0.4	24	0.2	33	0.7
33	16.9	25	4.0	34	4.5
34	19.6	26	11.5	35	10.6
35	21.3	27	14.5	36	14.3
36	20.6	28	17.9	37	17.4
37	17.9	29	18.8	38	18.6
38	3.3	30	18.5	39	17.2
		31	12.0	40	11.9
		32	2.3	41	3.9
		33	0.3	42	0.8
				43	0.1
				44	0.1

Sources: NLSY97 unweighted data and Add Health Waves 4 and 5.

Note: Sample size: 6,734 for NLSY97, 14,701 for Add Health Wave 4, and 12,295 for Add Health Wave 5.

NLSY97 analytic sample

The NLSY97 follows a nationally representative sample of adolescents born between 1980 and 1984 who were 12 to 18 years old at the time of their first interview. The survey contains detailed longitudinal information on respondents, including education, employment, childbearing, and relationship histories. The sample has been re-interviewed extensively—either every year or every other year since the study started. As a result, 18 rounds of surveys are available. The respondents were 31 to 38 years old at the time of their Round 18 interviews, which was fielded in 2017–2018 (Table 1).

For the purpose of the analyses presented in this report, we restricted the NLSY97 analysis to the sample who continued in the study through age 30. We made this restriction for three reasons. First, the federal programs and policies that incorporate the success sequence as a program component serve adolescents and young adults (Humes et al. 2020; Scott et al. 2017). We wanted to focus our assessment of milestone completion at these policy-relevant ages. Second, age 30 is old enough to observe milestone completion for a meaningful proportion of the NLSY97 sample. For example, as discussed later in the report, most young adults in the NLSY97 had finished high school and had had at least one full-time job by age 30. Third, there is a significant drop in sample size in the NLSY97 around age 30. Restricting the sample based on age 30 therefore maximized the sample size available for the analysis.

Our final analysis sample for the NLSY97 included 7,049 respondents. This final sample reflects the exclusion of respondents who dropped out of the survey before age 30, as well as those excluded because they were missing information on milestone completion. The remaining 7,049 respondents included in the analysis had an average age of 14.4 years in their first interview and 34.8 years at the time of the final survey. On average, we have longitudinal data for each respondent spanning a period of 19.9 years. We weighted our analyses using the cross-sectional weights provided by the NLSY79 for the survey in which the individual was 30.

Add Health analytic sample

Add Health is a longitudinal study that follows a nationally representative sample of adolescents born between 1976 and 1982. Add Health is considered a "school-based" sample because the respondents were initially selected from a nationally representative sample of schools. The sample reflects students in grades 7 through 12 during the 1994–1995 school year. It excludes adolescents not enrolled in formal schooling or who left school before the 1994–1995 academic year. After the initial survey in 1994–1995, Add Health sample members were interviewed four additional times. The most recent survey, Wave 5, was conducted in 2016–2018 when the majority of the sample (about 90 percent) was ages 35–40.

For the purpose of the analysis presented in this report, we focused on the sample of respondents interviewed in Waves 1, 3, 4, and 5. We used Wave 1 data to obtain baseline characteristics of the sample, Wave 3 and 4 data to assess milestone completion, and Wave 5 to measure economic self-sufficiency and family stability outcomes. We excluded individuals who had missing information on milestone completion, leaving an analysis sample of 9,311 individuals. To align with our analysis of the NLSY97, we focused our analysis of Add Health data on milestones completed by age 30. About 30 percent of Add Health respondents had reached age 30 by the time of their Wave 4 interview. For the other 70 percent of respondents, we measured milestone completion up through the time of their Wave 4 interview, which corresponded to ages 25 to 29. We measured both economic self-sufficiency and family stability outcomes at the time of the Wave 5 interview. The 9,311 respondents included in the analysis had an average age of 15.6 years at their first interview at Wave 1 and 38 years at the time of Wave 5, when we measured outcomes. On average, we had longitudinal data for each respondent spanning a period of 22.4 years. We weighted our analysis using the Add Health longitudinal weights for the Waves 1, 3, 4, and 5 samples.

C. Methods

Estimating the proportion of young adults completing milestones

To answer the study's first research question on the portion of young adults who had completed high school, had a full-time job, gotten married, and had children, we focused primarily on data from the NLSY97. We focused on the NLSY97 for this analysis because it provides more detailed information than Add Health on the completion and exact timing of the milestones. For example, it provides more detailed information on employment history, such as weekly hours worked in all jobs and the beginning and end dates of each job. In addition, we could measure milestone completion for all NLSY97 sample members through age 30. As discussed above, only about 30 percent of the Add Health respondents had reached age 30 by the time of the Wave 4 interviews we used to measure milestone completion. In consultation with 11 experts through two teleconference calls, we defined the completion of each milestone as follows. (Appendix A to the report provides additional detail on how we defined the milestones for this analysis, the robustness tests we conducted, and expert engagement.)

- **High school completion:** We defined respondents as having completed this milestone if they reported having obtained a high school diploma at any time by age 30. We excluded GED receipt from our primary definition of this milestone because GED recipients have different outcomes than people who receive high school diplomas (Ewert 2012). Therefore, combining the two groups could lead to misleading results. However, as a robustness test, we estimate how milestone completion rates change when using an alternative definition that considers respondents as having completed the milestone if they reported having obtained a high school diploma or a GED certificate (Appendix Table B.1).
- **Full-time employment:** We defined respondents as having completed this milestone if they reported having worked at least 35 hours per week for at least 40 weeks in any given 52-week period by age 30. We focused on measuring full-time employment, both to align with how Haskins and Sawhill (2009) defined the success sequence and to avoid capturing the types of temporary or part-time jobs some young people take while in high school or as full-time college students. In assessing this criterion, we accounted for all jobs reported within a 52-week period. We measured the timing of milestone completion as the start of the first job that led to milestone completion. Because the proportion of youth who complete this milestone may vary depending on the number of hours worked and considering main job versus all jobs as robustness tests, we estimated how milestone completion rates change when using a series of alternative definitions (Appendix Table B.1). These definitions considered respondents as having completed this milestone (1) when limiting the criterion for full-time employment to a respondent's primary job (instead of all jobs), (2) when limiting the full-time employment to a single employer within a 52-week period (instead of all periods of employment), and (3) if respondents reported having worked for at least 20 hours per week (instead of 35 hours per week) for at least 40 weeks in any given 52-week period (inclusive of all jobs). Note that our definition includes military service as employment; however, it does not include other full-time activities, such as college attendance or homemaking, that are unpaid.
- **Marriage**: We defined respondents as having completed this milestone if they reported having gotten married at any time by age 30. We measured the timing of milestone completion as the date of a respondent's first marriage. Because increasingly higher numbers of young adults form cohabiting partnerships during the transition to adulthood and have a child within these partnerships (U.S. Census Bureau 2020), we considered including cohabitation in the definition of the marriage

milestone. However, to align with how Haskins and Sawhill (2009) defined the success sequence, and because economic and family stability outcomes of young adults who cohabit may differ significantly from those who marry, we decided against defining the marriage milestone to include having cohabited by age 30.

- **Childbearing:** We defined respondents as having completed this milestone if they reported having any biological children by age 30. We measured the timing of milestone completion as the birth date of the respondent's first biological child. As a robustness test, we estimated how milestone completion rates change when using an alternative definition that considers adopted children in addition to biological children (Appendix Table B.1). Additionally, to provide context, we estimated the respondents' relationship status (that is, married, living with an unmarried partner, or not in a relationship) at the first child's birth date.

On the basis of these definitions, we first calculated the percentage of respondents who completed each milestone by age 30 as a separate percentage for each milestone. Next, we calculated the percentage of respondents who completed each possible combination of milestones, both with and without accounting for the sequence of milestone completion. Without accounting for the sequence of completion, we found 16 total possible combinations (for example, high school completion alone, high school completion in combination with full-time employment, high school completion in combination with marriage, and so on). Accounting for the sequence of milestone completion increased the total number of possible combinations to 65 (for example, high school completion followed by full-time employment versus full-time employment followed by high school completion).

Estimating how milestone completion varies across groups

In answering the second research question on how the sequences vary according to gender, race/ethnicity, and parental level of education, we replicated the above analysis with the NLSY97 by disaggregating the sample by gender, race/ethnicity, and parental level of education (Table 2). For gender, we assessed differences in milestone completion by comparing male and female respondents. For race/ethnicity, we assessed differences in milestone completion for major groups for which we have adequate sample sizes—non-Hispanic Whites, non-Hispanic Blacks, and Hispanics. For parental level of education, which is strongly associated with parental socioeconomic status and stands as a proxy for it, we assessed differences in milestone completion between respondents who reported that at least one of their parents had at least some college education and other respondents.

Table 2. Characteristics of respondents in the NLYS97 and Add Health analytic samples

	NLSY97	Add Health
Percentage female	48.6	49.7
Percentage non-Hispanic White	67.3	65.0
Percentage non-Hispanic Black	15.4	14.9
Percentage Hispanic	12.6	12.1
Percentage whose parents have high school education or less	42.8	43.5
Percentage whose parents have some college education	57.2	56.5

Sources: NLSY97 and Add Health weighted data.

Note: The NLSY97 sample was limited to 7,049 individuals with data available to measure milestone completion through age 30. The Add Health sample was limited to 9,311 individuals who were interviewed in Waves 1, 3, 4, and 5, and for whom we could measure milestone completion at Wave 4.

Estimating associations between milestone completion and outcomes

To answer the study's third research question on the association between milestone completion and self-sufficiency and family stability in young adulthood, we focused primarily on data from Add Health. The Add Health data are better suited for this question because they provide information further into adulthood. Whereas the NLSY97 provides data on respondents at ages 31–38, with most individuals being ages 32-37, Add Health provides data from ages 33–44, with most individuals being ages 35 to 40 when outcomes were measured. For these reasons, we used Add Health data as the primary basis for answering this research question about the association between outcomes and milestone completion.

For this analysis, we focused on separate groups of outcomes for (1) economic self-sufficiency in young adulthood and (2) family stability in young adulthood. For economic self-sufficiency, we evaluated the following three primary indicators, all measured at Add Health Wave 5 when respondents were mainly ages 35–40:

1. Nonpoverty status, defined as having income above 0–99 percent of the federal poverty level
2. Middle-class status, defined as having income above 300 percent of the federal poverty level
3. Household income in the last calendar year

For family stability, we focused on outcomes that research suggests may affect child well-being. Studies show that a larger number of transitions in parental figures can have negative impacts on child well-being (Amato 2010). Similarly, research suggests that having at least two parental figures in the household, regardless of whether they are the biological parents, has positive impacts for children (Louis and Zhao 2002). Relationship satisfaction also impacts both adult and child well-being. We therefore evaluated the following three primary indicators, all measured at Add Health Wave 5 when respondents were mainly ages 35–40:

1. Presence of at least two adults in the household [1]
2. Number of residential partner transitions, defined as the cumulative number of transitions in marital and nonmarital residential romantic partners reported by the respondent [2]
3. Relationship satisfaction, measured by self-reported level of happiness in current relationship

We used regression analysis to assess the association between the completion of individual milestones (high school, employment, marriage, and childbearing) and outcomes. Using a multivariate regression model, we estimated the association between the outcome and each milestone separately for each of the three indicators of economic self-sufficiency and three indicators of family stability. Many researchers have previously attempted to identify the causal impact of completing each milestone on adult outcomes. Therefore, we compared our estimated associations with causal estimates from the larger body of research. This comparison provides context for the analysis and informs a discussion of causality in this

[1] We define adults as people older than 21 years.

[2] This outcome is intended to capture the number of residential partner transitions. Therefore, we estimated this number as two times the number of previous residential partners reported by the respondent at the time of the Wave 5 survey, plus one if the respondent reported currently having a residential partner at the time of that survey. We assume that in prior partnerships the respondent made two transitions (that is, one transition into and one transition out of residential partnership), whereas in current partnership the respondent made only one transition (that is, transition into residential partnership).

study (See Appendix A for an overview of our process of selecting and reviewing the literature and summaries of the studies reviewed.)

To assess the importance of considering the milestones in combination, we estimated the associations between each combination of milestones and outcomes after controlling for the impact of each milestone individually and as a set of covariates. Finally, to assess how much the sequencing aspect of milestones matters, we repeated the analysis with combination of milestones and outcomes, adding an indicator for whether the milestones were completed in the prescribed order of the success sequence—high school before employment, employment before marriage, and marriage before children. Because there is no research on the causal impact of milestones *in combination* or *the sequence of milestones*, we estimated how much of the observed association between milestone combinations and outcomes may be driven by unobservable factors. Specifically, we followed the methods proposed by Oster (2017) to estimate lower bounds on the causal effect of completing each combination of milestones. This method estimates a lower bound on the causal effect by calculating what it would be if there were a set of unobservable factors that have an impact on outcomes and milestone completion in the same way as the observable factors. (See Appendix A for the details of this analysis.)

We estimated all of the models using ordinary least squares (OLS) regression for continuous outcomes and logistic regression for binary outcomes. We controlled for demographic and background characteristics that might influence observed differences in outcomes. These covariates were drawn from a wide range of variables collected in the Add Health data, primarily in Wave 1. (See Appendix A for the full set of covariates.) To select a smaller subset of covariates most predictive of outcomes, we ran a least absolute shrinkage and selection operator (LASSO) model with five-fold cross-validation. This method enabled us to identify a smaller subset of covariates most predictive of outcomes and that maximize the statistical power of the analysis, which resulted in more accurate estimates.

D. Milestone completion rates and sequences

The success sequence describes a pathway of milestones adolescents take in their transitions to adulthood. In this section of the report, we first provide evidence on the proportion of young adults in the NLSY97 sample who had completed these milestones by age 30 and the most common sequences in which they did so. We then provide evidence on how these sequences vary according to gender, race/ethnicity, and parental level of education.

By age 30, most young adults had completed high school and had at least one full-time job; around half had gotten married or had children

Data from the NLSY97 show that by age 30, 83 percent of young adults had completed high school and 89 percent reported having worked full time for a full year (Table 3). Just over half reported they had gotten married (53 percent) or had at least one biological child (58 percent) by age 30. As expected, most of the young adults who completed high school did so around age 18. In comparison, we found more variation in the age of completion for the other milestones. For example, among the young adults who reported having at least one full-time job by age 30, one-quarter of them had completed this milestone by age 23, half of them by age 24, and three-quarters of them by age 27. Among the young adults who had gotten married by age 30, one- quarter of them had completed this milestone by age 22, half of them by age 24, and three-quarters of them by age 27.

Table 3. Milestone completion rates

Milestone	Percentage completing milestone	Age of milestone completion (percentile)		
		25th	50th	75th
High school graduation	83	18	18	19
Employment	89	23	24	27
Married	53	22	24	27
Childbearing	58	20	23	27

Source: NLSY97.

Note: The milestones were measured through age 30. The sample was limited to 7,049 individuals with data available through age 30.

These results varied only slightly when we used alternative definitions of the milestones. For example, we found that the proportion of young adults who had completed the education milestone increased to 93 percent when we expanded the definition to include receiving a GED certificate (Appendix Table B.1). For employment, our estimate of the proportion of young adults who had completed this milestone ranged from 84 percent to 95 percent, depending on the number of hours and type of job considered (Appendix Table B.1). For childbearing, we found that the proportion of young adults who had completed this milestone increased from 58 percent to 59 percent when we considered adopted children in addition to biological children (Appendix Table B.1). As expected, we found higher completion rates for all four milestones when we extended the age cutoff past age 30 (Appendix Table B.2). (See Appendix Table B.3 for milestone completion rates found using the Add Health data.)

Without accounting for the sequence, by age 30, a larger proportion of young adults had completed all four milestones than any other combination of milestones

When looking at the milestones in combination, without accounting for the specific sequence in which they were completed, we found that the most prevalent combination consisted of the completion of all four milestones (Table 4). Data from the NLSY97 show that, by age 30, just over 30 percent of young adults reported having completed all four milestones. High school and employment were the only milestones common to all four of the most prevalent combinations, accounting for 75.6 percent of all individuals. No other combination accounted for an equal percentage. The next most prevalent combinations included high school and employment alone (22.4 percent), high school and employment in combination with marriage but not childbearing (11.6 percent), and high school and employment in combination with childbearing but not marriage (10.9 percent). (See Appendix Table B.4 for completion rates of milestones in combination, using the Add Health data.)

Table 4. Completion rates for combinations of milestones without accounting for the sequence of milestone completion

Milestones completed	Percent
All four milestones	30.7
High school and employment only	22.4
High school, employment, and marriage only	11.6
High school, employment, and childbearing only	10.9
Employment, marriage, and childbearing only	5.2
Employment and childbearing only	4.8
High school only	2.8
Employment only	2.5
High school, marriage, and childbearing only	2.4
Childbearing only	1.6
High school and childbearing only	1.4
Marriage and childbearing only	1.2
High school and marriage only	0.9
Employment and marriage only	0.8
No milestones	0.6
Marriage only	0.1

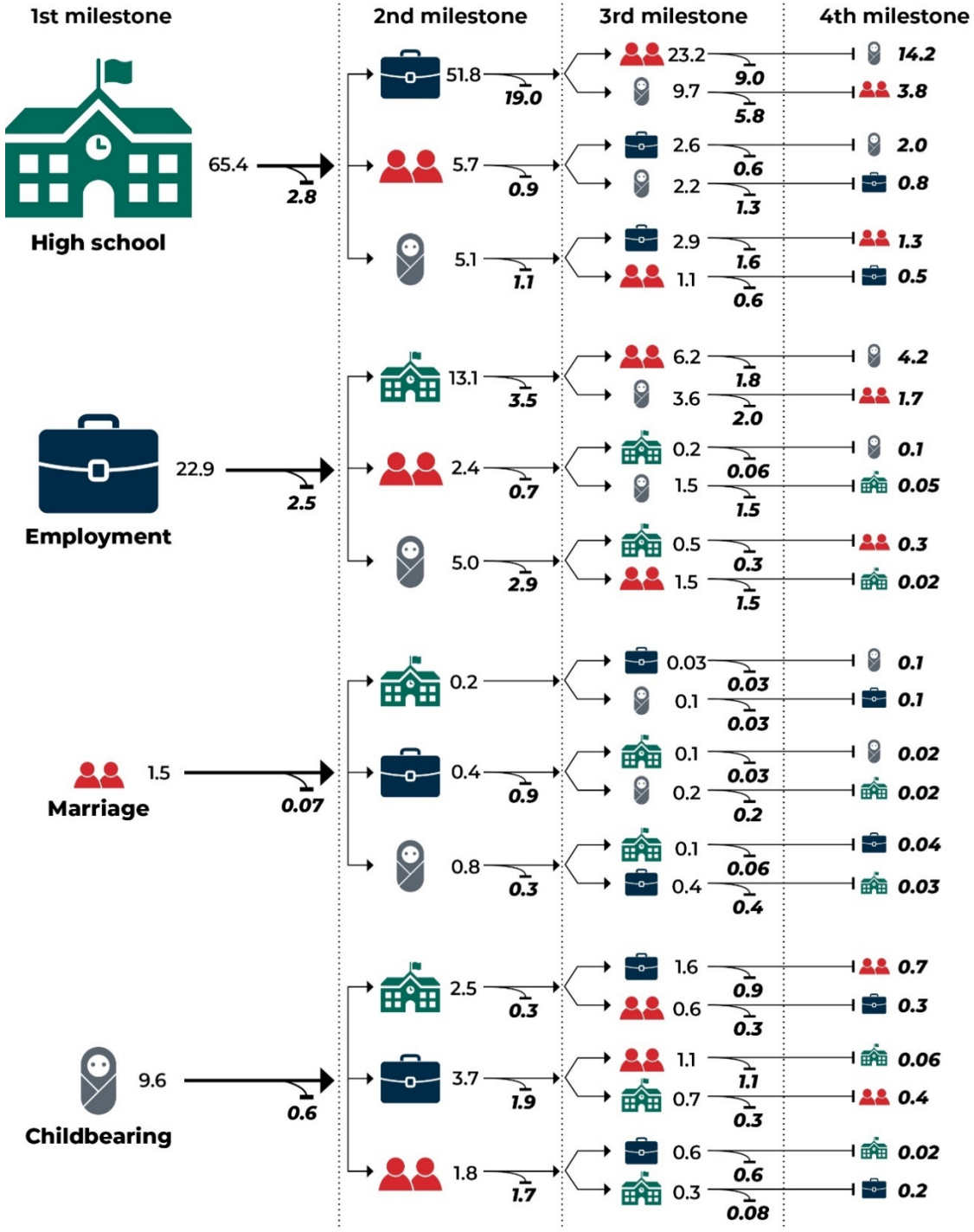
Source: NLSY97.

Note: The milestones were measured through age 30. The sample was limited to 7,049 individuals with data available through age 30.

Accounting for the sequence of milestone completion uncovers significant diversity in the pathways young adults take in their transitions to adulthood

Of the 65 possible sequences that account for the order of milestone completion, we found nearly all of them (64 out of 65) reflected in the NLSY97 data (Figure 1). For example, although we found that a majority of young adults (65.4 percent) reported completing high school as their first milestone, we also found that some youth reported their first milestone as getting a full-time job (22.9 percent), getting married (1.5 percent), or having children (9.6 percent). Following these first milestones, the groups further separated along nearly all possible pathways of milestone completion. We found that no single sequence accounted for more than 19 percent of the NLSY97 sample—high school completion followed by employment. The 10 most common sequences made up 68 percent of sample members, whereas the least common 50 sequences made up 25 percent. The only sequence not found in the data was getting married and then graduating from high school without completing any other milestones. Figure 1 also shows that not all young adults completed all four milestones by age 30 (represented by downward lines). For example, the proportion of those completing the high school graduation and then employment milestones without completing any other milestones was 19 percent, whereas the proportion of those completing only these two milestones in the reverse order was 3.5 percent.

Figure 1. Sequences of milestones by age 30 (by percentage completing)



Source: NLSY97.

Notes: The sample was limited to 7,049 individuals with data available through age 30. The figure represents the distribution of the NLSY97 sample by the 64 sequences of milestones observed in the data. On the left, the figure starts with the proportion of young adults who completed each of the four milestones as their first milestone. Moving toward the right, for each first milestone, the figure then shows the proportion of youth who completed each of the remaining three milestones as their second milestone, and so forth. Because not all respondents had completed all four milestones by age 30, the figure also shows curved downward lines for the proportion of young adults who completed only some of the milestones by age 30. The bold and italic indicate the proportions of young adults by the latest milestone they had completed by age 30.

The most common sequences of milestones generally align with the prescribed order of the success sequence model

Although we found evidence of nearly all possible sequences of milestone completion, the four most common ones all started with high school graduation followed by employment, a pattern consistent with the prescribed order of these two milestones in the success sequence model (Table 5). As a group, the four most common sequences accounted for just under half (48 percent) of young adults in the NLSY97 data. The most common sequence started with high school graduation and ended with employment (without marriage or childbearing). The second most common sequence was the one most closely aligned with the success sequence model as a whole—high school graduation followed by employment, marriage, and childbearing (in that order). The third and fourth most common sequences started with high school graduation, followed by employment and either marriage or childbearing, with the third most common sequence being consistent with the prescribed order of the success sequence model.

Table 5. Most common sequences of completed milestone (top 20 only)

Group	1st milestone	2nd milestone	3rd milestone	4th milestone	Percent
1	High school graduation	Employment			19.0
2	High school graduation	Employment	Marriage	Childbearing	14.2
3	High school graduation	Employment	Marriage		9.0
4	High school graduation	Employment	Childbearing		5.8
5	Employment	High school graduation	Marriage	Childbearing	4.2
6	High school graduation	Employment	Childbearing	Marriage	3.8
7	Employment	High school graduation			3.5
8	Employment	Childbearing			2.9
9	High school graduation				2.8
10	Employment				2.5
11	High school graduation	Marriage	Employment	Childbearing	2.0
12	Employment	High school graduation	Childbearing		2.0
13	Childbearing	Employment			1.9
14	Employment	High school graduation	Marriage		1.8
15	Employment	High school graduation	Childbearing	Marriage	1.6
16	Childbearing				1.6
17	High school graduation	Childbearing	Employment		1.6
18	Employment	Childbearing	Marriage		1.5
19	Employment	Marriage	Childbearing		1.5
20	High school graduation	Marriage	Childbearing		1.3

Source: NLSY97.

Note: The milestones were measured through age 30. The sample was limited to individuals with data available through age 30. (See Appendix Table B.5 for a full list of all sequences.)

The next most common sequences started with employment before high school graduation. For example, we found that just over 4 percent of young adults in the NLSY97 reported getting a full-time job, graduating from high school, getting married, and having children—in that order. Other relatively common sequences included employment followed by high school graduation (without marriage or children), employment followed by childbearing (without high school graduation or marriage), and employment alone. Overall, we found that 15 percent of young adults got a full-time job before completing high school. Of these young adults, 92 percent completed high school by age 19, suggesting that full-time employment did not substantially delay their high school completion (not shown). (See Appendix Table B.6 for completion rates for sequences of milestones found using the Add Health data.)

Relationship status at first child's birth

The pathways young adults take in their transitions to adulthood are even more diverse than reflected in this analysis, in part because a growing proportion of young adults live with an unmarried partner by age 30. For example, analysis of the NLSY97 data shows that more than one-quarter of young adults were cohabitating, as opposed to 44 percent who were married, at the time of their first child's birth. Additionally, more than 3 in 10 young adults who had a child by age 30 reported they were neither married nor cohabitating at the time of their first child's birth.

The most common combinations and sequences of milestones vary by gender, race/ethnicity, and parental level of education

We found substantial variation in the combinations of milestones completed (regardless of their specific sequencing) when looking at subgroups of the NLSY97 sample (Table 6). For example, we found that the proportion of young adults who reported having completed all four milestones by age 30 was higher for females than males (33.9 percent versus 27.7 percent), higher for non-Hispanic Whites (34.7 percent) than for non-Hispanic Blacks (19.4 percent) and Hispanics (28.5 percent), and higher for young adults whose parents had some college education (32.8 percent) than for those whose parents did not attend college (29.0 percent). Completing all four milestones was the most common combination for almost subgroups. Completing only the education and employment milestones was the second most common milestone combination for all groups. However, we found that the relative percentage of young adults completing this combination was higher for males than females (27.3 percent versus 17.3 percent), higher for non-Hispanic Whites (22.5 percent) than non-Hispanic Blacks (20.0 percent) and Hispanics (20.4 percent), and higher for young adults whose parents had some college education (27.4 percent) than those whose parents did not attend college (16.8 percent).

These subgroup differences in the combinations of milestones completed reflect underlying subgroup differences in the percentage of young adults who completed each milestone individually. For example, the percentage of young adults who reported having completed high school was higher for females than males, higher for non-Hispanic Whites than non-Hispanic Blacks and Hispanics, and higher for young adults whose parents had some college education than those whose parents did not attend college (Appendix Table B.7). As another example, the percentage of young adults who reported having gotten married by age 30 was relatively higher for females than males and relatively lower for non-Hispanic Blacks than non-Hispanic Whites (Appendix Table B.7). For childbearing, the percentage of young adults who reported having had a child by age 30 was higher for females than males, higher for non-Hispanic Blacks and Hispanics than non-Hispanic Whites, and higher for young adults whose parents did not attend college than those whose parents had some college education (Appendix Table B.7).

Table 6. Success sequence milestone completion combinations, by gender, race/ethnicity, and parental level of education

	Gender		Race and ethnicity			Parental education	
	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than college	Some college
All four milestones	27.7	33.9	34.7	19.4	28.5	29.0	32.8
High school and employment only	27.3	17.3	22.5	20.0	20.4	16.8	27.4
High school, employment, and marriage only	11.3	11.8	13.9	4.1	8.1	8.6	14.1
High school, employment, and childbearing only	9.2	12.6	7.1	25.3	14.0	13.8	8.3
Employment, marriage, and childbearing only	5.6	4.8	5.2	3.9	7.3	7.9	2.7
Employment and childbearing only	5.7	3.9	3.7	8.2	7.2	7.8	2.5
High school, marriage, and childbearing only	0.5	4.4	2.7	1.3	2.1	1.9	2.7
Employment only	4.0	0.9	2.5	1.9	3.3	3.2	1.8
High school only	3.3	2.3	2.5	2.4	2.8	2.1	3.3
Marriage and childbearing only	0.4	2.1	1.2	1.1	1.5	2.2	0.4
High school and marriage only	0.8	1	1.1	0.4	0.4	0.2	1.5
Childbearing only	1.3	2	0.8	5.5	1.4	2.7	0.7
Employment and marriage only	0.8	0.8	0.8	0.6	1.1	1.1	0.5
High school and childbearing only	1.1	1.8	0.7	4.5	1.3	1.8	0.9
No milestones	0.9	0.4	0.5	1.2	0.5	0.8	0.5
Marriage only	0.1	0	0	0.2	0.1	0	0

Source: NLSY97.

Note: The sample was limited to individuals with data available through age 30. Sample sizes for analysis by gender: Male = 3,501; Female = 3,548. Sample sizes for analysis by race and ethnicity: White = 3,349; Black = 1,936; Hispanic = 1,475. Sample sizes by parental level of education: Less than college = 3,139; Some college = 3,230.

We also found more diversity in the sequences of milestone completion for certain subgroups than others (Table 7). For example, for gender, we found that the top 5 sequences for females accounted for a relatively smaller proportion of all females (49 percent) compared to the top 5 sequences for males (55 percent of all males). This difference suggests relatively more diversity in sequences for females than males. We found a similar pattern by race/ethnicity: The top 5 sequences for non-Hispanic Blacks and Hispanics accounted for a relatively smaller proportion of each group (46 percent and 45 percent, respectively) compared to the top 5 sequences for non-Hispanic Whites (56 percent). For parental level of education, we found that the top 5 sequences for young adults whose parents did not attend college accounted for a relatively smaller proportion of this group (42 percent) compared to the top 5 sequences for young adults whose parents had some college education (63 percent). We found similar patterns within subgroups when we looked at the cumulative proportion of other sequences, such as the top 10, top 15, and so on. (See Appendix Table B.8 for the full list of sequences by gender, race and ethnicity, and parental level of education.)

Table 7. Cumulative percentage of young adults accounted for by most common sequences of milestone completion

Most common sequences	Gender		Race and ethnicity			Parental education	
	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than college	Some college
Top 5	55	49	56	46	45	42	63
Top 10	75	63	71	65	55	61	77
Top 15	85	73	80	79	66	73	84
Top 20	91	81	87	87	73	82	90

Source: NLSY97.

Note: The milestones were measured through age 30. The sample was limited to individuals with data available through age 30.

E. Associations with economic outcomes in young adulthood

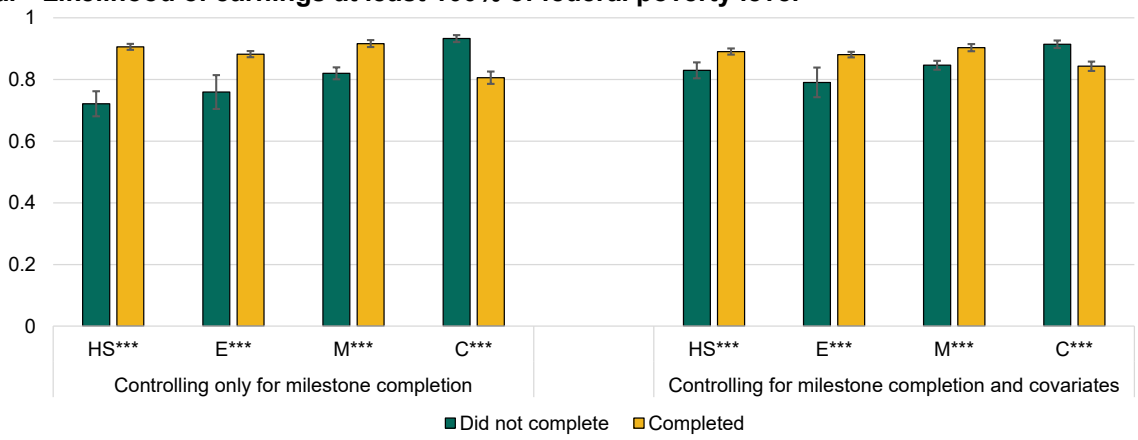
To what extent do the diverse pathways young adults take in their transitions to adulthood relate to their economic outcomes? In this section of the report, we present findings from our analysis of Add Health data on the association between the pathways that youth take (measured through Wave 4 of the Add Health) and economic outcomes (measured at Add Health Wave 5). We present evidence on these associations for the milestones of high school completion, full-time employment, marriage, and childbearing, measured both individually and in combination. We also present evidence on whether the sequencing of the milestones matters. All results are presented as average outcomes adjusted to account for the observable factors (regression-adjusted averages). Descriptive statistics on outcomes by milestone completion and full regression results are found in Appendix Tables B.9 through B.12.

High school completion, full-time employment, and marriage are all associated with better economic outcomes in young adulthood

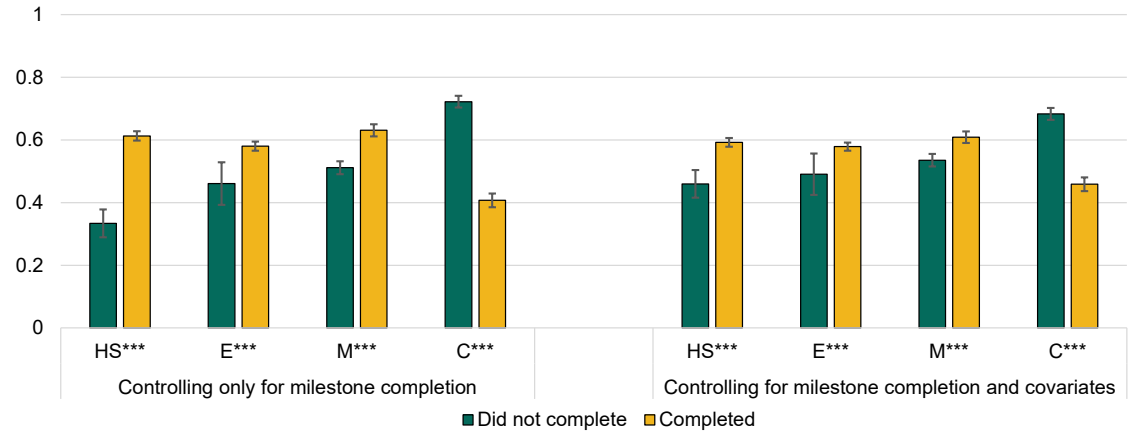
Data from Add Health show that, when measured individually, three of the four milestones were positively associated with economic outcomes in young adulthood (Figure 2). For example, when controlling for completion of other milestones as well as other covariates, we found that 89 percent of young adults who completed high school by age 30 had a household income above the federal poverty level when they were in their late 30s, relative to 83 percent among those who did not complete high school. Similarly, 88 percent of young adults who had at least one full-time job by age 30 had a household income above the federal poverty level relative to only 79 percent of adults who did not have at least one full-time job. For marriage, we found that 90 percent of young adults who had gotten married by age 30 had a household income above the federal poverty level relative to only 85 percent of adults who did not get married by age 30. We found substantively similar results for the other two measures of economic outcomes included in the analysis (having a household income of at least 300 percent of the federal poverty level and overall household income) and when controlling only for completion of other milestones (and no other covariates).

Figure 2. Regression-adjusted average economic self-sufficiency outcomes, by individual milestones

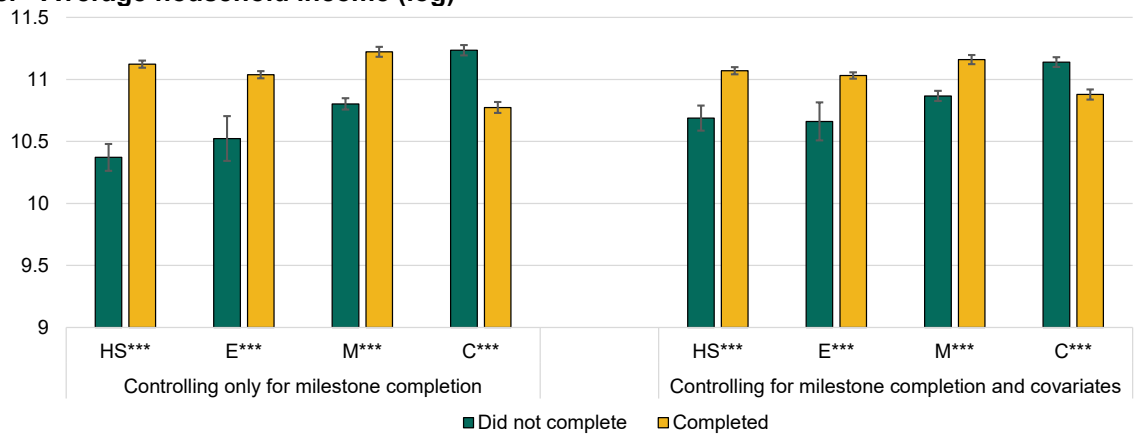
a. Likelihood of earnings at least 100% of federal poverty level



b. Likelihood of earnings at least 300% of federal poverty level



c. Average household income (log)



Source: Add Health data.

Note: See Appendix A for the list of covariates included in each model. In Figures 2a and 2b, bars represent the regression-adjusted share of individuals in each group who earned at least 100 percent or 300 percent of the federal poverty level, respectively. In Figure 2c, bars represent the log-transformed and regression-adjusted average household incomes of individuals in each group.

*** Significantly significant at the .01 level.

HS = high school graduation; E = employment; M = marriage; C = childbearing.

Having a child is associated with lower economic outcomes in young adulthood

In contrast to our results for the other individual milestones, we found that having a child was associated with lower outcomes for all three measures included in the analysis. Specifically, when controlling for completion of other milestones and covariates, we found that 84 percent of young adults who had at least one child by age 30 had a household income above the federal poverty level when they were in their late 30s, relative to 91 percent of those without a child. They were also 22 percentage points less likely than adults without children to have a household income of at least 300 percent of the federal poverty level and had an average household income 29 percent lower than adults who did not have a child.

True causal effects of individual milestones on economic self-sufficiency outcomes might be substantially smaller than the regression-adjusted estimates we report

Although our analysis is descriptive, a large body of research used a range of experimental and quasi-experimental techniques to examine the likely causal impacts of milestone completion on outcomes. To assess to what degree these associations might be causal, we compared the associations from our regression models (as described in Appendix A) to estimates of causal impacts from other studies that most closely map to our context. A review of a small selection of studies whose outcomes and populations most closely match this study suggests that observed associations are at least partially driven by selection, but others likely suggest causal impacts (as summarized in Appendix Table B.13). For high school graduation, although it is not clear whether selection bias accentuates or lessens the observed associations, there is a relative consensus on a significant positive impact of education on individual outcomes. For employment, marriage, and childbearing milestones, evidence suggests that they impact economic self-sufficiency outcomes, but the estimated impacts are lower than the associations found. (See Appendix Table B.13 for a synthesis of findings from selected previous studies.)

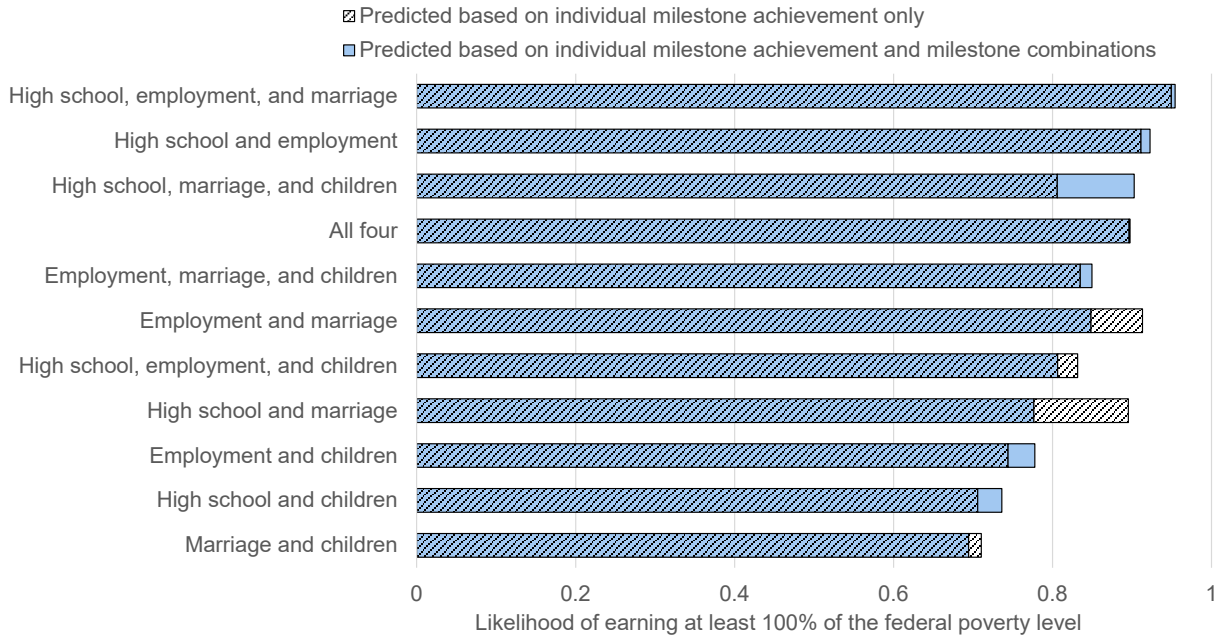
Primarily because of these associations, young adults' economic outcomes vary depending on which set of milestones they complete

When we accounted for both individual milestones and specific combinations that young adults completed by age 30, we found substantial variation in economic outcomes between groups. For example, among individuals who completed at least two milestones, we found the chances of having a household income above the federal poverty level ranged from a high of 95 percent for young adults who completed the milestones for high school graduation, employment, and marriage to a low of 69 percent for young adults who completed the milestones for marriage and childbearing alone (Figure 3). We also found differences in the chances of having a household income above 300 percent of the federal poverty level and in average household income based on the combination of milestones completed (as shown in Appendix Figures B.1 and B.2).

These differences between groups primarily reflect the association between each individual milestone and economic outcomes in young adulthood. For example, because high school graduation, employment, and marriage were each individually associated with an increased chance of avoiding poverty, we found that young adults who had completed more of these milestones had a higher overall chance of avoiding poverty than those who had completed fewer milestones. In comparison, because childbearing was associated with a reduced chance of avoiding poverty, we found that young adults who had a child by age 30 had a lower overall chance of avoiding poverty than those who had not had children, holding constant the other milestones completed.

In addition to the differences resulting from these individual associations, we also found evidence that accounting for combinations of milestones helps explain economic outcomes in young adulthood. Specifically, we found that we can explain more of the variation in economic outcomes among young adults when accounting for combinations of milestones than for the individual milestones alone (Appendix Table B.14). No one specific combination of milestones stands out more than others. Rather, we found that accounting for all possible combinations of milestones works better than accounting for none of the combinations. This finding holds across all three economic outcomes included in the analysis.

Figure 3. Regression-adjusted likelihood of earning at least 100 percent of the federal poverty level, by milestone combination



Source: Add Health data.

Note: See Appendix A for the list of covariates included in each model. Bars represent the regression-adjusted proportion of individuals in each group who earned at least 100 percent of the federal poverty level. The striped bars represent the proportion accounting only for individual milestones. The blue bars represent the proportion, accounting for both individual milestones and milestones in combination.

Young adults who completed all four milestones are one of several groups with a high overall chance of avoiding poverty in adulthood

On average, young adults who had completed at least two of the following three milestones—high school graduation, full-time employment, and marriage—had at least a 75 percent chance of avoiding poverty in early adulthood (Figure 3). This includes young adults who had completed all four milestones—the group most closely associated with the success sequence model. It also includes young adults who completed high school and got a full-time job without getting married or having children; those who completed high school, got married, and had children without getting a full-time job; and those who got married in combination with either completing high school or getting a full-time job. The young adults with a lower chance of avoiding poverty in adulthood were those who completed only one milestone (not shown in Figure 3) and those who had children in combination with only one other milestone.

The specific sequence of milestone completion has a more modest association with young adults' economic outcomes

In comparison to the associations between each individual milestone and economic outcomes in young adulthood, we found a more modest association between economic outcomes and completing the milestones in the order specified by the success sequence model (high school, employment, marriage, and childbearing). For example, as discussed earlier in this section of the report, we found that the milestones for high school graduation, employment, and marriage were each individually associated with an increase of at least 6 percentage points in the chances of having a household income above the federal poverty level. In comparison, after controlling for both the individual milestones and specific combinations that young adults completed by age 30, we found that those who completed the milestones in order were about 1 percentage point more likely than those who completed them in a different order to have a household income above the federal poverty level (Appendix Figure B.3). This difference was not statistically significant. The smaller size of the association indicates that accounting for the specific sequence of milestone completion is relatively less important than accounting for the individual milestones a person completes.

Similarly, for the outcome measuring middle-income status, we found that the milestones for high school graduation, employment, and marriage were each individually associated with an increase of at least 12 percentage points in the chances of having a household income at least 300 percent of the federal poverty level. In comparison, we found that young adults who completed the milestones in order were 8 percentage points more likely than those who completed them in a different order to have a household income at least 300 percent of the federal poverty level. Therefore, although there was an association between the order of milestone completion and outcomes, it was about two-thirds the size of the association with the individual milestone that had the lowest association with outcomes.

We found that the association between milestone sequence and economic outcomes in young adulthood was driven primarily by the sequence of the milestones for high school and employment. For example, for the measure of household middle-income status, we found that following the sequence of high school completion before employment was associated with a 9 percentage point increase in the chances of having a household income at least 300 percent of the federal poverty level. In comparison, we did not find a statistically significant difference in outcomes based on the sequence of employment and marriage or that of marriage and childbearing. For the measure of household income, we found an association for the sequence of high school and employment and that of employment and marriage but not for that of marriage and childbearing. For the measure of poverty status, we did not find an association for any of the sequences.

Part of the association between milestone ordering and outcomes may be driven by unobservable factors

Our analysis suggests that much but not all of the association between milestone ordering and outcomes may be driven by unobservable factors. For example, we found that 36 percent of the association between the order of milestones and earning at least 300 percent of the federal poverty level may be driven by unobservable factors. (See Appendix A for details of this analysis and Appendix Table B.17 for results.)

F. Associations with family stability in young adulthood

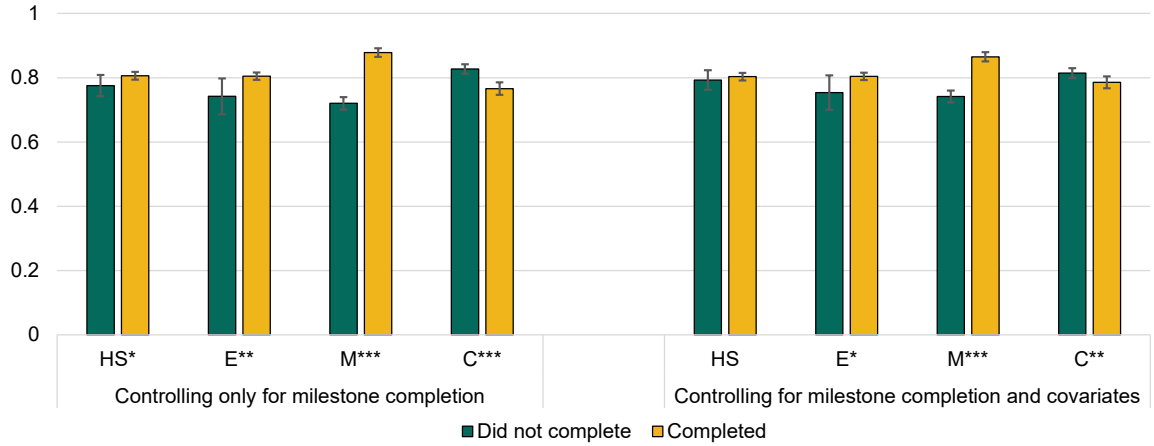
In this section of the report, we turn to family stability, presenting findings from our analysis of Add Health data on the association between the pathways that youth take and family stability outcomes. Similar to Section E, we present evidence on these associations for the milestones of high school completion, full-time employment, marriage, and childbearing, measured both individually and in combination. We also present evidence on whether the sequencing of the milestones matters. (Descriptive statistics on outcomes by milestone completion and full regression results are found in Appendix Tables B.15 through B.18.)

Overall, we found less evidence of an association between family stability outcomes and the milestones of high school completion, employment, marriage, and childbearing. When looking at the associations for each milestone individually, only getting married by age 30 had a consistent association with family stability outcomes in young adulthood (Figure 4). Controlling for completion of other milestones as well as other covariates, we found that young adults who had gotten married by age 30 were 12 percentage points more likely than adults who had not gotten married to be in a two-adult household when they were in their late 30s, and 6 percentage points more likely to report being in a happy relationship (that is, including both married and unmarried relationships). They also reported a greater number of partner transitions than adults who had not gotten married. For the other three milestones, we found that all were associated with a small but statistically significant difference in the average number of partner transitions. In addition, we found that having a child was associated with a statistically significant decrease in the likelihood of living in a two-adult household, whereas employment was associated with a small but statistically significant increase.

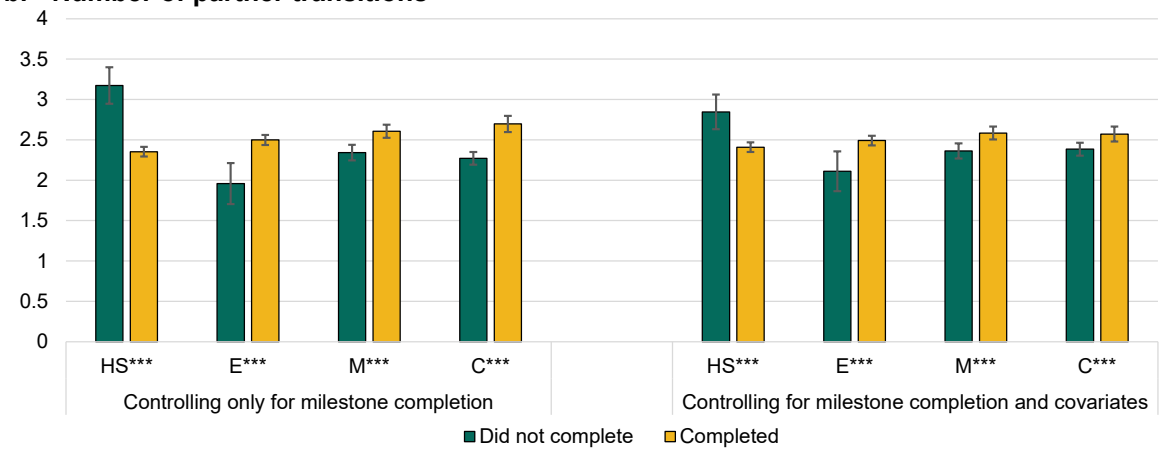
We did not find evidence of an additional meaningful association between family stability outcomes and the completion of milestones in combination or in order. We found no statistically significant association between completing the milestones in combination and any of the three family stability outcomes (Appendix Table B.17 and Appendix Figures B4, B5, and B6). Completing the milestones in order was associated with having 0.3 fewer partner transitions, but the difference was not statistically significant. We found no evidence that accounting for other combinations or sequences of milestones matters for family stability outcomes beyond the individual milestones alone (Appendix Table B.18 and Appendix Figure B.7). (See Appendix Table B.19 for causal impact bounds on family stability outcomes for ordered milestones.)

Figure 4. Regression-adjusted average family stability outcomes, by individual milestones

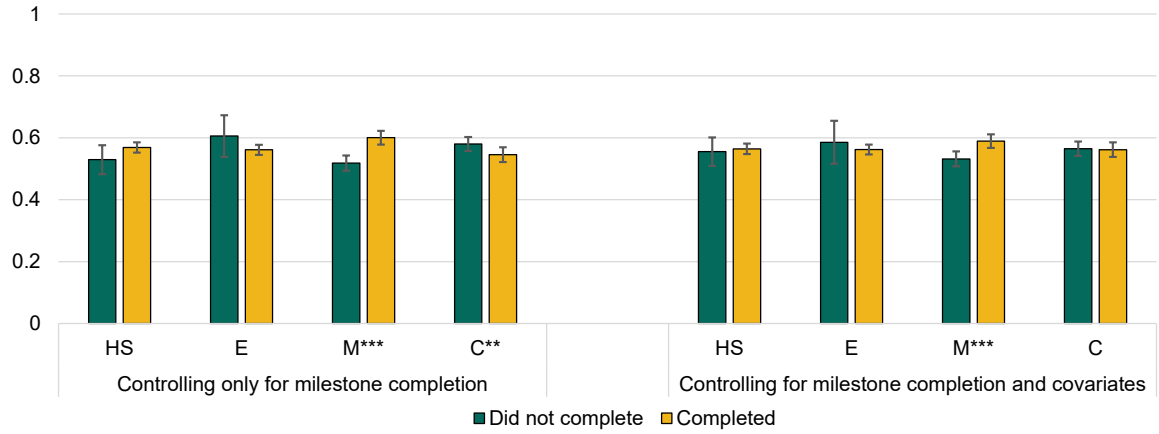
a. At least two adults in the household



b. Number of partner transitions



c. Relationship satisfaction



Source: Add Health data.

Note: See Appendix A for the list of covariates included in each model. In Figure 4a, bars represent the regression-adjusted share of individuals in each group who live in households with at least two adults. In Figure 4b, the bars represent the regression-adjusted average number of partner transitions for individuals in each group. In Figure 4c, the bars represent the regression-adjusted share of individuals in each group who reported being very happy in their relationship.

*** Significantly significant at the .01 level.

HS = high school graduation; E = employment; M = marriage; C = childbearing.

G. Discussion

This study used data from two national longitudinal surveys—the NLSY97 and Add Health—to examine the pathways young adults take in their transitions to adulthood. The success sequence model theorizes that reaching certain milestones in life in a certain order—finishing high school, getting a full-time job, and getting married before having children—can increase the odds of escaping poverty and reaching the middle class as an adult. Most prior studies of the success sequence have used national cross-sectional survey data to compare families on measures of poverty and middle-income status by educational level, employment status, and marital status (for example, Haskins and Sawhill 2003, 2009; Reeves et al. 2015; Sawhill and Rodrigue 2016). For the present study, we sought to expand available evidence on the success sequence by using longitudinal data to measure the sequencing aspect of the model and examine associations between milestone completion and both economic and family stability outcomes in young adulthood.

The results of our analysis confirm that finishing high school, getting a full-time job, getting married, and having children remain important milestones in the transition to adulthood. Our analysis of NLSY97 data shows that most young adults had completed high school and had at least one full-time job by age 30, around half had gotten married, and around half had had a child. As in prior studies, we found that finishing high school, getting a full-time job, and getting married are each associated with an increased chance of avoiding poverty in young adulthood, an increased chance of obtaining middle-income status, and a higher average household income. Having a child is associated with a reduced chance of avoiding poverty, a reduced chance of obtaining middle-income status, and a lower average household income. We found less evidence of an association between these milestones and family stability outcomes in adulthood. However, we did find an association between getting married by age 30 and measures of relationship happiness and stability. Our review of prior studies on this topic suggests that at least some, although not all, of these associations are likely to reflect causal effects of milestone completion on future outcomes.

Our results also confirm the value of considering these milestones together, not just individually. When considering the milestones together, we found that young adults were more likely to have completed all four milestones than any other combination, and that the most common combinations of milestone completion varied by gender, race/ethnicity, and parental level of education. Primarily because of the association between economic outcomes and each individual milestone, we found that young adults' economic outcomes varied depending on which set of milestones they had completed. For example, because high school completion, full-time employment, and marriage all were positively associated with economic outcomes, we found that young adults who had completed more of these milestones had an overall greater chance of avoiding poverty than those who had completed fewer. We also found that we could explain more of the variation in economic outcomes among young adults when accounting for combinations of milestones in addition to individual milestones alone.

We found mixed evidence on the importance of accounting for the specific sequencing of milestones—for example, distinguishing young adults who get a full-time job before getting married from those who get married first. On the one hand, we found that accounting for the specific sequencing of milestones is important for understanding the diversity in the pathways young adults take in their transitions to adulthood. We found 64 distinct sequences of milestone completion in the NLSY97 data. On the other hand, in comparison to the association between economic outcomes and each individual milestone, we found that the specific sequence of milestones has a more modest association with economic outcomes in

young adulthood. We found no consistent association between family stability outcomes and the specific sequence of milestones.

Overall, then, our results suggest that the individual milestones, regardless of sequence, appear to be the main factors associated with economic outcomes in adulthood. High school completion, full-time employment, and marriage are all associated with an increased chance of avoiding poverty in young adulthood, whereas childbearing is associated with a reduced chance of avoiding poverty. As a result, the groups of young adults with the lowest poverty rates are those who have completed some combination of high school, employment, and marriage. The groups with higher poverty rates are those who have completed only a single milestone or have had children in combination with only one other milestone. These associations play a predominant role in explaining why poverty rates are lower for some groups than others and help expand available evidence on how the pathways young adults take in their transitions to adulthood relate to their economic outcomes in adulthood.

Limitations

One limitation of our study is that it does not support an assessment of causality between milestone completion and outcomes in young adulthood. The associations between economic outcomes and the pathways youth take in their transitions to adulthood may be causal, but alternatively may also be due to unobservable factors correlated with both the pathways taken and the outcomes achieved. For example, we found higher average earnings for individuals who completed high school before obtaining employment. It is possible that having full-time employment before completing high school causes lower long-term earnings—for example, by taking attention away from education. However, it may also be that the circumstances that led an individual to take a full-time job during high school are associated with lower long-term earnings.

Our review of empirical studies and assessment of the role of unobserved factors suggests that at least part of the associations we report may be driven by unobservable factors. For example, neighborhood poverty may be both associated with young adults' chances of high school graduation and obtaining full-time employment, and future economic outcomes. Similarly, our results suggest that although much of the association between outcomes and both individual milestone completion and ordering may be driven by unobservable factors, at least some of it is likely causal. This is consistent with the large body of work, partially described above, which estimates the share of associations between each milestone and outcomes that is likely causal.

Another limitation is that we focused on certain aspects of economic self-sufficiency and family stability. Associations between milestone completion and other outcomes, such as wealth, home ownership, receipt of public assistance, or divorce, may vary. We also focused our analysis at a single point in an individual's life, while economic and family stability outcomes in fact vary across an individual's lifetime. Therefore, due to these limitations, caution is needed when interpreting our findings.

Practical implications and next steps for research

Researchers and policymakers have described the success sequence as an effective policy approach to support youth in achieving self-sufficiency in adulthood. The evidence presented in this report underlines the importance of individual milestones in understanding the pathways to economic self-sufficiency. All four of the milestones that constitute the success sequence model are strong predictors of economic

outcomes in young adulthood. Considering a broader range of pathways to success may help policymakers better target their resources to help youth achieve economic self-sufficiency.

Meanwhile, researchers can enhance the evidence base of the success sequence on three main fronts. First, additional research to identify the factors influencing the pathways adolescents take may provide important insights into the circumstances that eventually lead to economic self-sufficiency in adulthood. Similarly, additional research that considers other outcome domains, such as physical or subjective well-being, with which milestone completion might be associated, may help enhance the success sequence model's ability to empower youth. Finally, when longitudinal data sets with larger sample sizes become available, future research may investigate how the association between milestone completion in combination and future outcomes vary by gender, race and ethnicity, and family socioeconomic background.

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Appendix A

Data and Methods

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This appendix provides additional detail on the data and methods used for Mathematica's economic analysis to assess the benefits of the success sequence. The appendix first describes each of the two data sources used for the analysis. Next, it describes the methods used to analyze each of the study's three research questions. Specifically, it describes how we measured success sequence milestone completion and economic self-sufficiency and family stability outcomes, the analysis methods we used to examine associations between these outcomes and milestone completion, and the studies we used to compare our findings with existing research.

National Longitudinal Survey of Youth 1997

The National Longitudinal Survey of Youth 1997 (NLSY97) is the latest survey within the National Longitudinal Surveys, sponsored by Bureau of Labor Statistics, U.S. Department of Labor. The first round of the NLSY97 was conducted in 1997, with a nationally representative sample of nearly 9,000 individuals who were born between 1980 and 1984. The respondents were between 12 and 18 years old at the time of their first interview. Respondents were interviewed each year between 1997 and 2011, and biannually since 2011. Round 18, the latest round of the survey, was conducted in 2017 and 2018 when respondents were 32 to 38 years old (Table A.1), and included approximately 6,700 of the Round 1 participants. Black and Hispanic adolescents were oversampled for the survey to ensure the sample size was sufficient to produce reliable estimates for those respondent subgroups.

The NLSY97 collects very detailed information on labor market behavior and education outcomes. It also includes questions related to household characteristics, parents, family processes, childhood, dating, marriage, cohabitation, income, assets, program participation, health conditions, attitudes, and crime and substance use.

Table A.1. Description of the available NLSY97 rounds

Round	Year	Ages	Sample size	Round	Year	Ages	Sample size
Round 1	1997–1998	12–18	8,984	Round 10	2006–2007	21–27	7,559
Round 2	1998–1999	13–19	8,386	Round 11	2007–2008	22–28	7,418
Round 3	1999–2000	14–20	8,208	Round 12	2008–2009	23–29	7,490
Round 4	2000–2001	15–21	8,080	Round 13	2009–2010	24–30	7,559
Round 5	2001–2002	16–22	7,882	Round 14	2010–2011	25–31	7,479
Round 6	2002–2003	17–23	7,896	Round 15	2011–2012	26–32	7,423
Round 7	2003–2004	18–24	7,754	Round 16	2013–2014	28–34	7,140
Round 8	2004–2005	19–25	7,502	Round 17	2015–2016	30–36	7,103
Round 9	2005–2006	20–26	7,338	Round 18	2017–2018	32–38	6,734

Source: NLSY97.

Our primary analyses relied on the sample of NLSY97 respondents who were at least 30 at the time of their final interview. To account for sample selection and attrition, we used survey-provided sample weights in all analyses. We created sample weights for this study by assigning each individual the cross-sectional sample weights associated with the first wave in which they were at least 30.

National Longitudinal Study of Adolescent to Adult Health

The analyses also used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) restricted-use data set. Add Health is a nationally representative, longitudinal data set with more than 20,000 respondents. It covers a wide variety of topic areas, including respondents' social, economic, psychological, and physical well-being; romantic and sexual behavior; delinquency and substance abuse; reproductive health; sexual knowledge; and educational achievement. The Add Health data set currently has five waves of data, following the same youth over a roughly 22-year period (Table A.2).

The first wave of Add Health was fielded between 1994 and 1995 using school-based sampling. More than 90,000 students across the country from 145 middle, junior, and high schools filled in a survey at their schools. A total of 20,275 of these adolescents were randomly selected to participate in an additional in-home interview (Table A.2). Additionally, a parent of each Wave 1 sample member was also interviewed. A year later, approximately 15,000 of these adolescents participated in the second wave of the survey. (Note that participants who were in the 12th grade during Wave 1 were not sampled to participate in Wave 2.) The first two surveys covered topics such as health status and nutrition; peer networks; family composition and dynamics; sexual activity; substance use; criminal activities; and biological data, such as height and weight. The first wave of the Add Health data was the primary source of individual characteristics used as covariates in the economic analysis.

The third wave of the survey was fielded between 2001 and 2002, interviewing approximately 15,000 of the first-wave respondents when they were 18 to 26 years old. The Wave 3 questionnaire, among other topics, included a large number of retrospective questions to capture relationship, childbearing, marriage, education, and employment histories.

Wave 4, conducted in 2008−2009, interviewed more than 15,500 of the first-wave respondents who were then 24 to 32 years old. This survey included questions on educational transitions, labor market and marital status, and pregnancies, as well as other topics, such as economic status, financial resources, and the balance between work and family responsibilities. In the economic analysis, we used Waves 1, 3, and 4 to measure milestone completion.

Wave 5, the latest available from the survey, was fielded between 2016 and 2018 (and released in 2019) when respondents were ages 33 to 44, and included more than 12,000 of the first-wave respondents. The fifth wave included questions on income and family and relationship outcomes, retrospective questions on childbearing, and detailed questions on chronic diseases. In the economic analysis, we used the data from Wave 5 primarily for measuring outcomes.

Table A.2. Description of the available Add Health waves

Wave	Year	Ages or grades	Sample size
Wave 1	1994–1995	Grades 7 to 12	20,745
Wave 2	1996	Grades 8 to 12	14,783
Wave 3	2001–2002	Ages 18–26	15,197
Wave 4	2008–2009	Ages 24–32	15,701
Wave 5	2016–2018	Ages 33–44	12,300

Source: Add Health.

Our primary analyses relied on the sample of Add Health respondents interviewed in Waves 1, 3, 4, and 5. We therefore weighted all analyses using the longitudinal weights provided by the Add Health survey

designed for studies using only these waves. We used the restricted-use data set, which contains data on all study participants and is available by contractual agreement.

Measures of milestone completion

To answer the study's first and second research questions, we used the NLSY97 to assess the proportion of young adults who had completed high school, had a full-time job, gotten married, and had children. We measured this proportion using all waves of data for each individual through age 30. To supplement these findings, we replicated the analysis using data from Waves 1, 3, and 4 of the Add Health data. For individuals age 30 or older by the time of Add Health Wave 4, we measured milestone completion through age 30. For individuals not yet 30 years old at the time of Wave 4, we measured milestone completion at the time of their Wave 4 interview. We chose the primary definitions for each milestone to match most closely the definitions used in previous research on the success sequence. We defined each milestone as follows.

- **High school completion**: For both data sources, we defined respondents as having completed this milestone if they reported having obtained a high school diploma. We measured the timing of milestone completion as the date (that is, month and year) of degree receipt. Our primary analyses did not consider GED certificate attainment as high school completion.
- **Full-time employment**: For the NLSY97 data, we defined respondents as having completed this milestone if they reported having worked at least 35 hours per week for at least 40 weeks in any given 52-week period by age 30. This definition was made possible by the weekly employment arrays in the NLSY data, which list the number of hours worked by an individual in each week of the entire follow-up period. In assessing this criterion, we accounted for all jobs reported within a 52-week period (that is, if someone worked 30 hours at one job and 10 hours at another, they would still be counted as working more than 35 hours per week). We measured the timing of milestone completion as the first week of employment for which the following 52-week period met this criterion. In the Add Health data, this level of detail on employment was not available. We thus measured full-time employment as answering "yes" to the following question from the Wave 4 interview: "Have you ever worked full time at least 35 hours a week at a paying job while you were not primarily a student? Do not include summer work." We measured the timing of the completion of this milestone in Add Health as the date (that is, month and year) of first reported full-time employment.
- **Marriage**: For both data sources, we defined respondents as having completed this milestone if they reported having gotten married at any time by age 30. We measured the timing of milestone completion as the date (that is, month and year) of a respondent's first marriage.
- **Childbearing**: For both data sources, we defined respondents as having completed this milestone if they reported having any biological children by age 30. We measured the timing of milestone completion as the birth date (that is, month and year) of the respondent's first biological child.

We supplemented our primary analyses with additional robustness tests. Specifically, we repeated our descriptive analysis of the NLSY97 using the following alternative definitions for milestone completion:

- **Age cutoffs.** We repeated the primary analysis using alternative age cutoffs for milestone completion. For example, rather than measuring milestone completion by age 30, we measured completion by age 32 or 34. This test enabled us to understand how much milestone completion rates varied based on age.

- **Milestone definitions.** We repeated the primary analysis using alternative definitions for the education, employment, and childbearing milestones. For the **education** milestone, we used an alternative definition that considers respondents as having completed the milestone if they reported having obtained a high school diploma *or* a GED certificate. For the **employment** milestone, we used a series of alternative definitions that considered respondents as having completed this milestone (1) when limiting the criterion for full-time employment to a respondent's primary job (instead of all jobs), (2) when limiting the full-time employment to a single employer within a 52-week period (instead of all periods of employment), and (3) if respondents reported having worked for at least 20 hours per week (instead of 35 hours per week) for at least 40 weeks in any given 52-week period (inclusive of all jobs). For the **childbearing** milestone, we used an alternative definition that considers adopted children in addition to biological children.

Measures of economic self-sufficiency and family stability

To answer the study's third research question, on the relationship between milestone completion and outcomes, we measured economic self-sufficiency and family stability in early adulthood. Because Add Health generally provides information on outcomes further into adulthood than NLSY97 (that is, ages 33 through 44 versus ages 31 through 38), we used Add Health data as the primary basis for answering this research question. We measured outcomes at the time of the Wave 5 survey.

Economic self-sufficiency outcomes

To measure economic self-sufficiency in young adulthood, we used the following three outcomes:

1. **Earning at least 100 percent of the federal poverty level (nonpoverty status).** We defined "nonpoverty status" as having a household income that was at least 100 percent of the federal poverty level for the current household size (federal poverty levels are determined annually by the Census Bureau). For the Add Health data, we estimated the ratio of household income to the poverty level using the poverty guidelines provided by the Office of the Assistant Secretary for Planning and Evaluation within the U.S. Department of Health and Human Services.
2. **Earning at least 300 percent of the federal poverty level (middle class status).** We defined "middle class status" as having a household income that was at least 300 percent of the federal poverty level for the current household size. We estimated this status following the same methods described for nonpoverty status.
3. **Household income.** For the Add Health analyses, we measured household income using reported household income in Wave 5. The Add Health questionnaire does not measure household income precisely but rather as a categorical outcome with 13 possible values. We estimated household income as the midpoint of each of the first 12 income categories. For the final income category—earnings of $200,000 or more—we estimated income as the median U.S. household income in 2017 for those making more than $200,000 from the American Community Survey—$274,000. For regression analyses, we included the logarithm of income as the dependent variable.

Family stability outcomes

To measure family stability in young adulthood, we used the following three outcomes:

1. **Number of residential partner transitions.** This outcome is defined as the number of changes in residential partners. In Add Health, we calculated this outcome as two times the number of previous

residential partners reported by the respondent at the time of the Wave 5 survey, plus one if the respondent reported currently having a residential partner at the time of that wave survey.

2. **Presence of at least two adults in the household**. This outcome is an indicator that equals one if the respondent reported living with at least one other individual over the age of 21 at the time of the Wave 5 survey, and equals zero otherwise.
3. **Relationship satisfaction**. For the Add Health data, this outcome is an indicator that equals one if the respondent self-described as being in a "very happy" relationship at the time of the Wave 5 survey, and equals zero if the respondent reported being "not too happy" or "fairly happy." This survey question was asked only of respondents who reported being in a relationship at the time of the Wave 5 survey.

Assessing associations between outcomes and milestone completion

We used regression analyses to assess the association between outcomes and individual milestone completion, combinations of milestones completed, and the order of milestones completed. For the continuous outcomes, log of household income, and number of partner transitions, we used ordinary least squares regression (OLS). For the four other outcomes, all binary variables, we used logistic regression analysis. We present all results in the body of the report as regression-adjusted averages. They are calculated as the averages of the predicted outcomes at the observed values of covariates. For the OLS, this result is the equivalent of the regression coefficient.

To assess the association between each outcome and the four individual milestones (high school completion, obtaining full-time employment, getting married, and having a child), we estimated the following multivariate regression model separately for each outcome,

$$Y_i = \beta_0 + \beta_1 H_i + \beta_2 E_i + \beta_3 M_i + \beta_4 C_i + \beta_5 X_i + \varepsilon_i$$

where H_i, E_i, M_i, and C_i are indicators for whether respondent i completed high school, full-time employment, marriage, and childbearing, respectively. X_i is a vector of respondent-level covariates (described later in this section of the appendix) and ε_i is a respondent-level error term.

To assess the importance of considering the milestones in combination, we estimated the associations between each combination of milestones and outcomes after controlling for the impact of each milestone individually. We use the following regression:

$$Y_i = \beta_0 + \beta_1 H_i + \beta_2 E_i + \beta_3 M_i + \beta_4 C_i + \beta_5 X_i + \sum_{j=1}^{11} \gamma_j Z_{ij} + \varepsilon_i$$

where each j represents one of the 11 possible combinations of milestones that an individual could complete, excluding combinations that include only one or no milestones.[3] Z_{ij} is an indicator equal to one if respondent i completed all of the milestones in combination j and no other milestones. We also

[3] The 11 combinations of milestones are as follows: (1) high school completion and employment; (2) high school completion and marriage; (3) high school completion and childbearing; (4) employment and marriage; (5) employment and childbearing; (6) marriage and childbearing; (7) high school completion, employment, and marriage; (8) high school completion, employment, and childbearing; (9) high school completion, marriage, and childbearing; (10) employment, marriage, and childbearing; and (11) high school completion, employment, marriage, and childbearing.

conducted chi-squared tests on the set of coefficients on combinations (γ) to assess whether there is a statistically significant association between combinations of milestones and outcomes.

To assess how much the ordering of milestones matters, we repeated the analysis above, adding an indicator for whether the milestones were completed in the prescribed order of the success sequence. This indicator takes a value of 1 if all of the milestones that were completed were in order, regardless of which ones were completed. For example, an individual who completed only high school and then marriage would be assigned a value of one. An individual who completed high school, then marriage, and then employment would be assigned a value of zero. This indicator also takes a value of zero if the individual completed only one milestone. We estimated the following regression model:

$$Y_i = \beta_0 + \beta_1 H_i + \beta_2 E_i + \beta_3 M_i + \beta_4 C_i + \beta_5 X_i + \sum_{j=1}^{11} \gamma_j Z_{ij} + \beta_6 O_i + \varepsilon_i$$

where O_i is an indicator for whether respondent i completed that respondent's combination of milestones in order. To further explore the relationship between the order of milestone completion and outcomes, we repeated this analysis, replacing O_i with a set of three indicators for whether the respondent completed each pair of adjacent milestones in the prescribed order: high school before employment, employment before marriage, and marriage before childbearing. These indicators take a value of one if an individual completed both milestones in the pair and completed them in the prescribed order. For example, the indicator for employment before marriage takes a value of one if individuals completed employment and marriage, in that order, regardless of whether they completed high school or childbearing.

Finally, we estimated lower bounds on the treatment effect using the technique proposed in Oster (2017), which relies on the assumption that the unobservable covariates relate similarly to both the treatment and outcomes variables, as do the observable covariates. We therefore can estimate what the coefficient on treatment would be if the model had the maximum plausible R-squared value and included all observable and unobservable covariates. For economic outcomes variables, we estimated the maximum plausible R-squared value as the R-squared value from a regression of each outcome at age 30 on the same outcome at age 28 using the NLSY97 data. We used this assumption to estimate what proportion of variation in the observed income could be explained plausibly by individual characteristics. For family stability outcomes, we used a maximum R-squared value of one. Because this technique works only for OLS regression, we present the lower bound as a proportion of the OLS coefficient.

Our regression analyses control for participant-level characteristics that might be associated with both milestone completion and economic and family stability outcomes in young adulthood. The Add Health data include a wide array of variables with information on participant demographic characteristics, baseline income and parental characteristics, baseline household characteristics, baseline income and parental characteristics, criminal justice history, delinquent and risk-taking behavior, physical and mental health, sexual activity, substance use, and other individual characteristics. To avoid over fitting the model, we ran a series of Least Absolute Shrinkage and Selection Operator (LASSO) regressions to identify the variables with the most power to predict each outcome. The LASSO regression is a machine-learning technique using a regression-based specification that includes a penalty for inclusion of additional covariates such that only covariates with sufficient predictive power will be included in a final regression specification. We used a five-fold cross-validation technique to select the optimal tuning parameter, which dictates the penalty for including additional variables in the final regression specification (Breiman and Spector 1992). We ran separate LASSO regressions for each outcome and data set combination.

Table A.3 lists the covariates we considered for potential inclusion in the LASSO models. For each variable, we also imputed missing values as the mode value and included a separate associated binary variable indicating whether the value for that variable was missing. We transformed categorical variables into a series of binary variables with the most common value excluded and considered each binary separately by the LASSO. For baseline household income, we included absolute income, the log of income (set to zero if income was zero), and a binary indicator equal to 1 if the household had zero income. We included cognitive ability scores as is and as the log of the ability score (the score could not take on a value of zero). We included the number of sexual partners as a logarithm; we transformed parental age at first marriage, expected likelihood of attending/graduating college, and body mass index (BMI) into categorical variables using binned values.

Table A.3. Covariates included in the LASSO analysis

Variable
Demographic characteristics
Year of birth
Age
Born outside of the United States
Gender
Race/ethnicity
Baseline income and parental characteristics
Anyone in household received government benefits (for example, AFDC, food stamps, housing assistance)
Anyone in household received UI or workers compensation
Household income
Parent marital status
Parent reports not enough money to pay bills
Parent works for pay
Parent's age at first marriage
Religion
Residential father's education
Residential mother's education
Baseline household characteristics
Household size
Language spoken at home
Lives with sibling(s) in household
Living in urban/rural area
Number of parents in household
Number of siblings in household

Variable
Criminal justice history
Arrested by age 18
Charged with a crime by age 18: assault
Charged with a crime by age 18: drugs
Charged with a crime by age 18: property damage
Charged with a crime by age 18: theft, burglary, robbery
Convicted of a crime by age 18
Delinquent and risk-taking behavior
Riding bicycles without helmet
Damaged property in past year
Drank and drove in past month
Drives or rides in a car without a seatbelt
Ever suspended from school
Ever expelled from school
Lied to parents about where they were/with in past year
Number of delinquent behaviors in past year
Painted/sprayed graffiti in past year
Rode on motorcycle without helmet
Physical and mental health
Attempted suicide
Seriously considered suicide
CES-D Scale[a]
Has a mental or emotional disability
Has a learning disability
BMI
Has a limiting condition[b]
Self-reported general health
Sexual activity
Age at first sex
Ever had sex
Ever had unprotected sex
Used birth control at first sex
Substance use
Binge drank in past 12 months
Binge drank weekly or more often in past 12 months
Ever drank alcohol
Drank weekly or more often in past 12 months
Ever drank alcohol alone
Ever had drink not with family
Experienced negative consequences for drinking in past 12 months
Ever smoked a cigarette

Variable
Ever smoked on a regular basis
Ever used cocaine
Ever used inhalant
Ever used other drugs
Ever used hard drugs (cocaine, inhalants, or other drugs)
Ever used marijuana
Other
Cognitive ability: Standardized score
Ever repeated a grade
Expected likelihood of attending college

Note: All covariates were measured at the time of the first survey unless otherwise specified.

[a] The Center for Epidemiologic Studies Depression (CES-D) measures the degree to which an individual is experiencing depression. For more information, see https://www.apa.org/pi/about/publications/caregivers/practice-settings/assessment/tools/depression-scale.

[b] Limiting conditions include any learning or emotional problem that limits or has limited the kind of schoolwork or the ability to participate in, time spent in, or performance of other daily activities.

AFDC = Aid to Families with Dependent Children; ASVAB = Armed Services Vocational Aptitude Battery test; BMI = body mass index; CES-D Scale = Center for Epidemiologic Studies Depression Scale; SS = Social Security; SSI = Supplemental Security Income; UI = Unemployment Insurance.

For the regression models, the covariates selected by the LASSO model for each outcome were as follows:

- **Household earnings at least 100 percent of the poverty level:** Age at Wave 5: 36; Age at Wave 5: 40; Age at Wave 5: Missing; BMI: 25−30; BMI: 30 or higher; CES-D Scale; Riding bicycle without helmet; Used birth control at first sex; Religion: Catholic; Cognitive ability: Standardized score; Drank alcohol prior to age 18; Ever drank alcohol alone; Drank and drove in past month: Missing; Ever used hard drugs (cocaine, inhalants, or other drugs); Ever used inhalant; Ever used marijuana: Missing; Ever smoked on a regular basis; Ever smoked a cigarette; Expected likelihood of attending college: Low; Expected likelihood of attending college: Medium; Ever expelled from school; Household income; Household size; Household size: Missing; Residential father's education: More than college; Gender: Female; Self-reported general health: Fair or poor; Experienced negative consequences for drinking in past 12 months: Missing; Has a learning disability; Lives with father; Lives with mother; Number of siblings in household: Missing; Residential mother's education: Less than high school; Residential mother's education: Missing; Parent works for pay: Mother; Parent works for pay: Mother: Missing; Race/ethnicity: Non-Hispanic Black; Drives or rides in a car without a seatbelt; Parent's age at first marriage: Less than 20; Parent marital status: Single; Damaged property in past year; Anyone in household received government benefits (for example, Aid to Families with Dependent Children [AFDC], food stamps, housing assistance); Ever repeated a grade; Living in urban/rural area: Rural; Attempted suicide; Seriously considered suicide; Ever suspended from school; Living in urban/rural area: Urban; Year of birth: 1979; Age at first sex; Arrested by age 18: Missing; Charged with a crime by age 18: Drugs
- **Household earnings at least 300 percent of the poverty level:** Age at Wave 5: 42; Age at Wave 5: Missing; BMI: 25−30; CES-D Scale; Riding bicycle without helmet; Binge drank weekly or more often in past 12 months; Religion: Catholic; Cognitive ability: Standardized score; Number of

delinquent behaviors in past year; Drank alcohol prior to age 18; Ever drank alcohol alone; Drank and drove in past month; Ever used cocaine; Ever had drink not with family; Ever used other drugs; Ever used other drugs: Missing; Ever smoked on a regular basis; Ever smoked a cigarette; Expected likelihood of attending college: Low; Expected likelihood of attending college: Medium; Ever expelled from school; Household income; Household size; Household size: Missing; Residential father's education: College; Residential father's education: More than college; Residential father's education: Less than high school; Residential father's education: Some college; Gender: Female; Born outside of the United States; Self-reported general health: Excellent; Self-reported general health: Fair or poor; Language spoken at home: Other; Has a learning disability; Lives with mother; Number of siblings in household (squared); Lives with sibling(s) in household; Residential mother's education: More than college; Residential mother's education: Missing; Residential mother's education: Less than high school; Parent works for pay: Mother: Missing; Rode on motorcycle without helmet; Race/ethnicity: Non-Hispanic Black; Race/ethnicity: Non-Hispanic other race; Drives or rides in a car without a seatbelt; Drives or rides in a car without a seatbelt: Missing; Parent's age at first marriage: Less than 20; Parent's age at first marriage: Less than 30; Damaged property in past year; Anyone in household received government benefits (for example, AFDC, food stamps, housing assistance); Ever repeated a grade; Living in urban/rural area: Rural; Attempted suicide; Ever suspended from school; Ever suspended from school: Missing; Ever had unprotected sex; Ever had unprotected sex: Missing; Living in urban/rural area: Urban; Year of birth: 1975; Year of birth: 1976; Year of birth: 1980; Year of birth: 1981; Has a limiting condition; Age at first sex; Age at first sex: Missing; Charged with a crime by age 18: Assault

- **Log of household income:** Age at Wave 5: 35; Age at Wave 5: 36; Age at Wave 5: 37; Age at Wave 5: 40; Age at Wave 5: 42; Age at Wave 5: 44; BMI: 25−30; BMI: 30 or higher; BMI: Missing; CES-D Scale; Binge drank in past 12 months: Missing; Binge drank weekly or more often in past 12 months; Used birth control at first sex; Used birth control at first sex: Never had sex; Religion: Catholic; Cognitive ability: Standardized score; Cognitive ability: Standardized score: Missing; Number of delinquent behaviors in past year; Number of delinquent behaviors in past year: Missing; Drank alcohol prior to age 18; Ever drank alcohol alone; Ever drank alcohol alone: Missing; Drank and drove in past month; Drank and drove in past month: Missing; Ever used cocaine; Ever used cocaine: Missing; Ever used inhalant; Ever used other drugs; Ever used marijuana; Ever used marijuana: Missing; Ever smoked on a regular basis; Ever smoked a cigarette; Expected likelihood of attending college: Low; Expected likelihood of attending college: Medium; Ever expelled from school; Ever expelled from school: Missing; Household income; Household size; Household size: Missing; Residential father's education: College; Residential father's education: More than college; Residential father's education: Less than high school; Parent works for pay: Father; Gender: Female; Born outside of the United States; Born outside of the United States: Missing; Self-reported general health: Fair or poor; Language spoken at home: Other; Language spoken at home: Spanish; Has a learning disability; Lied to parents about where they were/who they were with in past year; Lives with father; Number of siblings in household; Number of siblings in household: Missing; Lives with sibling(s) in household; Residential mother's education: College; Residential mother's education: More than college; Residential mother's education: Less than high school; Residential mother's education: Missing; Residential mother's education: Some college; Parent works for pay: Mother; Parent works for pay: Mother: Missing; Rode on motorcycle without helmet; Race/ethnicity: Non-Hispanic Black; Race/ethnicity: Non-Hispanic other race; Religion: Nonreligious; Drives or rides in a car without a seatbelt; Parent's age at first marriage: Less than 20; Parent marital status: Separated or divorced; Parent marital status: Single; Parent marital status: Widowed; Damaged property in past

year; Anyone in household received government benefits (for example, AFDC, food stamps, housing assistance); Anyone in household received UI or workers compensation; Ever repeated a grade; Ever repeated a grade: Missing; Living in urban/rural area: Rural; Attempted suicide; Seriously considered suicide; Ever suspended from school; Ever suspended from school: Missing; Living in urban/rural area: Urban; Year of birth: 1974; Year of birth: 1975; Year of birth: 1976; Year of birth: 1979; Year of birth: 1981; Year of birth: 1983; Has a limiting condition; Age at first sex; Age at first sex: Missing; Age at first sex: Never had sex; Arrested by age 18; Charged with a crime by age 18: Assault; Charged with a crime by age 18: Drugs; Charged with a crime by age 18: Theft, burglary, robbery

- **Partner transitions:** Age at Wave 5: 34; BMI: 30 or higher; BMI: Less than 18.5; BMI: Missing; Binge drank in past 12 months: Missing; Used birth control at first sex: Never had sex; Religion: Catholic; Cognitive ability: Standardized score; Number of delinquent behaviors in past year; Ever drank alcohol alone; Ever drank alcohol alone: Missing; Ever used marijuana; Ever smoked on a regular basis; Ever smoked a cigarette; Ever smoked a cigarette: Missing; Ever expelled from school; Household income; Residential father's education: More than college; Parent reports not enough money to pay bills; Self-reported general health: Fair or poor; Race/ethnicity: Hispanic; Experienced negative consequences for drinking in past 12 months; Language spoken at home: Other; Number of parents in household: Missing; Lives with mother; Lives with sibling(s) in household; Residential mother's education: Less than high school; Residential mother's education: Missing; Parent works for pay: Mother: Missing; Rode on motorcycle without helmet; Race/ethnicity: Non-Hispanic Black; Race/ethnicity: Missing; Religion: Missing; Parent's age at first marriage: Less than 20; Parent's age at first marriage: Less than 25; Parent's age at first marriage: Less than 30; Parent marital status: Widowed; Ever repeated a grade; Seriously considered suicide; Ever had unprotected sex; Age at first sex; Age at first sex: Never had sex; Convicted of a crime by age 18; Charged with a crime by age 18: Theft, burglary, robbery
- **Presence of at least two adults in the household:** CES-D Scale; Cognitive ability: Standardized score; Ever smoked on a regular basis: Missing; Race/ethnicity: Hispanic; Lives with father; Race/ethnicity: Non-Hispanic Black; Parent's age at first marriage: Less than 30; Anyone in household received government benefits (for example, AFDC, food stamps, housing assistance); Year of birth: 1981
- **Relationship satisfaction:** Number of delinquent behaviors in past year; Ever smoked a cigarette; Has a learning disability; Lied to parents about where they were/who they were with in past year; Race/ethnicity: Non-Hispanic Black; Living in urban/rural area: Urban; Age at first sex; Age at first sex: Never had sex

Comparing Estimates with Existing Research

All four milestones (education, employment, marriage, and childbearing) have been the subject of substantial research attempting to identify the causal impact of milestone completion on adult outcomes. To provide context for our analysis, we compared the associations from our regression models (as described in the previous section of this appendix) to estimates of causal impacts from other studies that most closely map to our context. Although these studies are not all directly comparable to our estimates, they provide suggestive evidence on the relative importance of selection and causality in estimates of associations. We selected studies based on the following criteria:

1. The study attempted to estimate the causal impact of one of the four milestones on outcomes in young adulthood.
2. The study included a plausible method for causal inference, including either a randomized trial or robust quasi-experimental design (for example, plausible instrument for treatment, event study).
3. The study sample was similar in age and environment to our study sample, representing U.S.-based individuals in their transition from youth to adulthood.
4. The outcomes assessed represented either economic or family stability.

Using these criteria, we identified 18 studies (Table A.4). For employment, because there are a limited number of studies with causal inference focusing on our age group, we expanded our criteria to include a broader age range. For each study, we extracted information on the causal identification method, outcome measures, and key findings. We evaluated the relationship between the causal impact estimate and the OLS estimate to inform the potential direction and degree of bias. If the OLS estimate is larger than the causal estimate, it suggests that the association likely is larger than the causal impact. In contrast, if the OLS estimate is smaller than the causal estimate, it suggests that the association may be lower than the causal impact.

Table A.4. Summary of relevant studies with causal inference on milestone completion

Causal estimation method	Data set and sample characteristics	Outcome	OLS	Causal estimate[a]
High school				
Ashenfelter, O., and A. Krueger. "Estimates of the Economic Return to Schooling from a New Sample of Twins." *American Economic Review*, vol. 84, no. 5, 1994, pp. 1157−1173.				
Uses twin-pair fixed effects to compare identical twins with different years of schooling, using sibling reports of respondent education as an instrument for respondent education.	A survey of identical twins who attended the 16th Annual Twins Day Festival in Twinsburg, Ohio, in 1991. Analytic sample includes 390 individual twins.	Wages	8% increase in wages	16% increase in wages
Barrow, L., and C. Rouse. "Do Returns to Schooling Differ by Race and Ethnicity?" *American Economic Review*, vol. 95, no. 2, 2005, pp. 83−87.				
Uses sibling fixed effects to compare siblings who dropped out of high school versus their siblings who completed high school, using sibling reports of respondent education as an instrument for respondent education.	National Longitudinal Survey of Youth 1979 and U.S. Decennial Census. Analytic sample includes individuals ages 25–65 who were U.S. citizens, born in the United States, worked at least one week in the previous year, and earned at least one-half of the minimum wage.	Hourly pay	6% increase in hourly pay	7% increase in hourly pay
Campbell, C. "The Socioeconomic Consequences of Dropping Out of High School: Evidence from an Analysis of Siblings." *Social Science Research,* vol. 51, 2015, pp. 108−18. doi: 10.1016/j.ssresearch.2014.12.011.				
Uses sibling fixed effects to compare siblings who dropped out of high school versus their siblings who completed high school.	National Longitudinal Study of Youth 1979 Cohort, Waves 1979 through 2010. Sample observed through age 43. Analytical sample includes 3,232 siblings from 843 sibling groups	Annual earned income	32% decrease in annual earned income	24% decrease in annual earned income
		Income-to-poverty ratio	0.337 decrease in the income-to-poverty ratio	0.215 decrease in the income-to-poverty ratio
Clark, D., and P. Martorell. "The Signaling Value of a High School Diploma." *Journal of Political Economy*, vol. 122, no. 2, 2014, pp. 282−318.				
Regression discontinuity comparing workers who barely passed and failed high school exit exams at the end of grade 12.	A statewide data set from Texas that links administrative high school records to administrative postsecondary schooling records and UI and earnings records. Analytic sample includes more than 750,000 students who were in 10th grade in spring 1991–1995.	Annual earnings	Not reported	No statistically significant effect on annual earnings
Oreopoulos, P. "Estimating Average and Local Average Treatment Effects of Education When Compulsory Schooling Laws Really Matter." *American Economic Review*, vol. 96, no. 1, 2006, pp. 152−175.				
Uses changes in compulsory school wages as an instrument for years of schooling.	15 UK General Household Surveys (GHS) from 1983 to 1998 and 14 Northern Ireland Continuous Household Surveys from 1985 to 1998. Analytic sample includes 66,185 individuals who were age 14 between 1935 and 1965, and 32 to 64 years of age at the time of the survey.	Annual earnings	10% increase in annual earnings	14% increase in annual earnings

Causal estimation method	Data set and sample characteristics	Outcome	OLS	Causal estimate[a]
Uses changes in compulsory school wages as an instrument for years of schooling.	Norwegian administrative data; includes all 28- to 60-year-olds in 2005.	Annual income	Not reported	5% increase in annual income
		Divorce	Not reported	0.3 percentage-point decline in the probability of divorce
Uses compulsory schooling laws as an instrument for years of schooling.		Weekly earnings	Not reported	13% increase in weekly earnings
		Divorce	Not reported	1 percentage-point decline in the probability of divorce
Rouse, E.C. "Further Estimates of the Economic Return to Schooling from a New Sample of Twins." Economics of Education Review, vol. 18, no. 2, 1999, pp. 149−157.				
Uses twin-pair fixed effects to compare identical twins with different years of schooling, using sibling reports of respondent education as an instrument for respondent education.	A survey of identical twins who attended the Annual Twins Day Festival in Twinsburg, Ohio, in 1991, 1992, 1993, and 1995. The analytic sample includes 453 twin pairs.	Wages	11% increase in wages	10% increase in wages
Stephens, Melvin Jr., and Dou-Yan Yang. "Compulsory Education and the Benefits of Schooling." *American Economic Review,* vol. 104, no. 6, 2014, pp. 1777−1792.				
Uses state school laws as an instrument for years of schooling, allowing for regional variation in year-of-birth effects.	U.S. Census of Population 1960, 1970, and 1980. Analytic sample includes native-born individuals ages 25 to 54 across these three census years, which encompassed the 1905 to 1954 birth cohorts.	Weekly wages	7% increase in weekly wages	No statistically significant effect on weekly wages
		Divorce	Decrease in probability of divorce by 0.18 percentage points for males and 0.08 percentage points for females	Decrease in probability of divorce by 0.63 percentage points for males, increase in the probability of divorce by 0.62 percentage points for females; both estimates statistically significant at the 10 percent level.
Employment				
Autor, D., and S. Houseman. "Do Temporary-Help Jobs Improve Labor Market Outcomes for Low-Skilled Workers? Evidence from 'Work First.'" *American Economic Journal: Applied Economics*, vol. 2, no. 10, 2010, pp. 96–128.				
Uses assignment of welfare participants to nonprofit program providers (contractors) that have different placement rates into temporary-help and direct-hire jobs as an instrumental variable for job taking.	Participants of the Work First program. Analytic sample includes 37,161 individuals who participated in the program between the last quarter of 1999 through the first quarter of 2003.	Quarterly earnings	$493 increase in quarterly earnings	$248 increase in quarterly earnings

Causal estimation method	Data set and sample characteristics	Outcome	OLS	Causal estimate[a]
Huston, A.C., C. Miller, L. Richburg-Hayes, G.J. Duncan, C.A. Eldred, T.S. Weisner, E. Lowe, V.C. McLoyd, D.A. Crosby, M.N. Ripke, and C. Redcross. "New Hope for Families and Children: Five-Year Results of a Program to Reduce Poverty and Reform Welfare." MDRC: 2003.				
Randomized controlled trial of the Milwaukee New Hope Project, which provided participants with an earning supplement, subsidized health insurance, subsided child care, and help obtaining employment.	Program participants of the New Hope Project. Analytic sample includes 745 people who had at least one child between the ages of 1 and 10 at the time of enrollment.	Annual total income	Not applicable	$883 increase in annual total income
		Poverty rate	Not applicable	13.5 percentage point decrease in the poverty rate
		Married and living with spouse	Not applicable	No statistically significant impact on probability of being married and living with spouse
Marriage				
Budig, Michelle J., and Misun Lim. "Cohort Differences and the Marriage Premium: Emergence of Gender-Neutral Household Specialization Effects." *Journal of Marriage and Family*, vol. 78, no. 5, 2016, pp. 1352–1370.				
Uses person and year fixed effects to compare outcomes before and after marriage for the same person.	1979–1989 waves of the NLSY79 and 1997–2010 waves of the NLSY97. Analytic sample includes respondents who were ages 18 to 31 years in both data sets and had at least one employment spell before marriage.	Hourly wages	18% to 19% increase in hourly wages for men and 10% to 12% increase in hourly wages for women	7% increase in hourly wages for men and 1% increase in hourly wages for women
Dougherty, C. "The Marriage Earnings Premium as a Distributed Fixed Effect." *Journal of Human Resources,* vol. 41, no. 2, 2006, pp. 433−443. doi: 10.3368/jhr.XLI.2.433.				
Uses person fixed effects to compare outcomes before and after marriage for the same person.	NLSY79 waves through 1979−2002. Analytic sample includes respondents not enrolled in school, not employed in an odd job, working at least 30 hours per week, earning at least $2.50 per hour and not more than $250 per hour at 1996 prices, and either single or married.	Hourly earnings	15% increase in hourly earnings for men and 0% increase in hourly earnings for women	6% increase in average hourly earnings for men and 3% increase in average hourly earnings for women
Killewald, A., and M. Gough. "Does Specialization Explain Marriage Penalties and Premiums?" *American Sociological Review*, vol. 78, no. 3, 2013, pp. 477–502. https://doi.org/10.1177/0003122413484151.				
Uses person fixed effects to compare outcomes before and after marriage for the same person.	Data from the 1979 to 2008 waves of the NLSY79. Data included only men for whom at least two data points on wage were available.	Hourly wages	Not reported	7% increase in hourly wages for men and 4% increase in hourly wages for women

Causal estimation method	Data set and sample characteristics	Outcome	OLS	Causal estimate[a]
Killewald, A., and I. Lundberg. "New Evidence Against a Causal Marriage Wage Premium." *Demography*, vol. 54, no. 3, 2017, pp. 1007–1028. Available at https://doi.org/10.1007/s13524-017-0566-2.				
Uses "shotgun marriages" (marriages following a premarital conception) as a random source of variation in marriages.	NLSY97. Analytic sample includes men whose earnings were observed until ages 28–34 in 2013. The data include observations from men's entry into the adult labor force through the end of data collection at ages 28—34.	Hourly wages	Not reported	10% increase in hourly wages
Childbearing				
Ashcraft, A, I. Fernandez-Val, and K. Lang. "The Consequences of Teenage Childbearing: Consistent Estimates When Abortion Makes Miscarriage Nonrandom." *The Economic Journal*, vol. 123, no. 571, 2013, pp. 875-905.				
Uses the absence of a miscarriage as an instrument for a live birth.	1995 wave of the National Survey of Family Growth.	Family income in adulthood	Not reported	No statistically significant effect on family income.
		Marriage	Not reported	3 percentage point decrease in the probability of marriage
Diaz, C., and J. Fiel. "The Effect(s) of Teen Pregnancy: Reconciling Theory, Methods, and Findings." *Demography*, vol. 53, no. 1, 2016, pp. 85–116.				
Uses sibling fixed effects to compare siblings with and without a teen pregnancy.	Child and young adult Cohorts of the NLSY79.	Average earnings	55% decrease in average earnings	No statistically significant impact on log average earnings
Nuevo-Chiquero, A. "The Labor Force Effects of Unplanned Childbearing." *Labour Economics,* vol. 29, 2014, pp. 91−101.				
Uses spontaneous fetal losses (miscarriages) as an instrument for childbirth.	Data obtained from cycles III to VII of the National Survey of Family Growth (NSFG), administered by the U.S. National Center for Health Statistics in 1982, 1988, 1995, 2002, 2006, 2007, and 2008. Analytical sample includes 39,407 women.	Labor force participation	24.7 percentage point decrease in labor force participation	18.3 percentage point decrease in labor force participation
Hotz, V., S. McElroy, and S. Sanders. "Teenage Childbearing and Its Life Cycle Consequences: Exploiting a Natural Experiment." *Journal of Human Resources*, vol. 40, no. 3, 2005, pp. 683−715.				
Compares women who had a child as a teenager to women who had a miscarriage as a teenager.	NLSY79. Analytic sample includes 4,926 women.	Annual earnings	$2,599 decrease in annual earnings	$4,218 increase in annual earnings
Fletcher, J., and B. Wolfe. "Education and Labor Market Consequences of Teenage Childbearing: Evidence Using the Timing of Pregnancy Outcomes and Community Fixed Effects. *Journal of Human Resources*, vol. 44, no. 2, 2009, pp. 303−325.				
Compares women who had a child as a teenager to women who had a miscarriage, accounting for timing of miscarriage.	Add Health. Analytic sample includes 1,054 women who were pregnant as adolescents.	Annual income	Not reported	$2,846 decrease in annual earnings

Estimates are statistically significant unless otherwise noted.

Expert engagement

We engaged 11 experts through two teleconference calls to seek feedback on our approach for the analysis described in this report (Table A.5.). Specifically, we sought expert feedback on four topics: (1) defining and measuring success sequence milestones, (2) defining pathways from youth to young adulthood, (3) measuring economic and family stability outcomes, and (4) assessing the relationship between completion of the success sequence milestones and both economic self-sufficiency and family stability in adulthood. The views expressed in this publication do not necessarily reflect the views of these members.

Table A.5. Participants in success sequence expert meetings

Name	First meeting	Second meeting
Katherine Bradley, Chartwell Policy Solutions		X
John Iceland, Penn State University	X	
Alexandra Killewald, Harvard University	X	
Robert Lerman, Urban Institute	X	
Shelly Lundberg, University of California, Santa Barbara	X	
Joseph Price, Brigham Young University	X	
Isabell Sawhill, The Brookings Institution		X
Jerry Regier, Public Strategies	X	X
Wendy Wang, Institute for Family Studies		X
Brad Wilcox, University of Virginia		X
Jay Zagorsky, Boston University	X	

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Appendix B

Supplementary analyses

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This appendix provides findings from supplementary analyses beyond those presented in the main report text. These supplementary analyses demonstrate the robustness of our results to alternative definitions of milestone completion, alternative samples, and alternative analysis specifications. The supplementary analyses also show how milestone completion rates compare across the two data sources used for the analysis (NLSY97 and Add Health).

Milestone completion rates and sequences

In this section, we present a series of analyses that supplement the analyses in Section D of the main report. These analyses provide additional details and demonstrate the robustness of our results on milestone completion rates and sequences to alternative measurement choices. We first present the sensitivity of milestone completion rates to alternative milestone definitions (Table B.1), alternative age cutoffs (Table B.2), and using the Add Health data (Table B.3) instead of the NLSY97. We also present the rates of completion of milestones in combination in the Add Health data (Table B.4). Next, we present the completion rates for each sequence of milestones in the NLSY97 (Table B.5) and the Add Health data (Table B.6). Finally, we present rates by gender, race and ethnicity, and parental education, of milestone completion individually (Table B.7) and in sequences (Table B.8).

Table B.1. Success sequence milestone completion rates, by alternative milestone definitions (NLSY97)

Milestone	Percentage completing milestone	Age of milestone completion (percentile)		
		25th	50th	75th
High school graduation	83	18.0	18.3	18.7
Including GED certificate attainment	93	18.0	18.3	18.8
Employment	89	22.8	24.3	26.7
At least 20 hours per week	95	21.3	22.7	24.6
Only consider primary job	87	22.8	24.5	26.9
Only consider a single job spell	84	23.3	25.1	27.3
Childbearing	58	19.9	23.3	26.9
Including adopted children	59	19.8	23.2	26.9

Source: NLSY97 weighted data.

Note: Sample limited to 7,049 individuals with data available through age 30.

Table B.2. Success sequence milestone completion rate, by age cutoff (NLSY97)

Milestone	Percentage completing milestone			
	Age 30	Age 32	Age 34	Age 36
High school graduation	83	84	84	85
Employment	89	91	93	93
Married	53	59	64	68
Childbearing	58	65	71	73

Source: NLSY97 weighted data.

Note: Sample limited to individuals with data available through the relevant age. Sample includes 7,049 individuals when the age cutoff is 30, 6,617 individuals when the age cutoff is 32, 4,019 individuals when the age cutoff is 34 and 1,303 individuals when the age cutoff is 36.

Table B.3. Success sequence milestone completion rates (Add Health)

Milestone	Percentage completing milestone	Age of milestone completion (percentile)		
		25th	50th	75th
High school graduation	85	18.0	18.3	18.7
Employment	95	18.0	19.0	22.0
Married	49	21.1	23.6	25.8
Childbearing	47	19.8	22.5	25.4

Source: Add Health weighted data.

Note: Sample limited to 9,311 individuals with data available in Waves 1, 3, 4, and 5.

Table B.4. Completion rates for combinations of milestones without accounting for the sequence of milestone completion (Add Health)

Milestones completed	Percent
High school and employment only	30.6
All four milestones	26.2
High school, employment, and marriage only	14.4
High school, employment, and childbearing only	10.3
Employment, marriage, and childbearing only	5.4
Employment only	3.4
Employment and childbearing only	3.5
High school only	1.9
Employment and marriage only	1.5
High school and marriage only	0.5
High school, marriage, and childbearing only	1.1
No milestones	0.2
Marriage only	0.1
Childbearing only	0.3
High school and childbearing only	0.3
Marriage and childbearing only	0.3

Source: Add Health weighted data.

Note: Sample limited to 9,311 individuals with data available in Waves 1, 3, 4, and 5.

Table B.5. Sequences of milestone completion (NLSY97)

Milestone 1	Milestone 2	Milestone 3	Milestone 4	Percent
High school graduation	Employment			19.0
High school graduation	Employment	Marriage	Childbearing	14.2
High school graduation	Employment	Marriage		9.0
High school graduation	Employment	Childbearing		5.8
Employment	High school graduation	Marriage	Childbearing	4.2
High school graduation	Employment	Childbearing	Marriage	3.8
Employment	High school graduation			3.5
Employment	Childbearing			2.9
High school graduation				2.8
Employment				2.5
High school graduation	Marriage	Employment	Childbearing	2.0
Employment	High school graduation	Childbearing		2.0
Childbearing	Employment			1.9
Employment	High school graduation	Marriage		1.8
Employment	High school graduation	Childbearing	Marriage	1.7
Childbearing				1.6
High school graduation	Childbearing	Employment		1.6
Employment	Childbearing	Marriage		1.5
Employment	Marriage	Childbearing		1.5
High school graduation	Marriage	Childbearing		1.3
High school graduation	Childbearing	Employment	Marriage	1.3
High school graduation	Childbearing			1.1
Childbearing	Employment	Marriage		1.1
High school graduation	Marriage			0.9
Childbearing	Marriage			0.9
Childbearing	High school graduation	Employment		0.9
High school graduation	Marriage	Childbearing	Employment	0.8
Employment	Marriage			0.7
Childbearing	High school graduation	Employment	Marriage	0.7
No milestones				0.6
High school graduation	Childbearing	Marriage		0.6
High school graduation	Marriage	Employment		0.6
Childbearing	Marriage	Employment		0.6
High school graduation	Childbearing	Marriage	Employment	0.5
Childbearing	Employment	High school graduation	Marriage	0.4
Marriage	Childbearing	Employment		0.4
Marriage	Childbearing			0.3
Childbearing	High school graduation			0.3
Childbearing	Employment	High school graduation		0.3
Childbearing	High school graduation	Marriage		0.3
Childbearing	High school graduation	Marriage	Employment	0.3

Table B.5 *(continued)*

Milestone 1	Milestone 2	Milestone 3	Milestone 4	Percent
Employment	Childbearing	High school graduation		0.3
Employment	Childbearing	High school graduation	Marriage	0.2
Marriage	Employment	Childbearing		0.2
Childbearing	Marriage	High school graduation	Employment	0.2
Employment	Marriage	High school graduation	Childbearing	0.1
Marriage	Employment			0.1
Marriage	High school graduation	Childbearing	Employment	0.1
Childbearing	Marriage	High school graduation		0.1
Marriage				0.1
Marriage	High school graduation	Employment	Childbearing	0.1
Employment	Marriage	High school graduation		0.1
Marriage	Childbearing	High school graduation		0.1
Childbearing	Employment	Marriage	High school graduation	0.1
Employment	Marriage	Childbearing	High school graduation	<0.05
Marriage	Childbearing	High school graduation	Employment	<0.05
Marriage	Employment	High school graduation		<0.05
Marriage	Childbearing	Employment	High school graduation	<0.05
Marriage	High school graduation	Employment		<0.05
Marriage	High school graduation	Childbearing		<0.05
Marriage	Employment	High school graduation	Childbearing	<0.05
Employment	Childbearing	Marriage	High school graduation	<0.05
Marriage	Employment	Childbearing	High school graduation	<0.05
Childbearing	Marriage	Employment	High school graduation	<0.05
Marriage	High school graduation			0

Source: NLSY97 weighted data.

Note: Sample limited to 7,049 individuals with data available through age 30.

Table B.6. Sequences of milestone completion (Add Health)

Milestone 1	Milestone 2	Milestone 3	Milestone 4	Percent
High school graduation	Employment			21.3
High school graduation	Employment	Marriage		9.5
Employment	High school graduation			9.4
High school graduation	Employment	Marriage	Childbearing	8.5
Employment	High school graduation	Marriage	Childbearing	6.0
Employment	High school graduation	Childbearing		3.9
High school graduation	Employment	Childbearing		3.5
Employment	High school graduation	Marriage		3.5
Employment				3.4
Employment	High school graduation	Childbearing	Marriage	3.0
Employment	Childbearing			2.5
High school graduation	Employment	Childbearing	Marriage	2.5
Employment	Childbearing	Marriage		2.4
High school graduation				1.9
Employment	Marriage	Childbearing		1.8
Employment	Marriage			1.4
High school graduation	Marriage	Employment	Childbearing	1.3
High school graduation	Childbearing	Employment		1.1
High school graduation	Marriage	Employment		1.0
Childbearing	Employment			0.9
High school graduation	Marriage	Childbearing	Employment	0.8
High school graduation	Childbearing	Employment	Marriage	0.8
Employment	Childbearing	High school graduation		0.7
High school graduation	Marriage	Childbearing		0.7
Childbearing	High school graduation	Employment		0.7
Employment	Marriage	High school graduation	Childbearing	0.6
Childbearing	High school graduation	Employment	Marriage	0.5
Childbearing	Employment	High school graduation		0.4
High school graduation	Marriage			0.4
Employment	Marriage	Childbearing	High school graduation	0.4
Childbearing	Employment	Marriage		0.4
Employment	Marriage	High school graduation		0.4
Childbearing	Marriage	Employment		0.4
Employment	Childbearing	High school graduation	Marriage	0.3
High school graduation	Childbearing	Marriage	Employment	0.3
High school graduation	Childbearing	Marriage		0.3

Table B.6 *(continued)*

Milestone 1	Milestone 2	Milestone 3	Milestone 4	Percent
High school graduation	Childbearing			0.3
Childbearing				0.3
No milestones				0.2
Marriage	Childbearing	Employment		0.2
Childbearing	Employment	High school graduation	Marriage	0.2
Childbearing	High school graduation	Marriage	Employment	0.2
Marriage	Employment	Childbearing		0.2
Childbearing	Marriage			0.1
Marriage	Employment			0.1
Employment	Childbearing	Marriage	High school graduation	0.1
Marriage	Childbearing			0.1
Marriage	Childbearing	High school graduation	Employment	0.1
Childbearing	High school graduation	Marriage		0.1
Childbearing	Employment	Marriage	High school graduation	0.1
Marriage				0.1
Marriage	Employment	High school graduation	Childbearing	0.1
Marriage	High school graduation	Childbearing	Employment	0.1
Marriage	High school graduation			0.1
Childbearing	High school graduation			0.1
Marriage	High school graduation	Employment	Childbearing	<0.05
Marriage	Employment	Childbearing	High school graduation	<0.05
Childbearing	Marriage	High school graduation	Employment	<0.05
Marriage	Childbearing	Employment	High school graduation	<0.05
Marriage	Childbearing	High school graduation		<0.05
Childbearing	Marriage	Employment	High school graduation	<0.05
Marriage	High school graduation	Childbearing		<0.05
Marriage	Employment	High school graduation		<0.05
Marriage	High school graduation	Employment		<0.05
Childbearing	Marriage	High school graduation		<0.05

Source: Add Health weighted data.

Note: Sample limited to 9,311 individuals with data available in Waves 1, 3, 4, and 5.

Table B.7. Success sequence milestone completion rates, by gender, race and ethnicity, and parental education (NLSY97)

	Gender		Race/ethnicity			Parental education	
Milestone	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	High school or less	At least some college
High school graduation	81	85	85	77	78	74	91
Employment	92	86	90	83	90	88	90
Married	47	59	60	31	49	51	55
Childbearing	51	65	56	69	63	67	51

Source: NLSY97 weighted data.

Note: All results shown as percentages. Sample limited to individuals with data available through age 30. Sample sizes for analysis by gender: Male = 3,501; Female = 3,548. Sample sizes for analysis by race and ethnicity: non-Hispanic White = 3,349; non-Hispanic Black = 1,936; Hispanic = 1,475. Sample sizes by parental level of education: Less than college = 3,139; Some college = 3,230.

Table B.8. Sequences of milestones, by gender, race and ethnicity, and parental education (NLSY97)

Milestones				Gender		Race/ethnicity			Parental education	
				Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	High school or less	At least some college
1	2	3	4	Percent						
HS	E			22.4	15.4	18.8	17.6	16.8	13.0	23.9
HS	E	M	C	13.6	14.8	17.3	5.6	10.9	11.0	17.6
HS	E	M		8.6	9.4	10.9	3.2	5.6	5.8	11.7
HS	E	C		5.4	6.3	4.2	12.3	7.5	7.2	4.8
E	HS	M	C	4.5	3.9	5.2	1.7	3.5	4.8	4.1
HS	E	C	M	3.9	3.7	3.7	4.3	4.3	4.2	3.5
E	HS			4.9	2.0	3.6	2.4	3.6	3.8	3.5
E	C			4.1	1.6	2.4	4.4	4.0	4.7	1.5
HS				3.3	2.3	2.5	2.4	2.9	2.2	3.3
E				4.0	0.9	2.5	1.9	3.3	3.2	1.8
HS	M	E	C	1.1	2.9	2.5	0.5	1.1	1.3	2.5
E	HS	C		2.0	2.0	1.6	3.4	2.5	2.8	1.3
C	E			1.6	2.2	1.2	3.8	3.1	3.1	1.0
E	HS	M		2.1	1.5	2.1	0.6	1.9	2.2	1.5
E	HS	C	M	1.8	1.5	1.8	1.5	1.4	2.0	1.3
C				1.3	2.0	0.8	5.5	1.4	2.7	0.7
HS	C	E		1.0	2.2	0.7	4.8	2.5	1.8	1.3
E	C	M		2.3	0.8	1.5	1.3	2.3	2.5	0.8
E	M	C		1.9	1.0	1.6	0.6	1.8	1.7	1.1
HS	M	C		0.4	2.3	1.6	0.2	0.9	0.7	1.9
HS	C	E	M	0.8	1.8	1.0	2.3	1.6	1.3	1.1
HS	C			1.0	1.2	0.7	3.1	0.9	1.4	0.8
C	E	M		0.7	1.4	0.8	1.5	1.5	1.9	0.3
HS	M			0.8	1.0	1.1	0.4	0.4	0.2	1.5
C	M			0.4	1.4	0.9	1.0	0.8	1.7	0.2
C	HS	E		0.4	1.5	0.3	3.4	1.1	1.2	0.5
HS	M	C	E	0.3	1.3	0.8	0.4	1.5	0.8	0.8
E	M			0.7	0.7	0.7	0.6	0.9	1.0	0.5
C	HS	E	M	0.5	0.9	0.5	1.3	1.0	0.9	0.5
—				0.9	0.4	0.5	1.2	0.5	0.8	0.5
HS	C	M		0.1	1.2	0.6	0.5	0.8	0.5	0.6
HS	M	E		0.4	0.8	0.8	0.2	0.3	0.4	0.8
C	M	E		0.4	0.8	0.6	0.4	0.8	1.0	0.2
HS	C	M	E	0.2	0.8	0.4	0.7	0.3	0.5	0.3
C	E	HS	M	0.2	0.6	0.4	0.2	0.4	0.5	0.3
M	C	E		0.2	0.6	0.4	<0.05	0.7	0.6	0.2

Table B.8 *(continued)*

Milestones				Gender		Race/ethnicity			Parental education	
				Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	High school or less	At least some college
M	C			<0.05	0.6	0.3	0.1	0.7	0.5	0.2
C	HS			0.1	0.5	0.1	1.4	0.4	0.5	0.1
C	E	HS		0.1	0.5	0.2	0.9	0.3	0.4	0.2
C	HS	M		<0.05	0.6	0.3	0.5	0.2	0.5	0.2
C	HS	M	E	0.1	0.5	0.2	0.3	0.6	0.2	0.3
E	C	HS		0.4	0.2	0.2	0.6	0.2	0.4	0.2
E	C	HS	M	0.3	0.2	0.2	0.1	0.5	0.3	0.2
M	E	C		0.1	0.3	0.3	<0.05	0.2	0.3	0.1
C	M	HS	E	0.1	0.2	0.2	0.1	0.3	0.3	<0.05
E	M	HS	C	0.1	0.2	0.2	<0.05	0.1	0.2	0.1
M	E			0.1	0.1	0.1	<0.05	0.2	0.2	<0.05
M	HS	C	E	<0.05	0.2	0.1	<0.05	0.1	<0.05	0.1
C	M	HS		<0.05	0.2	0.1	<0.05	<0.05	0.1	<0.05
M				0.1	<0.05	<0.05	0.2	0.1	<0.05	<0.05
M	HS	E	C	<0.05	0.1	0.1	<0.05	0.1	0.1	<0.05
E	M	HS		0.1	<0.05	0.1	<0.05	0.1	0.1	<0.05
M	C	HS		<0.05	0.1	0.1	<0.05	0.1	<0.05	<0.05
C	E	M	HS	0.1	0.1	<0.05	0.2	0.1	0.1	<0.05
E	M	C	HS	<0.05	0.1	<0.05	<0.05	0.2	0.1	0.1
M	C	HS	E	<0.05	0.1	0.1	<0.05	0.1	0.1	<0.05
M	E	HS		<0.05	0.1	<0.05	<0.05	0.1	0.1	<0.05
M	C	E	HS	<0.05	0.1	<0.05	<0.05	0.1	<0.05	<0.05
M	HS	E		<0.05	<0.05	<0.05	<0.05	0.1	<0.05	<0.05
M	HS	C		<0.05	0.1	<0.05	<0.05	0.1	<0.05	<0.05
M	E	HS	C	<0.05	<0.05	<0.05	<0.05	0.1	0.1	<0.05
E	C	M	HS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
M	E	C	HS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
C	M	E	HS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Source: NLSY97 weighted data.

Note: All results shown as percentages. Sample limited to individuals with data available through age 30. Sample sizes for analysis by gender: Male = 3,501; Female = 3,548. Sample sizes for analysis by race and ethnicity: non-Hispanic White = 3,349; non-Hispanic Black = 1,936; Hispanic = 1,475. Sample sizes by parental level of education: Less than college = 3,139; Some college = 3,230. Sequences are ordered by the descending rank observed in the total sample (Table B.4).

HS = high school graduation; E = employment; M = marriage; C = childbearing.

Associations with economic outcomes in young adulthood

In this section we present a set of additional tables that complement the analyses in Section E of the main report. In the section, we include the following tables and figures:

- Descriptive statistics on average economic self-sufficiency outcomes by milestone completion (Table B.9)
- The results of all regressions of economic self-sufficiency outcomes on individual milestone completion (Table B.10)
- The results of regressions of economic self-sufficiency outcomes on combinations of milestones completed, including the results of statistical tests on the joint significance of milestone completion (Table B.11)
- Figures illustrating these regression results for achieving middle class status (Figure B.1) and log income (Figure B.2), which were not included in the main report
- The results of regressions of economic self-sufficiency outcomes on the order of milestone completion, including regression results (Table B.12)
- Figures illustrating the regression-adjusted averages by milestone sequence (Figure B.3)
- Synthesis of findings from the select causal studies on milestone completion (Table B.13)
- Estimates of bounds on the causal impact of the order of completion (Table B.14)

Table B.9. Economic self-sufficiency outcomes, by milestone completion (Add Health)

Milestone	Percent	Nonpoverty status (%)	Middle class status (%)	Household income ($)
High school graduation				
Completed	85	91	62	94,871
Did not complete	15	67	28	50,342
Employment				
Completed	95	88	58	89,354
Did not complete	5	75	46	69,086
Married				
Completed	49	90	57	94,514
Did not complete	51	85	58	82,239
Childbearing				
Completed	47	82	42	73,871
Did not complete	53	93	72	

Source: Add Health data.

Note: Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 8,430 individuals for the nonpoverty and middle-income status measures, and 8,615 individuals for the household income measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview.

Table B.10. Results of regressions of economic self-sufficiency outcomes on individual milestone completion (Add Health)

		Over 100% of poverty level		Over 300% of poverty level		Log of household income	
		[1]	[2]	[1]	[2]	[1]	[2]
High school completion	*Coefficient*	1.40***	0.67***	1.27***	0.70***	0.75***	0.38***
	Standard error	0.13	0.15	0.12	0.13	0.06	0.06
Employment	*Coefficient*	0.99***	0.92***	0.56***	0.48***	0.52***	0.37***
	Standard error	0.18	0.21	0.17	0.18	0.09	0.08
Marriage	*Coefficient*	0.98***	0.70***	0.58***	0.41***	0.42***	0.29***
	Standard error	0.12	0.12	0.08	0.08	0.03	0.03
Having a child	*Coefficient*	-1.31***	-0.89***	-1.42***	-1.17***	-0.46***	-0.26***
	Standard error	0.13	0.13	0.08	0.08	0.03	0.03
	Covariates	No	Yes	No	Yes	No	Yes

Source: Add Health data.

Note: Coefficient is the unadjusted coefficient from the logistic or OLS regression. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 8,430 individuals for the nonpoverty and middle-income status measures, and 8,615 individuals for the household income measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

Table B.11. Results of regressions of economic self-sufficiency outcomes on combinations of milestones completed (Add Health)

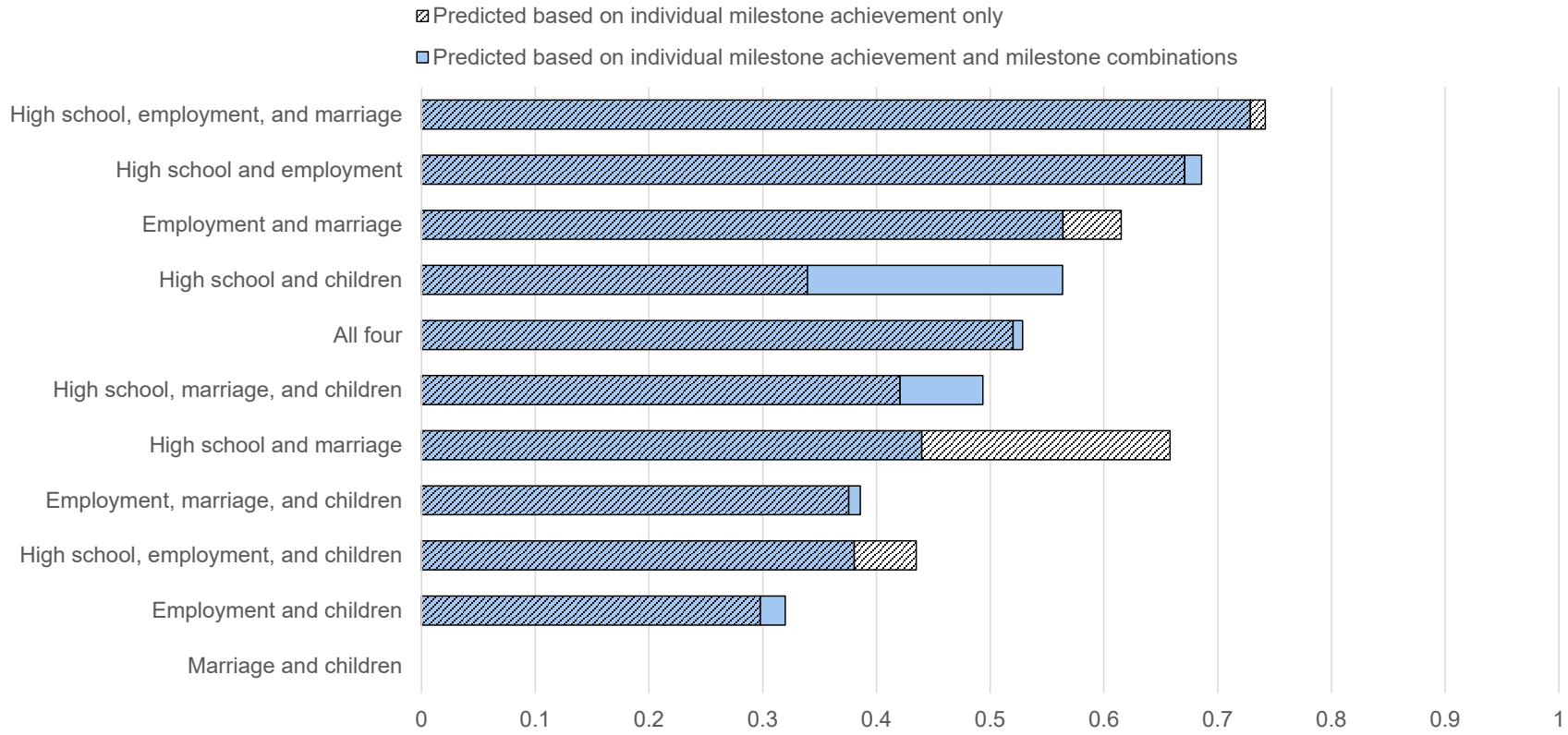
		Over 100% of poverty level		Over 300% of poverty level		Log of household income	
		[1]	[2]	[1]	[2]	[1]	[2]
High school and employment	*Coefficient*	0.04	0.02	-1.28	-1.63	-0.31	-0.32
	Standard error	0.79	0.88	1.04	1.06	0.48	0.47
High school and marriage	*Coefficient*	-0.07	0.42	-1.04	-1.95*	0.48	0.16
	Standard error	1.68	1.67	1.06	1.15	0.80	0.74
High school and having a child	*Coefficient*	0.33	0.64	-0.84	-0.26	0.13	0.18
	Standard error	1.08	1.22	1.17	1.24	0.63	0.59
Employment and marriage	*Coefficient*	0.06	0.88	-0.67	-1.08	0.38	0.36
	Standard error	1.59	1.57	1.01	1.08	0.75	0.70
Employment and having a child	*Coefficient*	0.85	0.79	-0.99	-1.19	0.33	0.31
	Standard error	0.94	1.12	1.04	1.08	0.52	0.52
Marriage and having a child	*Coefficient*	1.31	2.15	-	-	1.29	1.29*
	Standard error	1.75	1.90	-	-	0.85	0.78
High school, employment, and marriage	*Coefficient*	0.94	1.46	-1.76	-2.60	0.31	0.14
	Standard error	1.97	2.05	1.71	1.80	1.05	1.02
High school, employment, and having a child	*Coefficient*	-0.27	0.06	-3.07	-3.27*	-0.41	-0.30
	Standard error	1.51	1.75	1.89	1.89	0.92	0.92
High school, marriage, and having a child	*Coefficient*	2.44	2.94	-0.92	-1.81	1.43	0.95
	Standard error	2.07	2.20	1.53	1.54	1.08	1.05
Employment, marriage, and having a child	*Coefficient*	1.47	2.20	-1.30	-2.07	1.08	0.84
	Standard error	2.02	2.14	1.51	1.52	1.07	1.05
All four milestones	*Coefficient*	1.29	1.76	-2.76	-3.77	0.61	0.33
	Standard error	2.53	2.75	2.40	2.42	1.45	1.43
Test that all milestone combination coefficients are zero	*Chi-squared coefficient*		23.7		21.8		3.0
	p-value		0.014		0.016		<0.001
	Individual Milestones	Yes	Yes	Yes	Yes	Yes	Yes
	Covariates	No	Yes	No	Yes	No	Yes

Table B.11 *(continued)*

Source: Add Health data.

Note: Coefficient is the unadjusted coefficient from the logistic or OLS regression. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 8,430 individuals for the nonpoverty and middle-income status measures, and 8,615 individuals for the household income measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. We excluded the indicator for the marriage and children combination for outcome "over 300% of poverty level" due to small sample size. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

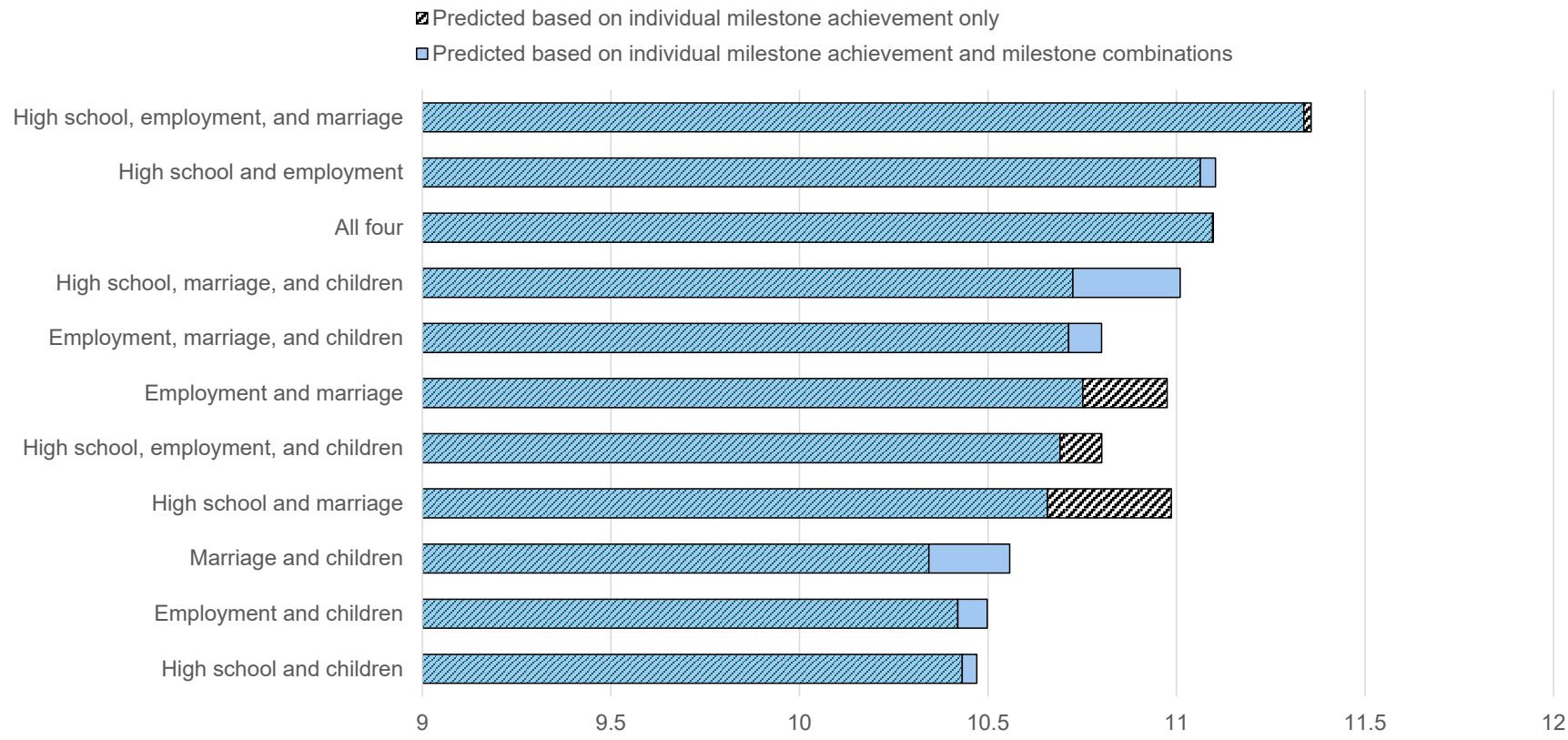
Figure B.1. Regression-adjusted likelihood of earning at least 300% of the federal poverty level, by milestone combination (Add Health)



Source: Add Health data.

Note: Sample limited to 8,430 individuals with data available in Waves 1, 3, 4, and 5. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

Figure B.2. Regression-adjusted average log household income, by milestone combination (Add Health)



Source: Add Health data.

Note: Sample limited to 8,615 individuals with data available in Waves 1, 3, 4, and 5. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

Table B.12. Results of regressions of economic self-sufficiency outcomes on order of milestone completion (Add Health)

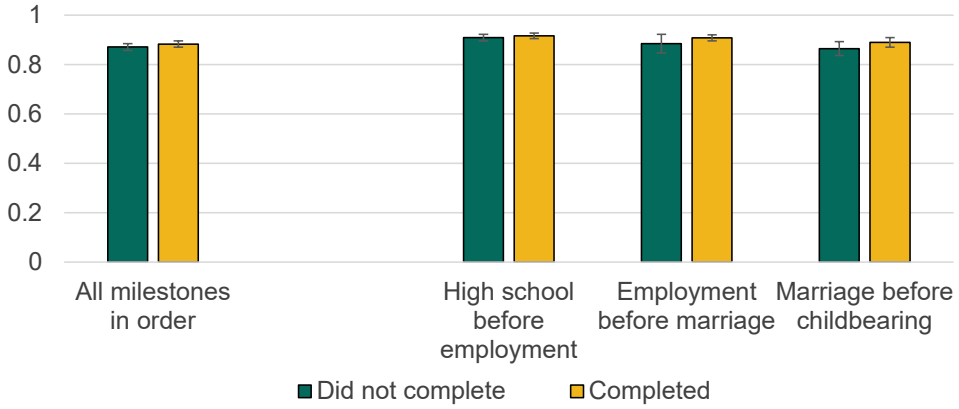
		Over 100% of poverty level		Over 300% of poverty level		Log of household income	
		[1]	[2]	[1]	[2]	[1]	[2]
Single-order indicator							
In success sequence order	*Coefficient*	0.53***	0.14	0.70***	0.44***	0.27***	0.09***
	Standard error	0.12	0.13	0.08	0.08	0.03	0.03
	Milestones	Yes	Yes	Yes	Yes	Yes	Yes
	Milestone combinations	Yes	Yes	Yes	Yes	Yes	Yes
	Covariates	No	Yes	No	Yes	No	Yes
Paired-order indicators							
High school before	*Coefficient*	0.44***	0.11	0.73***	0.50***	0.26***	0.09***
	Standard error	0.14	0.14	0.08	0.09	0.03	0.03
Employment before marriage	*Coefficient*	0.45**	0.32	0.44***	0.24	0.15***	0.06
	Standard error	0.22	0.26	0.14	0.15	0.06	0.05
Marriage before having a child	*Coefficient*	0.50***	0.29	0.36***	0.25*	0.20***	0.10**
	Standard error	0.18	0.20	0.12	0.13	0.05	0.05
	Milestones	Yes	Yes	Yes	Yes	Yes	Yes
	Milestone combinations	Yes	Yes	Yes	Yes	Yes	Yes
	Covariates	No	Yes	No	Yes	No	Yes

Source: Add Health data.

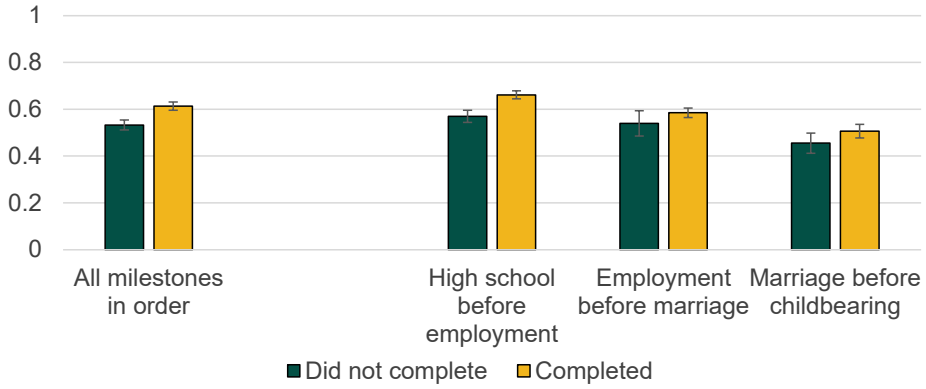
Note: Coefficient is the unadjusted coefficient from the logistic or OLS regression. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 8,430 individuals for the nonpoverty and middle-income status measures, and 8,615 individuals for the household income measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

Figure B.3. Regression-adjusted economic self-sufficiency, by order of milestone combination (Add Health)

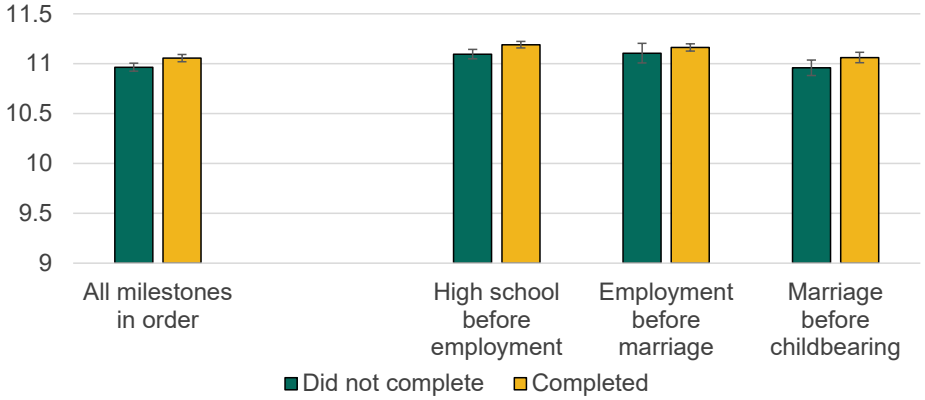
a. Likelihood of earnings at least 100% of federal poverty level



b. Likelihood of earnings at least 300% of federal poverty level



c. Log of household income



Source: Add Health data.

Note: Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 8,430 individuals for the nonpoverty and middle-income status measures, and 8,615 individuals for the household income measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details of regression specifications and a list of included covariates. In Figure B3.a and B3.b, bars represent the regression-adjusted proportion of individuals in each group who earned at least 100 percent or 300 percent of the federal poverty level. In Figure B3.c, bars represent the log-transformed and regression-adjusted average household incomes of individuals in each group.

Table B.13. Main findings from relevant studies with causal inference on milestone completion

Milestone	Findings
High school graduation	Studies on the impact of secondary education in settings comparable to ours found causal estimates that range from slightly higher to much lower than our estimated associations. Therefore, it is not clear whether selection bias accentuates or lessens the observed associations. However, there is relative consensus on a significant positive impact of education on individual outcomes.
Employment	To our knowledge, there are no studies on the impact of getting a job at any time during a young adult's transition to adulthood on outcomes with rigorous identification methods. The studies most comparable to ours estimate the impact of obtaining employment at a single point in time on future outcomes. These studies suggest that there is likely a strong causal impact of obtaining employment and future outcomes; because of the likely role of selection, however, it is substantially smaller than the estimated association.
Marriage	Studies on marriage suggest that getting married is associated with an increase in wages, particularly for men compared to women, and Blacks compared to Whites. However, more robust studies show that wages start increasing years before marriage, indicating that individuals, especially men, get married when their wages are high relative to past years.
Childbearing	Studies on childbearing suggest a clear negative impact of childbearing on economic outcomes, but one substantially lower than the estimated association. A robust literature suggests that there is a significant negative impact of childbearing on income, largely driven by the effect on women's earnings. Another set of studies shows that delaying childbearing, particularly past the teenage years, has positive impacts on economic outcomes. However, clear evidence shows that women who have children earlier—for example, before age 30—are negatively selected with respect to economic outcomes; thus, the impact estimates are lower than the associations.

Note: See Table A.4 for the list and summaries of the individual studies reviewed.

Table B.14. Causal impact bounds on economic self-sufficiency outcomes for ordered milestones (Add Health)

Outcome measure	Regression coefficient	Causal impact bound	Ratio of causal impact bound to regression coefficient
Over 100% of poverty level			
All milestones in order	0.00	-0.01	-1.67
High school before employment	-0.01	-0.03	6.20
Employment before marriage	0.02	-0.04	-1.52
Marriage before childbearing	0.02	0.02	0.65
Over 300% of poverty level			
All milestones in order	0.08	0.06	0.65
High school before employment	0.10	0.04	0.44
Employment before marriage	0.05	0.11	2.41
Marriage before childbearing	0.06	0.11	2.02
Log of household income			
All milestones in order	0.09	0.08	0.82
High school before employment	0.10	0.03	0.34
Employment before marriage	0.06	-0.08	-1.40
Marriage before childbearing	0.10	0.09	0.89

Source: Add Health data.

Note: Causal impact bounds calculated based on methods from Oster (2017). We estimated the maximum plausible R-squared value as the R-squared from the regression of each outcome at age 30 on the corresponding outcome at age 28 using NLSY data. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 8,430 individuals for the nonpoverty and middle-income status measures, and 8,615 individuals for the household income. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details on bound calculation and a list of included covariates.

Associations with family stability outcomes in young adulthood

In this section, we present a set of additional tables that complement the analyses in Section F of the main report. In the section, we include the following tables and figures:

- Descriptive statistics on average family stability outcomes by milestone completion (Table B.15)
- The results of all regressions of family stability outcomes on individual milestone completion (Table B.16)
- The results of regressions of family stability outcomes on the combinations of milestones completed, including the results of statistical tests on the joint significance of milestone completion (Table B.17)
- Figures illustrating these regression results for the presence of at least two adults in the household (Figure B.4), the number of partner transitions (Figure B.5), and relationship satisfaction (Figure B.6)
- The results of regressions of family stability outcomes on the order of milestone completion, including regression results (Table B.18)
- Figures illustrating the regression-adjusted averages of family stability outcomes by milestone sequence (Figure B.7)
- Estimates of bounds on the causal impact on family stability outcomes by order of completion (Table B.19)

Table B.15. Family stability outcomes, by milestone completion (Add Health)

Milestone	Percent	At least two adults in the household (%)	Partner transitions	Reported happy relationship (%)
High school graduation				
Completed	85	81	2.3	57
Did not complete	15	76	3.2	52
Employment				
Completed	95	81	2.5	56
Did not complete	5	73	1.9	60
Married				
Completed	49	87	2.7	59
Did not complete	51	73	2.3	53
Childbearing				
Completed	47	80	2.8	56
Did not complete	53	80	2.2	57

Source: Add Health data.

Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 9,311 individuals for the measure for the presence of at least two adults in the household, 9,067 individuals for the partner transitions measure, and 7,745 individuals for the partnership satisfaction measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview.

Table B.16. Results of regressions of family stability outcomes on individual milestone completion (Add Health)

		Two-adult household		Partner transitions		Reported happy	
		[1]	[2]	[1]	[2]	[1]	[2]
High school completion	*Coefficient*	0.19*	0.07	-0.82***	-0.44***	0.16	0.04
	Standard error	0.11	0.11	0.12	0.12	0.10	0.11
Employment	*Coefficient*	0.37**	0.32*	0.54***	0.38***	-0.18	-0.10
	Standard error	0.16	0.16	0.13	0.13	0.15	0.15
Marriage	*Coefficient*	1.04***	0.84***	0.26***	0.22***	0.33***	0.24***
	Standard error	0.08	0.09	0.07	0.07	0.07	0.07
Having a child	*Coefficient*	-0.39***	-0.19**	0.42***	0.19***	-0.14**	-0.01
	Standard error	0.08	0.09	0.07	0.07	0.07	0.08
	Covariates	No	Yes	No	Yes	No	Yes

Source: Add Health data.

Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Coefficient is the unadjusted coefficient from the logistic or OLS regression. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 9,311 individuals for the measure for the presence of at least two adults in the household, 9,067 individuals for the partner transitions measure, and 7,745 individuals for the partnership satisfaction measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

Table B.17. Results of regressions of family stability outcomes on combinations of milestones completed (Add Health)

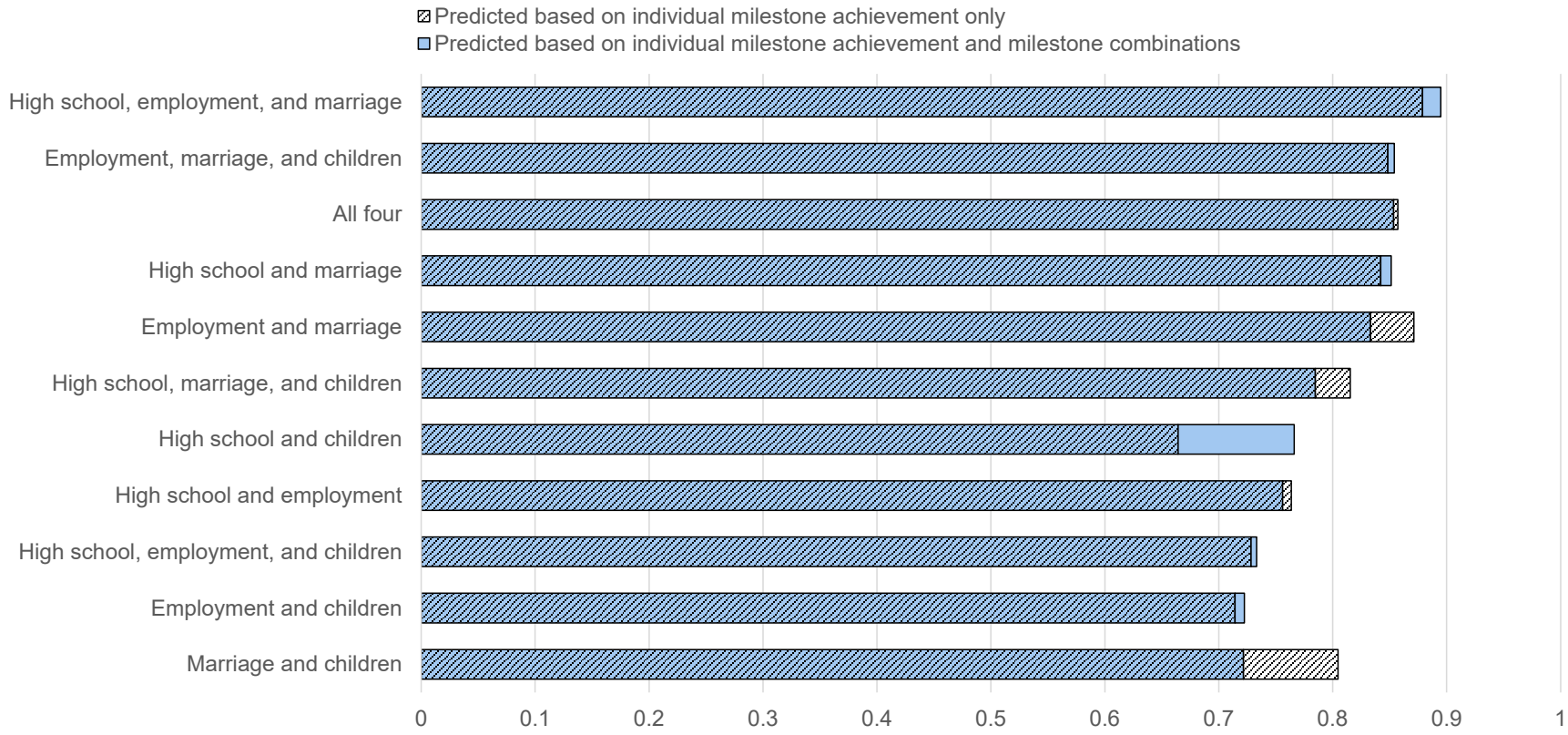
		Two-adult household		Partner transitions		Reported happy relationship	
		[1]	[2]	[1]	[2]	[1]	[2]
High school and employment	*Coefficient*	-0.47	-0.34	0.75	0.92	1.42*	1.55**
	Standard error	0.61	0.64	1.27	1.21	0.74	0.69
High school and marriage	*Coefficient*	1.67	1.84	0.89	1.21	0.80	1.16
	Standard error	1.27	1.20	1.54	1.59	1.46	1.41
High school and having a child	*Coefficient*	-0.12	0.41	1.43	1.41	2.05	2.61**
	Standard error	0.89	0.90	1.34	1.29	1.29	1.28
Employment and marriage	*Coefficient*	1.28	1.51	0.51	0.90	0.81	1.03
	Standard error	1.19	1.12	1.54	1.59	1.42	1.37
Employment and having a child	*Coefficient*	-0.15	-0.01	1.54	1.56	3.20***	3.51***
	Standard error	0.76	0.79	1.35	1.30	1.18	1.16
Marriage and having a child	*Coefficient*	1.24	1.53	2.20	2.75	2.68	3.16*
	Standard error	1.36	1.31	1.72	1.75	1.77	1.74
High school, employment, and marriage	*Coefficient*	1.47	1.79	0.95	1.58	1.69	2.03
	Standard error	1.48	1.45	2.63	2.57	1.81	1.71
High school, employment, and having a child	*Coefficient*	-0.70	-0.23	2.37	2.64	4.07**	4.57***
	Standard error	1.19	1.25	2.52	2.40	1.65	1.57
High school, marriage, and having a child	*Coefficient*	1.42	1.61	1.98	2.42	3.41*	3.94**
	Standard error	1.58	1.57	2.65	2.59	2.05	1.96
Employment, marriage, and having a child	*Coefficient*	1.64	1.92	1.96	2.52	3.80*	4.26**
	Standard error	1.55	1.52	2.65	2.60	2.03	1.95
All four milestones	*Coefficient*	1.26	1.64	2.50	3.24	4.71*	5.27**
	Standard error	1.94	1.96	3.84	3.69	2.51	2.37
Test that all milestone combinations coefficients are zero	Chi-squared coefficient		11.1		1.2		16.9
	P-value		.434		.259		.112
	Individual milestones	Yes	Yes	Yes	Yes	Yes	Yes
	Covariates	No	Yes	No	Yes	No	Yes

Table B.17 *(continued)*

Source: Add Health data.

Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Coefficient is the unadjusted coefficient from the logistic or OLS regression. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 9,311 individuals for the measure for the presence of at least two adults in the household, 9,067 individuals for the partner transitions measure, and 7,745 individuals for the partnership satisfaction measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates.

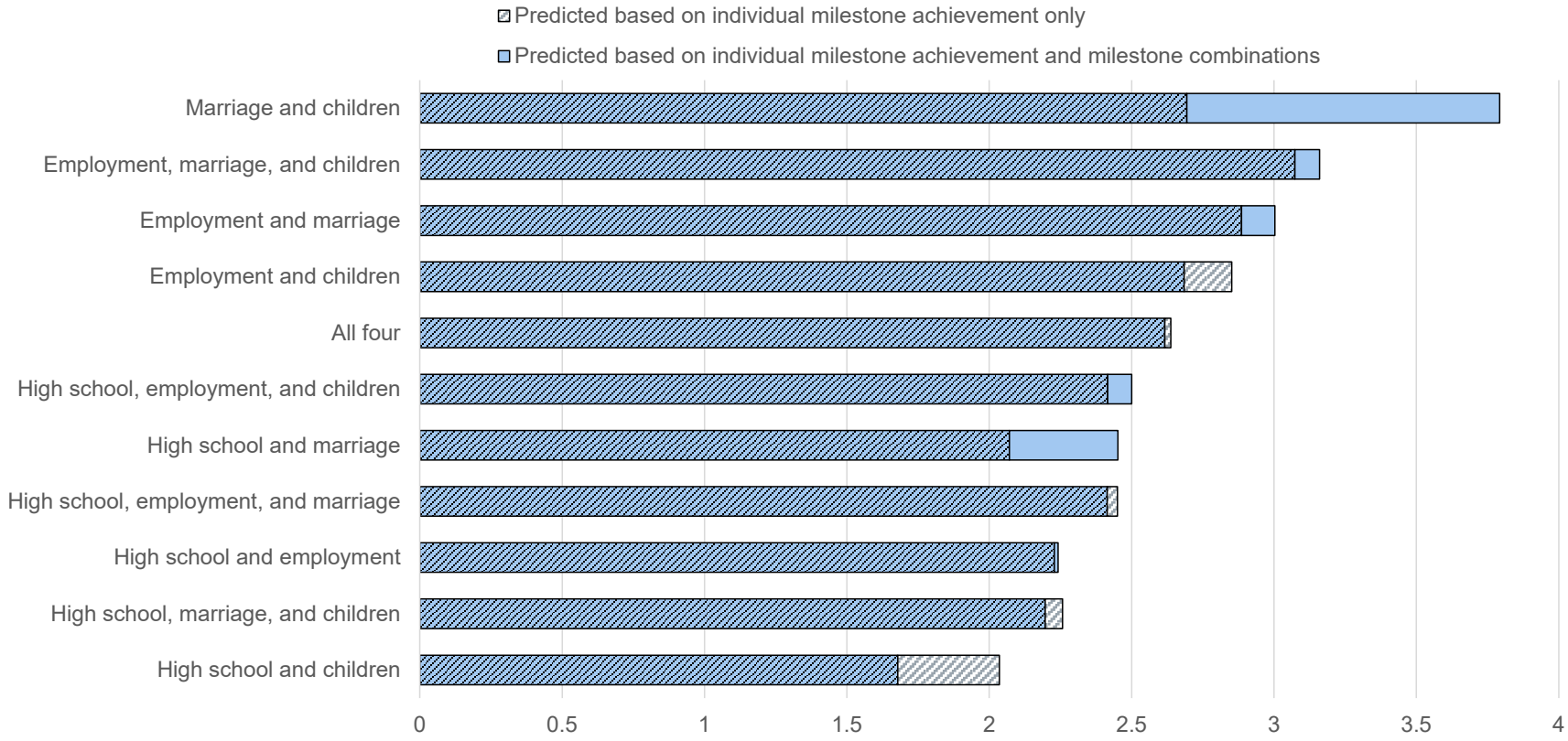
Figure B.4. Regression-adjusted likelihood of living in a two-adult household, by milestone combination (Add Health)



Source: Add Health data.

Note: Sample limited to 9,311 individuals with data available in Waves 1, 3, 4, and 5. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details of regression specifications and a list of included covariates. Bars represent the regression-adjusted proportion of individuals in each group who live in a two-adult household. The striped bars represent the proportion, accounting only for individual milestones. The blue bars represent the proportion, accounting for both individual milestones and milestones in combination.

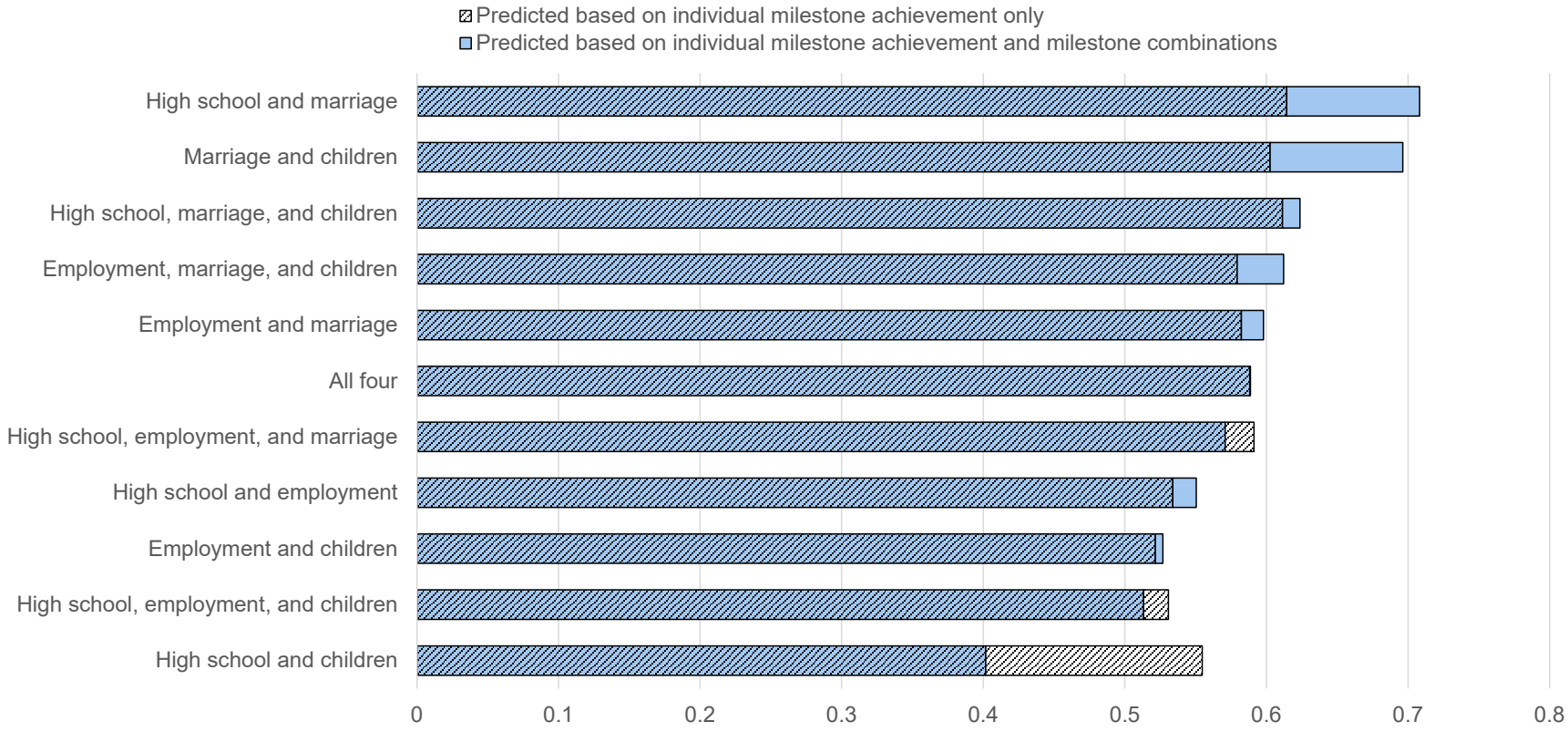
Figure B.5. Regression-adjusted average number of partner transitions, by milestone combination (Add Health)



Source: Add Health data.

Note: Sample limited to 9,067 individuals with data available in Waves 1, 3, 4, and 5. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details of regression specifications and a list of included covariates. Bars represent the regression-adjusted average number of partner transitions for individuals in each group. The striped bars represent the proportion, accounting only for individual milestones. The blue bars represent the proportion, accounting for both individual milestones and milestones in combination.

Figure B.6. Regression-adjusted likelihood of reporting being in a happy relationship, by milestone combination (Add Health)



Source: Add Health data.

Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Sample limited to 7,745 individuals with data available in Waves 1, 3, 4, and 5. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details of regression specifications and a list of included covariates. Bars represent the regression-adjusted proportion of individuals in each group who reported being in happy relationships. The striped bars represent the proportion, accounting only for individual milestones. The blue bars represent the proportion, accounting for both individual milestones and milestones in combination.

Table B.18. Results of regressions of family stability outcomes on order of milestone completion (Add Health)

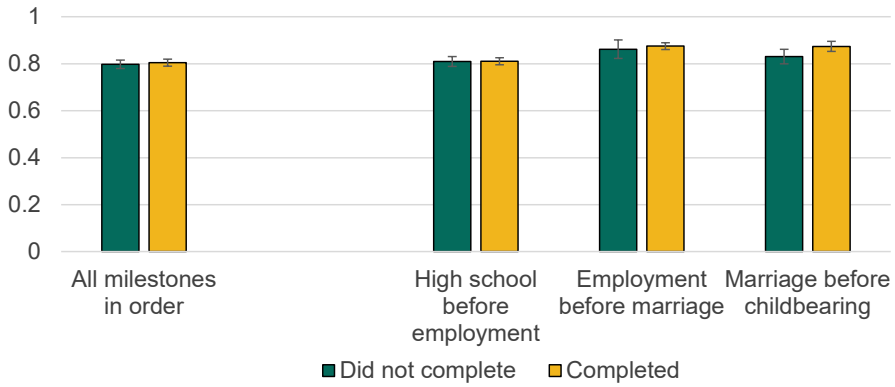
		Two-adult household		Partner transitions		Reported happy relationship	
		[1]	[2]	[1]	[2]	[1]	[2]
Single-order indicator							
In success sequence order	*Coefficient*	0.14*	0.04	-0.40***	-0.28***	0.13*	0.06
	Standard error	0.08	0.08	0.07	0.07	0.07	0.07
	Milestones	Yes	Yes	Yes	Yes	Yes	Yes
	Milestone combinations	Yes	Yes	Yes	Yes	Yes	Yes
	Covariates	No	Yes	No	Yes	No	Yes
Paired-order indicators							
High school before employment	*Coefficient*	0.05	0.00	-0.41***	-0.29***	0.08	0.04
	Standard error	0.09	0.09	0.07	0.07	0.08	0.08
Employment before marriage	*Coefficient*	0.17	0.12	-0.24*	-0.21	-0.25*	-0.24
	Standard error	0.19	0.19	0.14	0.14	0.14	0.14
Marriage before having a child	*Coefficient*	0.51***	0.36**	-0.48***	-0.33***	0.20	0.06
	Standard error	0.16	0.16	0.12	0.12	0.12	0.13
	Milestones	Yes	Yes	Yes	Yes	Yes	Yes
	Milestone combinations	Yes	Yes	Yes	Yes	Yes	Yes
	Covariates	No	Yes	No	Yes	No	Yes

Source: Add Health data.

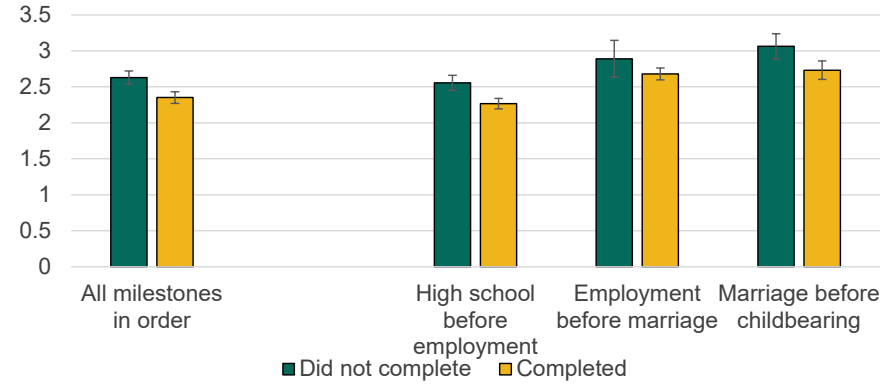
Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Coefficient is the unadjusted coefficient from the logistic or OLS regression. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 9,311 individuals for the measure for the presence of at least two adults in the household, 9,067 individuals for the partner transitions measure, and 7,745 individuals for the partnership satisfaction measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. * $p < .1$; ** $p < .05$; *** $p < .01$. See Appendix A for details of regression specifications and a list of included covariates

Figure B.7. Regression-adjusted family stability outcomes, by order of milestone combination (Add Health)

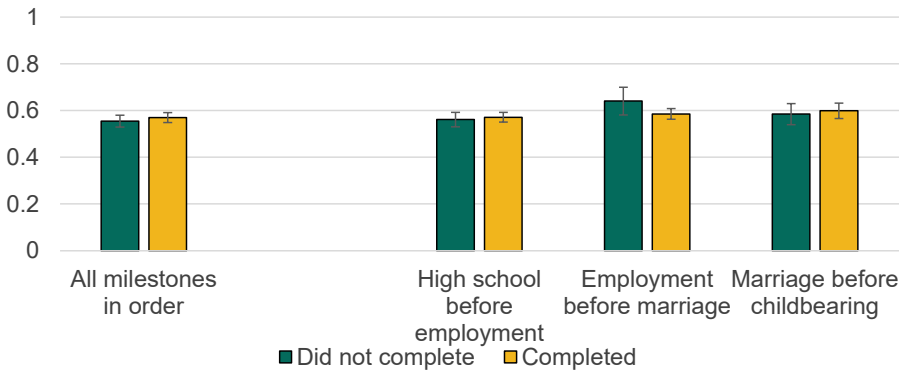
a. Two adults in the household



b. Number of partner transitions



c. Reported being in a happy relationship



Source: Add Health data.

Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 9,311 individuals for the measure for the presence of at least two adults in the household, 9,067 individuals for the partner transitions measure, and 7,745 individuals for the partnership satisfaction measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details of regression specifications and a list of included covariates. In Figure B7.a, bars represent the regression-adjusted proportion of individuals in each group who reported having at least two adults in the household. In Figure B7.b, bars represent the regression-adjusted average number of partner transitions. In Figure B7.c, bars represent the regression-adjusted proportion of individuals in each group who reported a very happy relationship.

Table B.19. Causal impact bounds on family stability outcomes for ordered milestones (Add Health)

Outcome measure	Regression coefficient	Causal impact bound	Ratio of causal impact bound to regression coefficient
Two adults in the household			
In order	0.00	59.90	14974.00
High school before employment	0.00	-7.10	7102.00
Employment before marriage	0.01	-21.38	-1644.54
Marriage before childbearing	0.04	-19.34	-483.40
Number of partner transitions			
In order	-0.28	11.29	-40.89
High school before employment	-0.29	20.21	-69.69
Employment before marriage	-0.21	-102.87	487.55
Marriage before childbearing	-0.33	-55.25	165.91
Reported being in a happy relationship			
In order	0.02	-68.32	-4554.93
High school before employment	0.01	-16.36	-1635.60
Employment before marriage	-0.06	-38.91	707.44
Marriage before childbearing	0.01	-38.19	-2727.93

Source: Add Health data.

Note: Reported happy relationship was not analyzed for individuals who did not report being in a relationship. Causal impact bounds calculated based on methods from Oster (2017). The maximum plausible R-squared value was estimated at 1. Sample limited to individuals with data available in Waves 1, 3, 4, and 5; includes 9,311 individuals for the measure for the presence of at least two adults in the household, 9,067 individuals for the partner transitions measure, and 7,745 individuals for the partnership satisfaction measure. For individuals age 30 or older at their Wave 4 interview, milestone completion was measured at age 30. For individuals younger than 30 at their Wave 4 interview, milestone completion was measured at the time of the Wave 4 interview. See Appendix A for details of bound calculation and a list of included covariates.

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