



# Success Sequence: A Synthesis of the Literature

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# SUCCESS SEQUENCE: A SYNTHESIS OF THE LITERATURE

## OPRE Report 2020-41

### December 2020

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## OVERVIEW

The *success sequence* is a term that has gained currency in discussions of federal programs and policies to reduce poverty and help adolescents and young adults achieve self-sufficiency as adults. It refers to a series of milestones in life that are associated with escaping poverty and joining the middle class. Although definitions vary, the milestones most often include obtaining at least a high school education, finding a full-time job, and waiting for marriage to have children. The 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 contracted with Mathematica to conduct a literature review and an economic analysis of the success sequence. This report presents findings from the literature review, which sought to summarize (1) how researchers and commentators have variously defined the success sequence, (2) research on the individual milestones that make up the success sequence, and (3) research on the relationship between the success sequence milestones and economic outcomes in adulthood. A future report will present findings from Mathematica's economic analysis of the success sequence.

From reviewing the literature on the success sequence, we found that researchers and commentators have defined the success sequence in varying ways. The most widely cited definition is attributed to Ron Haskins and Isabel Sawhill, who popularized the term in their 2009 book *Creating an Opportunity Society*. They defined the success sequence as first obtaining at least a high school education, then finding a full-time job, and finally waiting for marriage to have children. Since 2009, researchers and commentators have proposed several changes to the definition, ranging from refinements to the specific milestones to expanding the number of milestones.

Research from the academic fields of demography, economics, and sociology shows that the three milestones that make up the success sequence (education, employment, and nonmarital childbearing) are all interconnected and strongly associated with economic outcomes in adulthood. For example, studies show that increased education leads to higher income in adulthood, both by enhancing a person's employment prospects and by increasing the chances of marrying a person with a similar education level and income. Studies also show that women with higher education levels are more likely to delay both marriage and childbearing until they are older. Employment status has a direct connection to income in adulthood.

There is less empirical evidence on the success sequence as a whole. Most of the 13 empirical studies identified in our search used 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. Studies provide less evidence on whether these associations reflect causal pathways or on whether the sequencing of the milestones matters. Recent studies using longitudinal data partly address this limitation and suggest a promising direction for future research on the success sequence.

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## I. INTRODUCTION

The *success sequence* is a term that has gained currency in discussions of federal programs and policies to reduce poverty and help adolescents and young adults achieve self-sufficiency as adults. It refers to a series of milestones in life that are associated with escaping poverty and joining the middle class. Although definitions vary, the milestones most often include obtaining at least a high school education, finding a full-time job, and waiting for marriage to have children. The milestones are described as a sequence to emphasize that their order also matters. Although the conceptual origins of the success sequence are likely older, Ron Haskins and Isabel Sawhill reintroduced the idea in their 2009 book *Creating an Opportunity Society*, where they popularized the term (Haskins and Sawhill 2009). Since then, researchers and commentators have continued to write about and study it.

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. This report presents findings from the literature review, which sought to summarize (1) how researchers and commentators have variously defined the success sequence, (2) research on the individual milestones that make up the success sequence, and (3) research on the relationship between the success sequence milestones and economic outcomes in adulthood. For the purpose of our review, we did not require studies to reference the success sequence by name. As long as they sought to identify a set of milestones that predict economic success in adulthood, we considered them. We searched specifically for studies that provide evidence on possible interconnections among the success sequence milestones—for example, studies on how education relates to employment and the timing of marriage and childbearing. We also searched for studies on the association between each milestone and economic outcomes in adulthood. We did not attempt to cover all research on the topics of education, employment, marriage, and childbearing.

The report is divided into five remaining chapters. In Chapter II, we briefly document the methods we used to identify studies to include in the literature review. In the next three chapters, we summarize how commentators and researchers have variously defined the success sequence (Chapter III), research on the individual milestones that make up the success sequence (Chapter IV), and research on the relationship between the success sequence milestones and economic outcomes in adulthood (Chapter V). In Chapter VI, we summarize our key findings and discuss their implications for future research. We provide more detailed information on the studies reviewed in appendices to the report. A future report will present findings from Mathematica's economic analysis of the success sequence.

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## II. LITERATURE SEARCH PARAMETERS AND METHODS

We searched for relevant studies in three steps. First, we looked for any foundational reports on the success sequence commonly cited in the literature. We identified three such reports: (1) a 2003 paper by Ron Haskins and Isabel Sawhill titled “Work and Marriage: The Way to End Poverty and Welfare”; (2) a 2006 report by Barbara Whitehead and Marline Pearson for the National Campaign to Prevent Teen Pregnancy, which includes the first reference to the term *success sequence* by name; and (3) Haskins and Sawhill’s 2009 book *Creating an Opportunity Society*. We included all three reports in our review. We also searched Google Scholar to identify any relevant papers, studies, or articles citing one of the three foundational reports.

Second, we conducted keyword searches of electronic databases using the term *success sequence*. The most productive of these searches used Harvard’s customized Google think tank search engine, which identified many “gray literature” materials that are publicly available online but do not appear in academic books or journals. These materials primarily comprised reports, commentaries, and briefs from research and policy organizations, such as the Brookings Institution. We also searched electronic databases of academic journals using the term *success sequence* but found few relevant articles. Among both the gray literature and academic journals, most of the materials we found were closely related adaptations of, or predecessors to, the three foundational reports we had already identified. Recognizing that relevant literature might not refer to the success sequence by name, but address the same underlying topics, we also reviewed the references cited in the materials identified through our search.

Third, to inform our summary of research on the individual milestones that make up the success sequence, we conducted separate literature searches for each milestone (education, employment, and avoiding nonmarital childbearing), by pairing a term used to describe the milestone with the additional term *poverty* (for example, educational attainment and poverty). Each of these searches generated a large number of articles, so we screened the abstracts by giving priority to (1) existing research syntheses of rigorous empirical studies on the selected milestone and (2) articles that offered findings on the aspects of the examined relationships that were missing in the research syntheses.

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### III. DEFINITIONS OF THE SUCCESS SEQUENCE

Among the studies identified in our search, the earliest reference to the term *success sequence* appears in the 2006 report by Whitehead and Pearson. They described the success sequence as certain cultural norms that young people should follow to help them avoid poverty as adults. Whitehead and Pearson defined the success sequence as including the following two milestones: (1) achieving at least a high school diploma and (2) avoiding nonmarital childbearing. Unlike the later book by Haskins and Sawhill (2009) that popularized the success sequence, Whitehead and Pearson made no specific mention of a milestone for employment, but they implied that having at least a high school education would increase the chances of employment and obtaining a steady income. Their report cited findings from existing research studies but did not involve any new data analyses. They discussed the success sequence as a general concept, not how researchers should study or measure it in practice.

An earlier commentary by Fagan (2001) described a concept like the success sequence but used a different term for it. Fagan argued that, to avoid poverty, adults should follow what he termed the three “Ws”—work, wedlock, and worship. He called them the three “Ws” as an analog to the instruction students receive on the three “Rs” (reading, writing, and arithmetic). Fagan did not include specific reference to education in his definition, but his description of work implied that one needs an education to get a good job. He included worship in his definition, citing a study that found that poor children whose families worshipped weekly were more likely to make it into the middle class. He described the importance of marriage (“wedlock”) in the context of having children. Although Fagan did not specify a particular order in which the three “Ws” should occur, his general idea of encouraging people to achieve the three “Ws” as a way to avoid poverty closely resembled definitions of the success sequence that appeared in later reports. Like Whitehead and Pearson, he defined the three “Ws” as a general concept, not a specific measure for use in research.

Ron Haskins and Isabel Sawhill are the people most closely associated with the contemporary definition of the success sequence. They first wrote about the underlying concept in a 2003 Brookings Institution policy brief (Haskins and Sawhill 2003), in which they put forth an argument that adhering to societal norms relating to education, full-time employment, and childbearing after marriage would reduce poverty. They did not use the term *success sequence* until later, but their 2003 policy brief defined the underlying concept to include three milestones as a way for young people to avoid poverty and join the middle class as adults: having at least a high school education or equivalent, working full time, and waiting for marriage to have a child (Exhibit III.1). They also argued for the importance of married couples not having more children than their families can support, but this condition did not appear in later definitions of the success sequence.

**Exhibit III.1. Success sequence model**

In their 2009 book *Creating an Opportunity Society*, Haskins and Sawhill elaborated their earlier definition of the success sequence and applied it to nationally representative data from the U.S. Census Bureau’s 2008 Current Population Survey (CPS) Annual Social and Economic Supplement (reflecting data from 2007). 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). To measure the success sequence with CPS data, they maintained their earlier definition of education to mean obtaining at least a high school diploma or equivalent. For employment, they used CPS data to identify households in which one person reported working at least 40 weeks per year for 35 hours or more per week. To measure marriage and childbearing, they used CPS data to distinguish households with married parents from households with unmarried or single parents. Although their description of the success sequence also specified the ordering of the milestones, limitations of the CPS data prevented them from measuring the ordering in practice. Specifically, the CPS provides information on a person’s employment and marital status only at the time of the survey. It does not provide information on the relative timing of different life events or on possible changes in a person’s employment or marital status. For example, it does not capture whether employment occurred before or after marriage, or whether marriage occurred before or after childbearing. The CPS data therefore reflect a more static definition of the success sequence than the way the term is defined as a more general idea or concept. We discuss this measurement issue in greater detail in Chapter V of this report.

Since 2009, most researchers and commentators have described the success sequence in reference to the definition popularized by Haskins and Sawhill, while also suggesting several refinements or adaptations (Exhibit III.2). For example, Wang and Wilcox (2017) used data from the National Longitudinal Survey of Youth (NLSY) to study the success sequence among the current generation of adults ages 28 to 34. Using longitudinal data allowed Wang and Wilcox to better capture the order of certain life events—for example, whether marriage occurred before or after childbearing. However, it also required them to make certain adaptations to earlier definitions of the success sequence. For example, their analysis identified a relatively large number of young adults who had completed the first two milestones of the success sequence but did not have children and were not married. Wang and Wilcox accounted for these young adults by introducing a new concept they described as being “on track” for the success sequence.

**Exhibit III.2. Definitions of the success sequence**

Study	Education	Work	Marriage/childbearing	Measure of success	Main argument/motivation
Fagan (2001)	No mention	Mentioned work as path to escaping poverty	Mentioned importance of children born and raised in married family	Escaping poverty	Also mentioned worship in the definition. Argued that these are American norms that will reduce poverty if followed.
Haskins and Sawhill (2003)	High school diploma or equivalent	Work full time, but no further definition of full time	Marriage before childbearing	Official poverty rate	Also mentioned “limit size of families to what they can afford to support.”
Whitehead and Pearson (2006)	At least high school education	No mention, implied that education leads to work	Marriage before childbearing	Escaping poverty	Perhaps first to coin term <i>success sequence</i> . Wanted to give teens “positive vision and expectations for their life.”
Haskins and Sawhill (2009)	High school diploma or equivalent	Live in family with full-time work, 40 weeks or more with at least 35 hours per week	Marriage before childbearing, and childbearing at least age 21 or older	Official poverty rate, and income class—bands 0–100% FPL, 100%–299%, 300%–499%, 500%–699%, 700% or more	Described adherence to social norms and that following these three rules would reduce poverty and increase share of population in the middle class.
Sawhill et al. (2012)	Graduate high school with 2.5 GPA	Not specifically mentioned, but includes family income at 250% FPL as a proxy	Does not become a parent before adulthood, born to married parent as a child	Achievement of next stage Middle class by middle age (300% FPL by age 40)	Argued that achieving certain life stages (Social Genome Model) increased the likelihood of success in future life stages and middle-class status by middle age.
Lerman and Wilcox (2014)	High school diploma or equivalent	Work full time	Marriage before childbearing	Increase chance of success for youth	Recommended a national campaign relating to the success sequence in their report, arguing that sequencing education, work, and then marriage increases chances of success.
Reeves and Grannis (2014)	High school graduate with at least 2.5 GPA, and enroll in postsecondary school	No criminal conviction to increase employment, and get job before marriage	Marriage before childbearing, job before marriage	Economic mobility—the changing position of households on the income distribution	Offered their own set of milestones and argued that, when achieved, they increased chances of economic mobility.

Study	Education	Work	Marriage/childbearing	Measure of success	Main argument/motivation
Reeves, Rodrigue, and Gold (2015)	Some postsecondary education	Full-time work or robust safety net for short-term periods of unemployment	Children are intended or planned whether married parents or not	Middle class (>300% FPL) by race	Argued that the success sequence's three milestones represented a prior, and perhaps unrealistic, expectation of middle-class life. Argued for updating the definition of what it takes to achieve success.
Sawhill and Rodrigue (2015)	High school diploma or equivalent	Live in family with full-time work, 40 weeks or more with at least 35 hours per week	Marriage before childbearing, and childbearing at least age 21 or older	Official poverty rate and middle class (>300% FPL)	Updated analysis of Haskins and Sawhill (2009) and used same argument/motivation.
Braun (2016)	Education	Being employed	Stable relationships, and children within stable relationships		Described life outcomes that lead to success, including employment, salary associated with employment, possibility for education, accumulation of wealth, forming stable relationships, and having children within those relationships.
Wang and Wilcox (2017)	High school diploma or equivalent by age 27	Working full time (35+ hours per week, 50+ weeks), or full-time married SAHP or student	Marrying before having children, or being on track (meaning married no children, or not yet married and no children)	Official poverty measure for people ages 28 to 34 in 2013–2014 AND low, middle, high income	Argued that young people who met success sequence milestones had lower chances of poverty and better chances at middle-class life.
Sawhill (2017)	High school diploma or equivalent	Live in family with full-time work, 40 weeks or more with at least 35 hours per week	Marriage before childbearing or in a committed partnership (married at time of childbirth, and childbearing age 21 or later)	Official poverty measure and middle class (>300% FPL)	Restated how adherence to three milestones reduces poverty and increases likelihood of middle class.
Sawhill (2018)	High school diploma or equivalent	Live in family with full-time work, 40 weeks or more with at least 35 hours per week	Marriage before childbearing or in a committed partnership (married at time of childbirth, and childbearing age 21 or later)	Official poverty rate	Argued that a return to these norms would improve the economic outcomes of American families.

FPL = federal poverty level; GPA = grade point average; SAHP = stay-at-home parent.

As another example of how researchers have proposed refining the definition of the success sequence, Reeves et al. (2015) used the Haskins and Sawhill definition but also argued that changing economic conditions and social norms will require updating the definition over time. They proposed expanding the milestone for education to include postsecondary schooling, to reflect growing demands for high-skilled workers with more than a high school degree. They also proposed revising the definition of full-time employment to mean working full time or having access to a safety net during short-term periods of unemployment, and shifting focus from marriage to the planned or intended nature of childbearing. Similarly, Sawhill more recently suggested revising the third milestone of the success sequence to include being in a committed partnership (whether married or not) before having children, hypothesizing that the commitment might be more important than the legal agreement of marriage (Sawhill 2017; Tanner 2018). To date, researchers have not conducted any empirical analyses of these possible alternative definitions of the success sequence. Other researchers and commentators have continued to study and focus on marriage as one of the key original elements of the success sequence (for example, Wang and Wilcox 2017), and the extent to which marriage has distinct benefits for couples (as described in greater detail in Chapter IV).

Some commentators have criticized the Haskins and Sawhill definition of the success sequence as focusing too narrowly on individual behaviors and not accounting for structural influences that affect poverty, such as labor market conditions, school systems, or community infrastructure (for example, Rank 2011; Tanner 2018). For example, they note that in certain communities or labor markets, finding full-time employment can be difficult or impossible, despite a person's interests and intentions. As a result, two people with the same skills and personal drive might have different levels of employment success depending on where they live. Similarly, the chances of graduating from high school might vary depending on the safety and quality of the local school system, and the chances of getting married might vary depending on the number of potential spouses in a community.

Other researchers and commentators have proposed expanding the definition of the success sequence to include additional milestones and broaden the outcomes used to measure economic success in adulthood. For example, Reeves and Grannis (2014) examined how the success sequence milestones relate to social mobility rather than poverty, and proposed an expanded set of five milestones to predict social mobility. Their expanded milestones included obtaining basic academic and social-emotional skills as a child, avoiding criminal convictions (to increase employment chances), and being employed before getting married. Similarly, after completing her initial work on the success sequence, Sawhill proposed an expanded set of milestones for adult success based on findings from a microsimulation model called the Social Genome Model (Sawhill et al. 2012; Grannis and Sawhill 2014). The model used data from the NLSY to determine how characteristics measured at five stages in life (early childhood, middle childhood, adolescence, transition to adulthood, and adulthood) predict social mobility from birth through adulthood. On the basis of the model, Sawhill and her colleagues identified separate milestones for success at each of the five life stages. For example, for middle childhood, they identified the milestones for success as developing (1) basic reading and math skills and (2) social-emotional skills.

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## IV. RESEARCH ON THE INDIVIDUAL MILESTONES IN THE SUCCESS SEQUENCE

Many studies have examined the individual milestones that make up the success sequence. For the purpose of our review, we focused on the milestones specified in the definition of the success sequence popularized by Haskins and Sawhill (2009)—education, work, and waiting for marriage to have children. The studies of individual milestones identified through our search come primarily from the academic fields of demography, economics, and sociology. None of the studies reference the success sequence by name, but they all provide evidence on the same underlying topics. Some of the studies use descriptive or correlational methods to provide evidence on associations among the milestones. Others use more advanced statistical methods, such as instrumental variables analysis or event history analysis, to help establish causal pathways among the milestones or determine the order in which they most commonly occur. A more detailed listing and summary of the key studies referenced in this chapter of the report is presented in Appendix A.

### A. Education

The economic returns of education—the effect of education on future earnings—is one of the most widely studied relationships in the social sciences. Many studies have examined the relationship between educational attainment, future earnings, and the chances of avoiding poverty as an adult. Studies have also examined whether the economic returns of education vary by family background, and the pathways or mechanisms linking education to adult economic outcomes. Findings from these studies help isolate the role of education as a distinct component of the success sequence.

#### **Education increases wages and earnings in adulthood**

All the relevant studies we reviewed for this report confirm the well-known finding that education is associated with increased wages and earnings in adulthood. In addition, studies show that at least part of this association reflects a causal pathway from education to increased wages and earnings. Studies have traditionally measured education by the *number of years* of formal schooling completed, as reflected in major national data sets such as the U.S. Census and CPS. Studies using ordinary least square (OLS) regression suggest that earnings rise between 6.3 percent (Angrist and Krueger 1992) and 7 percent (Card 1999) for each additional year of formal schooling completed. Studies using more rigorous methods, such as instrumental variables analysis, find larger increases for each additional year of formal schooling completed, ranging from 8.1 percent (Angrist and Krueger 1992) to 13.2 percent (Card 1999). These more rigorous methods attempt to adjust for personal and demographic characteristics that might influence both education and future earnings, such as parents' education levels.

Common definitions of the success sequence specify the milestone for education by the level of formal schooling completed (most commonly, obtaining a high school degree), not just the total number of years of schooling completed. Estimates of the economic returns of education are naturally larger when measured by level of schooling rather than individual years. For example,



Hout (2012) reported that men's and women's annual earnings during their prime working years rose roughly 20 percent for each educational level achieved. Similarly, Hout found that men's and women's hourly wages rose by 17.5 percent for each educational level achieved. For college education in particular, research suggests that the increased earnings from education more than offset the cost of attending college. For example, a study by Julian and Kominsky (2011) compared the cost of college education with expected income from full-year, full-time employment over a 40-year career. According to their estimates, a college degree from a private university can increase earnings by 7.7 times the cost of college for men and by 4.1 times the cost of college for women. The yields are even higher for graduates from public universities, and for those who received scholarships or other types of financial aid. Irrespective of how education is measured—on a continuum or as discrete stages—the relationship between education and future earnings is broadly a linear one, meaning that people benefit not only from high school graduation but also from higher education (Harmon et al. 2003).

### **The economic returns of education are higher for disadvantaged groups**

In part because researchers and commentators have defined the success sequence as an antipoverty approach, it is important to know whether the economic returns of education apply specifically to students from lower socioeconomic backgrounds, who are at greatest risk of experiencing poverty as adults. Studies in the education literature provide two alternative hypotheses on this question (see Hout 2012 for a discussion). One hypothesis holds that students from more advantaged backgrounds gain the most from education—for example, because they are more likely to attend the best schools or to receive more challenging coursework. Alternatively, the economic returns of education might be higher for students from more disadvantaged backgrounds, if these students have more to gain or learn from attending school. The empirical evidence supports the latter hypothesis. Studies consistently show larger economic returns of education for relatively disadvantaged groups than for the population as a whole (Card 1999). For postsecondary education in particular, the economic returns of education are the largest for groups who are least likely to attend college and the smallest for the groups who are most likely to attend (Hout 2012).

### **Work is the most direct mechanism linking education to economic outcomes in adulthood**

Educational attainment and employment are closely linked. For example, basic descriptive analyses of national survey data show that, in 2017, the percentage of American adults who were inactive in the labor market (that is, unemployed and not looking for a job) ranged from 10 percent of those with a postsecondary education to 25 percent of those without a high school education (Organisation for Economic Co-operation and Development 2018). Similarly, studies using longitudinal survey data and more advanced statistical methods, such as difference-in-differences regression, show that people with higher levels of education have fewer and shorter periods of unemployment (Mincer 1991; Farber 2003).

Researchers have examined several possible explanations for the association between education and employment. The association could reflect employer preferences for workers with higher education levels, as well as the ability of better-educated individuals to find and maintain jobs in a changing labor market. Another possibility is that personal and family background



characteristics produce an association between education and employment: people from more advantaged backgrounds might both acquire more schooling and have connections to social networks that help them find and maintain steady jobs. A study by Riddell and Song (2011) used instrumental variables analysis to control for the potential influence of such personal and family background characteristics. The study found that the effect of education on employment persisted after controlling for personal and family background characteristics, and that education both reduces the chances of unemployment and increases the chances of reemployment among the unemployed.

### **Marriage also plays a role in linking education to adult economic outcomes**

Marriage links education with adult economic outcomes in part through what sociologists call “educational homogamy,” the tendency of people to marry people with education levels like their own. The idea is that the educational system works as a marriage market (Blossfeld and Timm 2003) that facilitates people with similar education levels marrying one another. For example, people who attended college are more likely to marry someone who also attended college, because of their shared interests and social circles. Similarly, high school graduates who do not attend college are more likely to marry similar high school graduates, because they are less likely to share social connections with people who went on to college. Studies suggest that 48 percent to 57 percent of American couples share similar education levels (Gihleb and Lang 2016).

Educational homogamy amplifies the economic returns of education by matching two people who, because of their education levels, have similar incomes. For example, studies show that the rate of educational homogamy in the United States has increased in the past half century (for example, Schwartz and Mare 2005) and this change has led to an increase in the level of income inequality across U.S. households. A study by Burtless (1999) was one of the first to show that an increase in the correlation between husbands’ and wives’ earnings, caused in part by growing educational homogamy, led to an increase in the income gap between affluent two-income families and other kinds of households. Burtless estimated that these trends accounted for 13 percent of an overall increase in income inequality from 1979 to 1996. A more recent study by Schwartz (2010) indicated that these trends had continued through at least 2005.

### **Women with higher levels of education are less likely to have children outside of marriage**

Studies have consistently found an association between education and the chances of having children outside of marriage, such that women with higher levels of education are less likely to have children outside of marriage (for example, Rindfuss et al. 1996; Upchurch et al. 2002; Ventura 2009). One possible explanation for this association is that going to school and starting a family at the same time can be challenging. For example, as discussed later in this chapter, research shows that women who have children as teens end up with lower average educational attainment. Conversely, the longer women stay in school, the more likely they might be to delay marriage and childbearing (for example, Elder 1995). Another possible explanation stems from socioeconomic differences in cohabitation and divorce. Descriptive analyses of national survey data show that, on average, women with college degrees are less likely than other women to live with an unmarried partner or to get divorced (Lundberg et al. 2016). As a result, a higher

percentage of births to these women happen within marriage. Most studies of the association between education and childbearing use longitudinal data sets that allow researchers to accurately assess the timing and order of events—for example, the timing of school completion relative to the timing of having a first child. The studies provide evidence of an association between education and childbearing. Additional studies are needed to address the question of cause and effect when it comes to women’s decisions about education and childbearing.

## B. Work

The link between full-time work—the second milestone in the success sequence—and avoiding poverty as an adult is straightforward: working for pay leads to higher income, which helps people avoid poverty. Studies have confirmed this intuition by examining the association between historical trends in poverty rates and unemployment rates. Studies have also examined the amount of work required to avoid poverty and how work interacts with the timing of family formation, particularly the timing of marriage.

### **Unemployment rates predict poverty rates**

Studies have documented a strong association between the changes in poverty rates and changes in unemployment rates at the national level, although the strength of the association has varied over time. For example, using historical trend data, a study by Haveman and Schwabish (2000) found that, from 1950 to 1972, when the unemployment rate decreased by one percentage point, the poverty rate decreased by about half a percentage point (0.46) the following year. The strength of this association declined slightly for the period from 1973 to 1992 but then rose again after 1993. For the period 1973 to 1992, the study found that when the unemployment rate declined by one percentage point, the poverty rate declined by about one quarter of a percentage point (0.23) the following year. For the period after 1993, the study found that when the unemployment rate declined by one percentage point, the poverty rate declined by 0.42 percentage points the following year. Using an alternative measure of poverty, Johnson et al. (2011) found that the poverty rate declined by 0.21 percentage points with each one-point decrease in the unemployment rate in the 1980s and 1990s.

### **Avoiding poverty depends on the number of hours worked**

In defining the success sequence, Haskins and Sawhill (2009) specified their milestone for work to mean living in a family with a person who worked at least 40 weeks per year for 35 hours or more per week. This definition implies that having “any” job is not enough to avoid poverty. The characteristics of the job also matter. Indeed, descriptive analyses of national survey data show that most poor Americans live in families or households with at least one adult who works, though usually not full time nor throughout the entire year (Blank et al. 2006; Brady et al. 2010).

A study by Thiede et al. (2015) provides more detailed descriptive evidence on the association between work hours and the chances of avoiding poverty. Using nationally representative data from the March 2013 CPS, the authors found a poverty rate of 6.3 percent when defining work as 35 hours or more per week, compared with a higher rate of 11.3 percent when defining work as 17 hours or more per week. Put another way, roughly doubling the number of hours used to

define the work week (from 17 hours to 35 hours) cut the estimated poverty rate by about one-half (from 11.3 percent to 6.3 percent). The authors calculated similar statistics based on the number of weeks worked during the year. They found a poverty rate of 6.2 percent among people who reported working year-round (at least 50 weeks per year), compared with a higher rate of 8.4 percent when including anyone who reported working at least half time (27 weeks or more).

### **Employment influences the timing of marriage, particularly for men**

Many studies have examined how employment and career entry influence the timing of first marriage. In part because marriage represents a formal commitment between two people, it is reasonable to expect that couples assess their economic prospects before deciding to get married. Oppenheimer et al. (1997) conducted an event history analysis of nationally representative data from the NLSY to examine the relationship between men's career development and the timing of marriage. Their use of event history analysis enabled the researchers to look at the specific order and timing of life events. The study found that young men who had trouble establishing a career were more likely to delay marriage. In particular, the study found that both unemployment and having a casual, short-term job that usually is not part of an institutionalized career path—what the authors defined as a “stopgap” job—reduced the odds of getting married for up to 10 years after finishing school. This association held across all education levels and was stronger for Black men than for White men. In another study, Mills et al. (2005) conducted an event history analysis of data from 14 industrial countries, including the United States, to show that young men who encountered employment uncertainty (defined as unemployment or part-time work) were more likely to postpone marriage.

A related body of research suggests that young adults facing economic uncertainty are relatively more likely to choose cohabitation over marriage. According to this research, couples view cohabitation as a less formal relationship than marriage, and therefore do not put as much weight on economic prospects when deciding to live with an unmarried partner (Lichter et al. 2006). They view cohabitation as a way to form adult relationships and start a family at the same time they are addressing perceived economic barriers to marriage (Edin and Reed 2005; Smock et al. 2005). Descriptive studies have indeed found an association between economic stability and partnership type, such that people with unstable job histories were less likely to marry but no less likely to cohabit than people with more stable jobs (Clarkberg 1999). Similarly, more recent qualitative studies have found that young adults in cohabitating relationships cite finances as an important factor in their relationship decisions (Sassler and Miller 2011; Taylor 2010). These studies provide evidence of an association between employment status and relationship decisions. Further research is needed to establish the causal pathways underlying this association.

### **C. Waiting for marriage to have children**

Much of the research on marriage, childbearing, and economic outcomes centers on the question of cause and effect. The share of children born to married parents has declined since the 1960s, from over 90 percent to about 60 percent (Martin et al. 2019). The decline has leveled off in the past 10 years. Many studies have found that families following the more traditional pattern of having children within marriage have higher family incomes and lower poverty rates than their unmarried counterparts (Lichter et al. 2006). Most studies have examined whether this

association reflects a protective effect of marriage, such that waiting for marriage to have children reduces the chances of poverty. Other studies have examined the possibility that poor employment opportunities and other economic factors have worked to depress marriage rates in poor communities and therefore reduced the share of children born to married parents.

### **Marriage is associated with higher family incomes and lower family poverty rates**

Many studies have found an association between marriage and the economic status of families with children. For example, Kearney and Levine (2017) used descriptive methods applied to nationally representative data from the Panel Study of Income Dynamics to compare income levels and poverty rates in the year after a child's birth between families with married parents and those with unmarried parents. For families with children born from 1990 to 2013, the study authors found a median family income of \$73,255 for families with married parents compared with a median income of \$31,329 for families with unmarried parents. For the same families, the study authors found that 91 percent of families with married parents had incomes above the federal poverty line compared with 61 percent of families with unmarried parents. As another example, Wang and Wilcox (2017) used descriptive methods applied to data from the NLSY to compare poverty rates across the following three groups of adults ages 28 to 34: (1) adults who got married before having a child, (2) adults who had their first child before getting married, and (3) adults who have never been married or had children. The study authors found that the chances of being in poverty were lowest for the "marriage first" group (5 percent) than for either the "baby first" group (28 percent) or the group who have never been married or had children (13 percent).

### **Having a baby as a teen can reduce women's educational attainment and employment prospects**

For the hypothesis supporting a protective effect of marriage, some of the most rigorous evidence comes from studies of teen pregnancy and childbearing. Most teen births occur to unmarried women, making teen mothers a relevant population for studying the consequences of having children before marriage. In addition, researchers have applied rigorous methods such as instrumental variables analysis to establish causal relationships between teen childbearing and women's outcomes in adulthood. Therefore, the findings from these studies can support hypotheses about causal pathways in a way that descriptive studies based on associations cannot.

As one example, Ashcroft and Lang (2006) used data from the 1995 wave of the National Survey of Family Growth to examine the causal effect of teen pregnancy on women's educational, employment, and economic outcomes in adulthood. Using rigorous methods to statistically adjust for differences in the background characteristics of teen mothers and other women, the study authors found that having a baby as a teen did not affect women's chances of obtaining a high school diploma, but reduced the chances of obtaining a General Educational Development certificate (GED) by about 5 percentage points and lowered women's average education by about 0.15 years. In addition, they found that teen childbearing reduced women's employment rates in adulthood by about 5 percentage points and, among those employed, reduced the number of hours they reported working. The study authors, however, found that teen childbearing had no direct effect on family income in adulthood.

In another study, Diaz and Fiel (2016) reviewed the existing evidence on the consequences of teen pregnancy and provided new estimates of how the consequences of teen pregnancy vary by women's personal characteristics and family backgrounds. They found that the negative consequences of teen pregnancy on women's educational attainment and early economic outcomes in adulthood are most pronounced among women least likely to have a teen pregnancy, based on their personal characteristics and family backgrounds. For these women, teen pregnancy can have negative effects on high school graduation, college completion, and earnings in early adulthood. Among women whose personal characteristics and family backgrounds predict a greater chance of teen pregnancy, the study authors found that teen pregnancy can reduce the chances of high school graduation but has little longer-term effect on college completion or early economic outcomes in adulthood. The study authors interpreted these findings to mean that the consequences of teen pregnancy are greatest for women who would otherwise be likely to complete college and have higher earnings in adulthood based on their personal characteristics and family backgrounds.

### **Economic factors can affect rates of nonmarital childbearing in a community**

Evidence on the hypothesis of economic factors influencing the proportion of children born to married parents comes in part from community-level studies. In response to a steady rise in the 1970s and 1980s in the percentage of women having children outside of marriage, Wilson (1987) argued that poor employment opportunities were discouraging couples in disadvantaged communities from getting married. As a result, he argued, a growing proportion of women in areas with a high male unemployment rate were deciding to have children before getting married. Wilson's hypothesis has since received support from several empirical studies, most of them focusing on associations between local or national unemployment rates and the prevalence of nonmarital childbearing, or prevalence of children living in households with cohabiting parents (for example, Bumpass and Lu 2000). More recent studies have reached similar conclusions using alternative data sources and more rigorous methods, including event history analysis (for example, Inanc 2015) and instrumental variables analysis. For example, Autor et al. (2018) used an instrumental variables analysis to show that declining employment opportunities stemming from international manufacturing competition both reduced marriage rates and increased the percentage of children born outside of marriage in the United States.

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## V. RESEARCH ON THE OVERALL SUCCESS SEQUENCE

In comparison to the large number of academic studies on the individual milestones that make up the success sequence, relatively few studies provide empirical evidence on the success sequence as a whole. Our search identified 13 empirical studies of the success sequence as a whole—8 by Isabel Sawhill and her co-authors, and 6 by different groups of researchers. As discussed in this chapter, to study the success sequence, researchers have most often used descriptive methods applied to cross-sectional survey data from the U.S. Census Bureau. Few studies have used longitudinal survey data or statistical methods designed to establish causal pathways. We provide a complete listing and description of the studies in Appendix B.

### **Measuring adherence to the success sequence can be challenging in practice**

In the earliest empirical study of the success sequence identified by our search, Haskins and Sawhill (2003) used data from the 2002 CPS (reflecting data from 2001) to calculate the national poverty rate under different scenarios related to the success sequence. First, to assess the importance of work, they assumed that every adult ages 25 to 64 worked full time at their current wage or a simulated wage based on education and experience. They found that the poverty rate decreased 5.5 percentage points based on this assumption, from a baseline of 13.0 percent to 7.5 percent. Next, to test the milestone for avoiding unmarried childbearing, they assumed that all children lived in a married household. This assumption reduced the poverty rate from 13.0 percent to 9.5 percent. For education, they assumed that all adults had at least a high school diploma and earned the average wage for high school graduates (or equivalent). This assumption reduced the poverty rate from 13.0 percent to 11.1 percent. Finally, they assumed that all families had no more than two children (as a proxy for the number of children a middle-class income can support). This assumption reduced the poverty rate from 13.0 percent to 11.3 percent. When they combined all of these assumptions, they found that the success sequence milestones had a larger effect together than individually and that the simulated poverty rate declined to a low of 3.7 percent.

In their book *Creating an Opportunity Society*, Haskins and Sawhill (2009) updated their earlier definition of the success sequence and examined the association between adherence to the success sequence milestones and family income using data from the 2008 CPS (reflecting data from 2007). They measured adherence to the success sequence by limiting the data to households with children headed by a nondisabled adult ages 25 to 64 and then classifying these households into one of three groups: (1) households meeting the definition for all three success sequence milestones, (2) households meeting the definition for one or two milestones, and (3) households not meeting the definition for any milestone. They defined the milestones as receiving at least a high school diploma or equivalent, living in a household with at least one person who works at least 40 weeks per year for 35 hours or more per week, and living in a household with married parents. They measured family income relative to the federal poverty level (FPL) with the following five categories: poor (0–99 percent FPL), lower middle income (100–299 percent FPL), middle income (300–499 percent FPL), upper middle income (500–699 percent FPL), and upper income (700 percent FPL and above). They found an association between adherence to the



success sequence milestones and family income, such that the more milestones a household satisfied, the higher the family income. Of the households meeting the definitions for all three milestones, 2.0 percent were poor, whereas 31.3 percent were in the middle-income group and 22.5 were in the highest income group. By comparison, of the households not meeting the definition for any milestone, 76.0 percent were poor, 3.5 percent were middle income, and 1.4 percent were high income.

The methods of these studies demonstrate the inherent challenge of using cross-sectional survey data to measure adherence to the success sequence. As discussed in Chapter III, because the CPS measures a person's employment and marital status at a single time point, researchers can use the data to compare income levels across different types of households—for example, households with married versus single parents, or households with full- versus part-time workers. Following Haskins and Sawhill, researchers can also extend these comparisons to account for multiple household characteristics at the same time—for example, by counting or assigning points to households that have more than one of the specified characteristics. However, these analyses do not allow researchers to measure the specific life events that resulted in the observed household characteristics or the order or sequence of these life events. For example, the CPS data do not provide information on when people completed school, whether they were fully employed at the time they got married, or their marital status at the time their children were born.

### **Full-time employment status strongly predicts economic status**

More recent studies have explored the relative contribution of each success sequence milestone in predicting economic outcomes in adulthood. Haskins and Sawhill first noted in their 2009 book that employment was the dominant factor in explaining poverty and middle-income status based on their descriptive analysis. To explore the issue more fully, Sawhill and Rodrigue (2016) examined the relative contribution of each individual milestone on adult income separately and in combination. First, they calculated poverty rates separately according to each of the three success sequence milestones. They estimated a poverty rate of 38 percent for people not meeting the milestone definition for employment, compared with a rate of 16 percent for people not meeting the milestone definition for education and 12 percent for people not meeting the milestone definition for married childbearing. The study authors concluded that the difference in the rates suggests that employment is the relatively strongest predictor of poverty. Looking at the data another way, Sawhill and Rodrigue also calculated the prevalence of each success sequence milestone among people with incomes below the FPL. For this analysis, they found that 72 percent of people in poverty did not meet the success sequence milestone for full-time work, 29 percent did not meet the milestone for educational attainment, and 42 percent did not meet the milestone for married childbearing. The study authors interpreted these findings to mean that all three milestones were associated with poverty but that lack of full-time work made the largest contribution.

### **The association between the success sequence and adult outcomes varies by race**

Reeves et al. (2015) examined whether the success sequences associations found earlier by Haskins and Sawhill (2009) applied for both Black and White adults. They used the same



descriptive methodology and data source as the earlier study by Haskins and Sawhill, but they calculated the results separately for Blacks and Whites. They motivated their analysis in part by the question of whether definitions of the success sequence focus too much on individual behaviors rather than on the structural influences that affect poverty (discussed earlier in Chapter III). Reeves et al. hypothesized that evidence of racial differences in the success sequence associations would signal the influence of unmeasured structural influences.

Reeves et al. found an association between the success sequence milestones and middle-income status in adulthood for both Blacks and Whites. For Blacks, they found that the chances of achieving at least middle-income status (defined as at least 300 percent FPL) ranged from a high of 59 percent for households that met the definition for all three milestones to no more than 23 percent for households that missed at least one milestone. For Whites, they found that the chances of achieving at least middle income status range from a high of 73 percent for households that met the definition for all three milestones to no more than 34 percent for households that missed at least one milestone. Meeting the definition for all three milestones was therefore associated with an increase of 36 percentage points for Blacks and 39 percentage points for Whites. They found employment to be a primary factor in explaining the difference in rates of middle income status between Blacks and Whites, along with married childbearing. Among Whites, 23 percent of households without a full-time worker reached the middle class, compared to 11 percent of Black households. A similar gap in the chances of reaching the middle class existed between Whites and Blacks who had a child before marriage (34 percent and 23 percent, respectively). The gap was narrower for education. Among Whites, 23 percent of households without a high school graduate reached the middle class, compared with 20 percent of Black households.

### **Recent studies using longitudinal data suggest a promising approach for measuring adherence to the success sequence**

Wang and Wilcox (2017) examined the success sequence using longitudinal survey data from the NLSY. They used the data to estimate the association between the success sequence milestones and both poverty and middle-class income status in early adulthood. For the purpose of their analysis, they defined the three milestones of the success sequence as (1) graduating from high school or obtaining a GED; (2) working full time, attending college or graduate school, or being married and raising children instead of working; and (3) avoiding nonmarital childbearing. They measured both education and employment status in 2010, when the NLSY respondents were in their mid-20s. They measured economic outcomes in 2013 and 2014, when the respondents ranged in age from 28 to 34. They accounted for the relative timing of marriage and childbearing by comparing the date of a person's marriage with the birthdate of their first child. They did not account for the relative timing of employment versus marriage or possible changes in employment status over time. The results of their analysis showed an association between the success sequence milestones and the odds of reaching middle-income status in early adulthood. For example, controlling for race/ethnicity, gender, and other background factors, they found that the odds of reaching middle-income status were 9.4 times higher for people who met the definition for all three milestones than for similar people who did not meet the definition for any

milestone. The study authors did not present estimates of the association separately for different racial/ethnic groups.

Correlational studies using the Social Genome Model provide other examples of using longitudinal data to predict future economic outcomes. As discussed in Chapter III, the Social Genome Model uses NLSY data to determine how characteristics measured at five stages in life (early childhood, middle childhood, adolescence, transition to adulthood, and adulthood) predict social mobility from birth through adulthood. Sawhill et al. (2013) used the model to predict how milestones for success at the first four life stages predict the chances of achieving middle-income status by the last stage (adulthood) at age 40. They found that people who met the milestone definitions for all of the first four life stages had the greatest chances of achieving middle-income status in adulthood, with 81 percent reporting an income at 300 percent FPL or more by age 40. By comparison, people who did not meet the milestone definitions for any of the four life stages had a 24 percent chance of achieving middle-income status. Similarly, Moore et al. (2014) used the Social Genome Model to explore the importance of the relative timing of education and childbearing in predicting future economic outcomes. They simulated what would happen if the women in the NLSY sample who had given birth as teens had instead all delayed childbearing for two years and all completed their high school educations. Under these assumptions, Moore et al. found that delaying childbearing and finishing high school led to a long-term economic gain of \$6,600 in annual family income for the mothers' children at age 29. The study authors interpreted these findings in part as demonstrating the importance of sequencing high school completion and childbearing.

## VI. SUMMARY AND CONCLUSIONS

Theories of the success sequence predict 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. Since at least the early 2000s, researchers and policymakers have built on these theories and used the success sequence (or variations of it) to describe a policy approach to reduce poverty and improve economic opportunity for adolescents and young adults no matter their race/ethnicity or how they grew up.

From reviewing the literature on the success sequence, we found that the underlying concept likely dates back many years but the specific definition of the success sequence continues to evolve. The most widely cited definition is attributed to Ron Haskins and Isabel Sawhill (2009), who defined the success sequence as obtaining at least a high school education, finding a full-time job, and waiting for marriage to have children. Their discussion of the success sequence also implied that the order of the milestones matters. Since 2009, researchers and commentators have proposed several changes to this definition, ranging from refinements to the specific definition of each milestone to expanding the number of milestones.

Many studies from the academic fields of demography, economics, and sociology have examined the individual milestones that make up the success sequence (education, work, and avoiding nonmarital childbearing). These studies show that the three milestones are all interconnected and strongly associated with economic outcomes in adulthood. For example, studies show that increased education leads to higher income in adulthood, both by enhancing a person's employment prospects and by increasing the chances of marrying a person with a similar education level and income. Studies also show that women with higher education levels are more likely to delay both marriage and childbearing until they are older. Employment status has a direct connection to income in adulthood, though it matters whether a job is full time or part time. Studies show that poverty rates are lower among workers with full-time jobs than among those with part-time or seasonal jobs. The link between marriage, childbearing, and adult poverty status is more complex. Many studies have found that marriage is associated with higher family incomes and lower family poverty rates. Some studies have examined whether this association reflects a protective effect of marriage. Other studies have examined the possibility that poor employment opportunities and other economic factors have worked to depress marriage rates in poor communities and therefore reduced the share of children born to married parents.

There is less empirical evidence on the success sequence as a whole. Most of the 13 empirical studies of the success sequence identified in our search used descriptive methods applied to cross-sectional survey data to compare families on measures of poverty and middle-income status according to education level, employment status, and marital 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. Studies show that employment status, in particular, has a strong correlation with economic status in adulthood, and that for both Black and White adults, meeting the definition for all three milestones is associated with higher rates of middle-income status.

Additional studies are needed to determine whether these correlations reflect causal pathways. In addition, because most studies of the success sequence have measured marital status and employment status at a single point in time, they do not provide information on exactly when people finished their education, obtained employment, got married, or had children. This measurement issue is an important limitation, because theories of the success sequence imply that the ordering of these life events matters in predicting economic outcomes in adulthood.

Recent studies using longitudinal data partly address this limitation and suggest a promising direction for future research on the success sequence. Specifically, using longitudinal data allows researchers to more accurately measure when adolescents reach specific milestones for education, employment, marriage, and childbearing. It also allows researchers to account for the relative timing of these milestones and any subsequent changes in employment and marital status. Wang and Wilcox (2017) showed the feasibility of using longitudinal data to measure the relative timing of marriage and childbearing. Similarly, Moore et al. (2014) showed the feasibility of measuring the relative timing of education and childbearing. Our search did not identify any studies of the success sequence that accounted for the relative timing of employment versus marriage or that used longitudinal data to measure the full sequence of life events defined by various patterns of educational attainment, employment, marriage, and childbearing. Future studies could address this gap by using longitudinal data to more precisely measure the relative timing of high school completion, employment, marriage, and childbearing. With more precise measures, studies could then better assess whether and how the specific ordering of these life events predicts economic outcomes in adulthood.

With longitudinal data, future studies could also provide more in-depth evidence on the relative importance of different life events in predicting economic outcomes in adulthood and on the factors that might enable or inhibit adolescents from achieving the success sequence milestones. Is it important for adolescents to fully complete their educations before searching for full-time work? Or can working first in order to afford future educational expenses pay off? Does it matter exactly when people get married during their educational careers? How does having children within marriage impact a couple's economic prospects compared to becoming parents without being married? How does the achievement of these milestones impact economic well-being and family stability for a couple's children? How does an adolescent's race, ethnicity, gender, parents' marital status, or economic circumstances growing up enable or inhibit the chances of achieving these milestones compared to other adolescents in their cohort? Existing evidence on the success sequence does not fully answer these questions. With longitudinal survey data, future studies could advance available evidence on the success sequence by identifying the individual life events most strongly associated with economic outcomes in adulthood and how these associations vary for different groups.

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## Appendix A

### Studies of Individual Milestones

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Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
<p>Hout, Michael. "Social and Economic Returns to College Education in the United States." <i>Annual Review of Sociology</i>, vol. 38, 2012, pp. 379–400.</p> <p>This is a review of the literature on the causal link between higher education and returns. Drawing on studies from the literature in the U.S. in the last four decades with various levels of rigor, it highlights established relationships and gaps in our knowledge.</p>			
<p>Education: Measured as college graduation</p>	<ul style="list-style-type: none"> <li>• Future earnings</li> <li>• Future occupational prestige</li> <li>• Future unemployment</li> <li>• Stability of marriages</li> </ul>	<p>Reviews studies using OLS regression, various IVs or propensity score, and backs up trends using descriptive statistics.</p> <p>Additionally, shows trends using 1999 Current Population Survey and American Community Surveys of 2006–2008.</p>	<p>No direct impact estimation, but notable findings from the reviewed literature and descriptive analyses are as follows:</p> <ul style="list-style-type: none"> <li>• Men’s and women’s annual earnings during their prime working ages rose roughly 20% for each educational level.</li> <li>• The earnings of African American men and women from the most selective liberal arts colleges and research universities not only exceeded those of African American men and women in the national sample, but also exceeded those of White men and women in the national sample.</li> <li>• Children are substantially more likely to live with two adults if their mother is a college graduate than if their mother is a high school dropout.</li> <li>• Education increases the stability of marriages.</li> <li>• The returns of education are the highest for groups who are least likely to go to college (i.e., those with lower abilities or with disadvantaged backgrounds) and the lowest for the groups who are most likely to go to college (i.e., those with higher abilities or with advantaged backgrounds).</li> </ul>
<p>Card, David. "The Causal Effect of Education on Earnings." <i>Handbook of Labor Economics</i>, vol. 3, no. 1, December 1999, pp. 1801+1863. DOI: 10.1016/S1573-4463(99)03011-4</p> <p>This is a literature review of the causal link between education and future earnings.</p>			
<p>Education: Measured as years of schooling or highest degree completed</p>	<p>Earnings: Measured as hourly, weekly, annual wages, as well as weeks worked per year and annual hours worked</p>	<p>Reviews empirical literature that provides causal evidence. Reviews studies by methods, and compares findings of those using OLS regression to those that use more rigorous methods (IVs and twin study approach).</p>	<ul style="list-style-type: none"> <li>• Effects of education on earnings appear larger in more robust studies, compared to studies using simple OLS.</li> <li>• Marginal returns to schooling for certain subgroups—particularly relatively disadvantaged groups with low education outcomes—are higher than the average marginal returns to education in the population as a whole.</li> </ul>
<p>Harmon, Colm, Hessel Oosterbeek, and Ian Walker. "The Returns of Education: Microeconomics." <i>Journal of Economic Surveys</i>, vol. 17, no. 2, 2003, pp. 115–156.</p> <p>This is a systematic review of different estimations of returns to education over time across countries. It presents the differences in magnitudes based on model specification. Overall, there are certainly returns to education, and the effect is causal. However, the exact amount of return varies by estimation method. Most empirical results covered come from the U.K., but the review also contains comparisons with other European countries and the U.S.</p>			

Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
Education: Measured as number of years of schooling or completed grades	Earnings: Measured as future log hourly earnings	Meta-analysis, some original analysis using the British Household Panel Study. Various. Comparing OLS estimates (using meta-analysis) to estimates from studies that use IV approach or twin study design.	<ul style="list-style-type: none"> <li>• According to OLS regression, return to a year of schooling in the U.K. is between 7% and 9% for men and between 9% and 11% for women. Adding work experience raised the return by 1%, whereas adding occupation decreased the return by 1%.</li> <li>• The relationship between education and earnings seems to be linear. There is little evidence that certain years of schooling carry a premium or penalty.</li> <li>• There is limited evidence on whether overeducation (defined as worker’s level of schooling exceeds the level of schooling required by their job) affects magnitude of returns, mostly due to measurement issues.</li> <li>• Returns are higher in the top decile of income distribution.</li> <li>• Returns to education with OLS are around 6% internationally, but over 9% using IV. However, higher returns found may reflect the return for a particular subgroup affected by intervention instrumented with the IV-based estimations.</li> <li>• Twin studies also found effects that were larger than those found in OLS estimations, but reported twin studies had methodological weaknesses.</li> </ul>
<p>Angrist, Joshua, and Alan Krueger. “Estimating the Payoff to Schooling Using the Vietnam-Era Draft Lottery.” Cambridge, MA: NBER Working Paper No. 4067, 1992.</p> <p>Exploiting the Vietnam War military draft lottery as a natural experiment, which led to many men who were at risk of being drafted managing to avoid military service by enrolling in school and obtaining an educational deferment, the paper examines the education premium on hourly wages. It finds a 6.6% premium in hourly wages, and this finding is robust to various assumptions about veteran status.</p>			
Education: Measured as extra year of schooling	Earnings: Measured as future weekly earnings	Uses the introduction of military draft during Vietnam War as a natural experiment. To avoid draft, many men continued education. Uses Current Population Surveys	<ul style="list-style-type: none"> <li>• The variation in schooling generated by the draft lottery causes a 6.6% increase in weekly earnings in each year of schooling.</li> <li>• This estimate is higher than regular OLS estimations for this sample.</li> <li>• The earning premium is robust to different assumptions about veteran status.</li> </ul>
<p>Card, David. “Using Geographic Variation in College Proximity to Estimate the Return to Schooling.” Cambridge, MA: NBER Working Paper No. 4483, 1993.</p> <p>This study uses college accessibility as an exogenous source of variation in education outcomes to estimate the return to education, and finds earning gains that are particularly concentrated among men with poorly educated parents.</p>			
Education: Measured as each year of additional schooling	Earnings: Measured as log hourly earnings	Uses geographical proximity to a public college as an instrumental variable for schooling on a sample from the National Longitudinal Survey of Young Men.	<ul style="list-style-type: none"> <li>• IV estimates show that each additional year of schooling brings about a 10% to 14% earnings gain.</li> <li>• These estimates are higher than OLS estimates.</li> <li>• The earnings effect is concentrated among men with poorly educated parents—men who would otherwise stop schooling at relatively low levels (had they not lived in proximity to a college).</li> </ul>

Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
<p>Sawhill, Isabel, and Adam Thomas. <i>A Hand Up for the Bottom Third: Toward a New Agenda for Low-Income Working Families</i>. Washington, DC: Brookings Institution Press, 2001.</p> <p>This study presents results from simulations on the effects of three policy proposals (a \$1 increase in the minimum wage, making Earned Income Tax Credit more generous and geared toward “making work pay,” and providing universal child care/child care tax credit) and discusses how these policy changes affect poverty.</p>			
Work	Poverty: Measured as the probability of poverty and poverty rate	Current Population Survey, 1999. Simulations, cost and savings analysis.	<p>Relevant background information:</p> <ul style="list-style-type: none"> <li>• Rate of poverty among single-parent families is more than 4 times that of two-parent families.</li> <li>• Non-poor family heads work almost 3 times as much as poor family heads (i.e., work keeps a family off poverty).</li> </ul>
<p>Brady, David, and Markus Jantti. “Economic Performance, Poverty, and Inequality in Rich Counties.” In <i>The Oxford Handbook of the Social Science of Poverty</i>, edited by David Brady and Linda Burton, Oxford University Press, 2017.</p> <p>This study reviews the literature on how economic performance influences poverty in rich countries. Economic performance captures the business cycle, economic growth, unemployment rates, and GDP per capita, as well as income inequality.</p>			
Work: Measured as unemployment rate	Poverty	Provides a literature review, focusing on panel regression models across countries and within countries over time.	<ul style="list-style-type: none"> <li>• Poverty is strongly associated with the unemployment rate and economic growth.</li> </ul>
<p>Haveman, Robert, and Jonathan Schwabish. “Has Economic Performance Regained its Antipoverty Bite?” <i>Contemporary Economic Policy</i>, vol. 18, no. 4, 2000, pp. 415–427.</p> <p>In order to examine whether and to what extent employment is an antipoverty measure, this study investigates the macro-level relationship between unemployment rate and poverty rate in the U.S. between 1959 and 1998. Using purely macro-level data, the study finds that the impact of employment on poverty slowed down in the period between 1982 and 1992, but since then (at least until 1998) it has restored itself. Possible reasons for the stagnation in the relationship between unemployment and poverty include stagnation of average real wages and wage inequality driven by the reduction in wages of the low-skilled. Other reasons suggested in the literature are increased unemployed and discouraged youth, especially among the low-skilled and those of color, and female-headed households.</p>			
Work: Measured as unemployment rate among males ages 25 to 54	<p>Poverty: Poverty rate measures as a percentage of persons living below the poverty line, where the poverty line is the weighted average poverty threshold for a family of four</p> <p>Unemployment: Percentage of males ages 25 to 54 unemployed</p>	Applies time-series analysis with 1-year lagged unemployment rate. Macro-level data (poverty rate and unemployment rate) comes from Statistical Abstract of the U.S.	<p>1 percentage point decrease in unemployment rate is associated with the below percentage point decreases in poverty rate:</p> <ul style="list-style-type: none"> <li>• 0.46 in 1959–1972</li> <li>• 0.24 in 1973–1981</li> <li>• 0.23 in 1982–1992</li> <li>• 0.43 in 1993–1998</li> </ul>
<p>Johnson, Christopher, John Formby, and Hoseong Kim. “Economic Growth and Poverty: A Tale of Two Decades.” <i>Applied Economics</i>, vol. 43, 2011, pp. 4277–4288.</p> <p>This study investigates the strength of the macro-level—at state level—relationship between economic growth and poverty between the 1980s and 1990s. It includes more comprehensive measurement of poverty and income. The poverty measure takes into account income gap and the inequality of incomes among the poor, whereas the income measure takes into account benefits, subsidies, and taxes as opposed to cash income only.</p>			

Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
Work: Measured as unemployment rate	Poverty: Measured as both headcount ratio and Sen index (which takes into account distributive aspect of poverty and income inequality), and both as cash income and comprehensive income	March Current Population Survey. Panel data analysis with a set of 30 panels consisting of individual states and adjacent multistate regions.	<ul style="list-style-type: none"> <li>• 1% increase in median (comprehensive) income led to a 0.0378 percentage point decrease in poverty measured as Sen index (Sen-comprehensive).</li> <li>• 1% decrease in unemployment rate led to a 0.2059 percentage point decrease in poverty.</li> <li>• The poverty–growth nexus may have weakened and certainly did not strengthen during the 1990s compared with the 1980s.</li> <li>• Comprehensive income estimates of poverty are less sensitive to economic growth than cash income estimates.</li> </ul>
<p>Oppenheimer, Valerie, Matthijs Kalmijn, and Nelson Lim. "Men's Career Development and Marriage Timing During a Period of Rising Inequality" <i>Demography</i>, vol. 34, no. 3, 1997, pp. 311–330.</p> <p>The ease or difficulty of the career-entry process affects the timing of marriage. Career formation process was measured using five time-varying variables: school enrollment combined with time out of school, educational attainment, job type (i.e., non-employed; in "stopgap" jobs; in "career" or "career entry" positions; and serving in the military), yearly work experience, and annual earnings.</p>			
Work: Measured as the ease or difficulty of the career-entry process	Marriage: Measured as marriage timing	1979–1990 NLSY, discrete-time event-history methods.	<ul style="list-style-type: none"> <li>• The ease or difficulty of the career-entry process affects the timing of marriage: Those who face difficulty in career formation postpone marriage.</li> <li>• Transition difficulties were not limited to the lowest educational group—high school dropouts—but were also apparent for the largest single schooling group, high school graduates.</li> <li>• However, there were race differences. Black men's marriage timing is more strongly associated with career-entry process than White men's. For example, non-employed Whites were 82% but non-employed Blacks only 60% as likely as career workers to marry. This could be because non-employment is indicative of a much weaker long-term labor-market position for Blacks compared to Whites.</li> </ul>
<p>Mills, Melinda, Hans-Peter Blossfeld, and Erik Klijzing. "Becoming an Adult in Uncertain Times." In <i>Globalization, Uncertainty and Youth in Society</i>, edited by Hans-Peter Blossfeld, Erik Klijzing, Melinda Mills, and Karin Kurz. Oxford: Routledge, 2005.</p> <p>In a cross-country study with 14 countries, the book investigates how youth are affected by and respond to uncertainties they encounter in the labor market.</p>			
Work: Measured as employment uncertainty proxied by unemployment rate and part-time work	Marriage and childbearing: Measured as age at marriage and parenthood	Uses national-level longitudinal surveys from each country and applies event-history models. For the U.S., the National Survey of Family Growth (1995) was used, and only women were examined.	<p>Among those who encounter employment uncertainty:</p> <ul style="list-style-type: none"> <li>• Young men: They postpone marriage in 11 of the 14 countries, whereas they postpone parenthood in 10 countries.</li> <li>• Young women: They postpone marriage in 4 countries (including the US); however, in 4 other countries, they marry earlier than women who do not encounter economic uncertainty. In 6 countries, they become mothers earlier than women who do not encounter economic uncertainty, and in 4 countries they postpone parenthood.</li> </ul>
<p>Clarkberg, Marin. "The Price of Partnering: The Role of Economic Well-being of Young Adults' First Union Experiences." <i>Social Forces</i>, vol. 77, no. 3, 1999, pp. 945–968.</p> <p>This study examines the role of economic well-being and marriage, showing that individuals who are economically unstable are more likely to cohabit. The author argues that cohabitation is an attractive alternative to marriage for those who are in long-term romantic relationships but lack the economic stability required for marriage.</p>			

Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
Work: Measured as annual earnings and employment stability (i.e., job tenure and number of previous jobs held)	Marriage and childbearing: Measured as three states—singlehood, cohabitation, and marriage	Discrete-time event history analysis using the National Longitudinal Study of the High School Class of 1972 (NLS-72)—a longitudinal survey administered in 1972, 1973, 1974, 1976, 1979, and 1986.	<ul style="list-style-type: none"> <li>Both men and women who are economically unstable are more likely to marry and cohabit compared to remaining single.</li> <li>A man who earns one standard deviation above the mean income increases his probability of marrying by 26%, and increases his probability of cohabiting by 13%.</li> <li>In contrast, women with high earnings are more likely to cohabit than to marry.</li> <li>Individuals with more unstable job histories are less likely than those with stable job histories to marry and more likely to cohabit.</li> </ul>
<p>Inanc, Hande. “Unemployment and the Timing of Parenthood: The Implications of Partnership Status and Partner’s Employment.” <i>Demographic Research</i>, vol. 32, no. 7, 2015, pp. 219–250.</p> <p>This study investigates the relationship between early parenthood and unemployment experience, looking into life histories of men and women in the U.K. It differentiates the partnership status at the time of unemployment.</p>			
Work: Measured as unemployment experience	Marriage and childbearing: Measured as timing of transition into parenthood by relationship status	Using a nationally representative sample from the British Household Panel Study—a longitudinal survey—it applies event-history analysis.	<ul style="list-style-type: none"> <li>Unemployment leads to earlier entries into parenthood for both men and women.</li> <li>The impact of unemployment differs according to the relationship status in which it is experienced.</li> <li>Unemployed men who cohabit and unemployed women who are single have a higher probability of becoming parents.</li> </ul>
<p>Autor, David, David Dorn, and Gordon Hanson. “When Work Disappears: Manufacturing Decline and the Falling Marriage-Market Value of Men.” Cambridge, MA: NBER Working Paper No. 23173, 2018.</p> <p>This study investigates how shifts in the relative economic stature of young men vs. young women affected marriage, fertility, and children’s living circumstances from 1990 to 2014. The paper uses increasing trade with China to instrument shocks to manufacturing labor demand in a commuting zone, and argues that rising trade with China exerts large negative impacts on men’s relative employment and annual wage-and-salary earnings, which in turn affects the size of the marriageable men population in an area.</p>			
Work: Measured as unemployment and low earnings	Share of mothers who are unwed	Uses the share of trade with China at the commuting zone level as an instrumental variable.	<ul style="list-style-type: none"> <li>Trade shocks differentially reduce employment and earnings of young adult males.</li> <li>Shocks to male’s relative earnings reduce marriage and fertility.</li> <li>These shocks heighten male idleness and premature mortality, and raise the share of mothers who are unwed and the share of children living in below-poverty, single-headed households.</li> </ul>
<p>Thomas, Adam, and Isabel Sawhill. “For Richer or for Poorer: Marriage as an Antipoverty Strategy.” <i>Journal of Policy Analysis and Management</i>, vol. 21, no. 4, 2002, pp. 587–599.</p> <p>This study examines the effect of changes in family structure on economic well-being of children. By setting the proportion of children living in female-headed families in 1998 equal to the corresponding proportion in 1970, the study estimates poverty rate as if the family structure were unchanged. Poverty rate among single-parent families is 4 times as high as it is among two-parent families.</p>			

Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
Marriage and childbearing: Measured as children living in female-headed families	Number of poor children	Using the March 1999 Current Population Survey, performs shift-share analysis and microsimulation.	<ul style="list-style-type: none"> <li>Shift-share analysis: Had the proportion of children living in female-headed families remained constant since 1970, the 1998 child poverty rate would have been 4.4 percentage points lower.</li> <li>Microsimulation: (This accounts for a shortage of marriageable men and unobservable differences between married vs. unmarried [wo]men.) Child poverty would have been 3.4 percentage points lower (corresponds to a 20.1% reduction).</li> </ul>
<p>Kearney, Melissa, and Phillip Levine. "The Economics of Non-Marital Childbearing and the 'Marriage Premium for Children'." <i>Annual Review of Economics</i>, vol. 9m, no. 1, 2017, pp. 327–352.</p> <p>This study investigates the associations between mother's marital status, education, and age at the time of childbirth and the child's future education and income. The main argument of the paper is that there is a "marriage premium" for children, but the level of premium varies by the mother's age at childbirth and level of education. "Marriage premium" refers to the difference in outcomes between mothers who were married vs. single at the time of childbirth.</p>			
Marriage and childbearing: Measured as married motherhood as opposed to single motherhood	A single vs. married mother's child's: <ul style="list-style-type: none"> <li>High school graduation</li> <li>Income above federal poverty threshold at age 25</li> <li>College graduation</li> <li>High income (above 400% of the federal poverty threshold) at age 25</li> </ul>	Using the Panel Study of Income Dynamics (PSID)—a longitudinal dataset—the paper applies regression models, with a set of controls as well as interaction terms between maternal marital status at birth of child and mother's age, or mother's years of education at birth.	<ul style="list-style-type: none"> <li>High school graduation and above-poverty income: The premium is very small for the youngest and least educated mothers as well as oldest and most educated mothers.</li> <li>The premium is large for those in the middle of the age and education distribution.</li> <li>College graduation and high income: Marriage premium is increased by mother's age and level of education.</li> <li>Marriage premium for child's income above poverty at age 25 is the highest at maternal age 24 at childbirth: Children born to married mothers at that age are 15 percentage points more likely to be above the poverty threshold compared to children of unmarried women.</li> <li>Marriage premium for child's high school graduation probability peaks at age 22 (mother's age at childbirth).</li> <li>Marriage premium for college graduation and high future income for children is around 15% to 20% after age 20 (mother's age at childbirth).</li> </ul>
<p>Ashcroft, Adam, and Kevin Lang. "The Consequences of Teenage Childbearing." Cambridge, MA: NBER Working Paper No. 12485, 2006.</p> <p>This study investigates the causal link between teenage pregnancy and future outcomes using a sample of women who gave birth, miscarried, or had an abortion as teenager.</p>			
Marriage and marital childbearing: Measured as teen pregnancy	<ul style="list-style-type: none"> <li>Probability of getting a high school diploma</li> <li>Probability of getting a GED</li> <li>Average education</li> <li>Probability of working</li> <li>Weekly hours</li> <li>Income</li> <li>Marriage</li> </ul>	Uses the absence of a miscarriage as an instrument for a live birth on a sample from the 1995 wave of the National Survey of Family Growth.	<ul style="list-style-type: none"> <li>The probability of getting a high school diploma is unaffected by teen pregnancy, but the probability of getting a GED is reduced by about 5 percentage points, and average education is lower by about .15 years.</li> <li>The probability of working as a result of teen pregnancy is reduced by about 5 percentage points and weekly hours by about four, but the effect on income conditional on working is close to zero.</li> <li>Women who give birth as teens are about 3 percentage points less likely to be currently married, but conditional on being married, they have husbands who earn more than the husbands of women who do not give birth as teens.</li> </ul>



Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
<p>Diaz, Christina, and Jeremy Fiel. "The Effect(s) of Teen Pregnancy: Reconciling Theory, Methods, and Findings." <i>Demography</i>, vol. 53, no. 1, 2016, pp. 85–116.</p> <p>This study attempts to reconcile the ongoing debate about whether teen pregnancy has positive, negative, or no effects on women’s educational attainment and earnings. Using a longitudinal dataset and range of alternative research designs, it shows a negative effect of teen pregnancy.</p>			
<p>Marriage and marital childbearing</p>	<p>Educational attainment: Measured as college completion and earnings</p>	<p>The study starts with a review and reconciliation of four methodologies used in this area: OLS regression, sibling fixed effects (FE), instrumental variables (IV) estimation, and propensity score matching (PS) techniques. It then estimates the impact of teen pregnancy on educational attainment and earnings by focusing on teen pregnancies as “treatment.” Using a sample of teen pregnancies from the Child and Young Adult Cohorts of the National Longitudinal Survey of Youth, it applies the Smoothing-Differencing technique and inverse probability weighting (a variation of propensity score matching).</p>	<ul style="list-style-type: none"> <li>• Teen pregnancy has negative effects on high school graduation but not on college attendance in the whole sample.</li> <li>• Effects on college completion and early earnings vary considerably and are most pronounced among those least likely to experience an early pregnancy.</li> </ul>
<p>Burtless, Gary. "Effects of Growing Wage Disparities and Changing Family Composition on the U.S. Income Distribution." <i>European Economic Review</i>, vol. 43, no. 4, 1999, pp. 853–865.</p> <p>This study examines the reasons behind the increase in income inequality in the U.S. between 1979 and 1996. It concentrates on the changes in earnings inequality, men and women’s earnings inequality, and changes in family structure and correlations between husbands’ and wives’ earnings.</p>			
<p>Marriage: Measured as family structure and correlation between husbands’ and wives’ earnings</p>	<p>Earnings: Measured as earnings inequality among families</p>	<p>Using the March 1980 and March 1997 Current Population Survey files, the author examines trends in income inequality among American families.</p>	<ul style="list-style-type: none"> <li>• The increase in positive correlation of husbands’ and wives’ earnings led to an increase in the income gap between affluent dual-income families and other kinds of households, accounting for 13% of the increase in overall inequality.</li> <li>• There was a sharp decline in the proportion of Americans who live in families where a married couple is present. This trend has boosted the percentage of families headed by a single person.</li> <li>• Families headed by a single person have much more inequality than married-couple families, and a high proportion of their members can be expected to have low equivalent incomes. This accounts for 21% to 25% of the increase in overall inequality.</li> </ul>

Milestone	Outcome measure(s) considered	Data and methodology	Relevant findings and magnitude of estimated effects (if any)
<p>Schwartz, Christine. "Earnings Inequality and the Changing Association between Spouses' Earnings." <i>American Journal of Sociology</i>, vol. 115, no. 5, 2010, pp. 1524–1557. Describes trends in the association between spouses' earnings and estimates their contribution to growing earnings inequality among married couples from 1967 to 2005.</p>			
<p>Marriage: Measured as the association between spouses' earnings</p>	<p>Earnings: Measured as earnings inequality among married individuals</p>	<p>Uses log-linear models and data from the March Current Population Survey.</p>	<ul style="list-style-type: none"> <li>Increases in earnings inequality would have been about 25% to 30% lower than observed in the absence of changes in the association between spouses' earnings.</li> <li>Changes in the association between spouses' earnings among dual-earner couples have contributed more to growing inequality at the top of the earnings distribution.</li> <li>Declines in the negative relationship between husbands' earnings and the odds that wives work have contributed more to growing inequality at the bottom.</li> </ul>

## Appendix B

### Studies of the Success Sequence as a Whole

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Study	Outcome measures considered	Success sequence milestones included	Data source	Methodology
Haskins and Sawhill (2003)	Official poverty rate	Education, work, marriage before children, no more than two children	March CPS ASEC (data year 2001)	Descriptive. Simulated poverty rates based on population ages 25 to 64 adhering to different assumptions about education, work, marriage, and family size. The work simulation assumed everyone worked full-time at their current wage or a simulated wage based on education and experience. The education simulation assumed everyone had at least a high school diploma and earned the average wage for high school graduates (or equivalent). For the married childbearing simulation, the authors relied on prior work by Thomas and Sawhill (2002) that constructed married couples by combining singles with children from the CPS—"virtual marriages"—and assumed that the rate of married childbearing was the same as in 1970. For adherence to all four milestones, they conducted the test sequentially, starting with work, then education, marriage, and finally having two or more children. But they were unable to sequence the timing of these events. In other words, it was unclear whether work and education came before marriage, or even whether having children came before marriage.
<p>Summary of findings: The authors simulated the official poverty measure (OPM) under a number of assumptions about adherence to the four milestones (including having no more than two children) included in the success sequence. The 2001 individual OPM was 13.0%. Assuming that all adults ages 25 to 64 worked full-time reduced the OPM to 7.5%. If all children lived in a married household, the OPM was simulated to be 9.5%. Assuming that everyone ages 25 to 64 had a high school (HS) diploma or equivalent resulted in a simulated OPM of 11.0%, and when assuming everyone had no more than two children, the OPM was 11.3%. The authors simulated the OPM if all adults ages 25 to 64 adhered to all four milestones (but they were unable to assess sequencing), and the OPM was 3.7% compared to the actual 2001 OPM of 13.0%. The authors concluded that adherence to the success sequence would substantially reduce poverty in the United States.</p>				
Haskins and Sawhill (2009)	Income class based on income-to-poverty ratios (poor below 100% FPL, lower middle 100–299% FPL, middle 300–499% FPL, upper middle 500–699% FPL, high 700% or more FPL)	HS diploma, full-time work, marriage before childbearing and 21 or older (implied sequential was important, but analysis did not attempt to sequence these events)	CPS ASEC, 2008 (data year 2007)	Descriptive. Calculated adherence to milestones for population ages 25 to 64, then calculated the family income class for all persons in families headed by those people by the number of milestones they satisfied. The authors excluded people in families where the head of household was younger than 25 or received disability income. The table presented in the book reflected the share of persons in families in each income class for a group that adhered to all three milestones, one or two milestones, or none of the three milestones. It also showed the share of all persons in families by the number of milestones that were adhered to. By excluding people not in families, the analysis excluded unmarried individuals who were living alone or not residing with a family member.
<p>Summary of findings: Of all persons in families included in the analysis, 64.8% adhered to all three milestones, 33.8% adhered to one or two milestones, and 1.4% adhered to none of the milestones. The share in poverty was inversely related to the number of milestones satisfied. In other words, as the number of milestones adhered to increased, the share of those in that group in poverty decreased. People in families that adhered to all three milestones had an OPM of 2.0%, 31.3% were in the middle income group, 20.0% in the upper middle income group, and 22.5% in the high income group. Of people in families that adhered to none of the milestones, 76.0% were poor, 3.5% were in the middle income group, 2.0% in the upper middle income group, and 1.4% in the high income group (page 71, Table 4-2).</p>				

Study	Outcome measures considered	Success sequence milestones included	Data source	Methodology
Berzin and Marco (2010)	Home leaving, marriage, and parenthood, including timing	Marriage and parenthood	National Survey of Families and Households, Waves 1 (1987–1988), 2 (1994–1995), and 3 (2001–2002)	The authors conducted a survival analysis to assess the achievement of three life events (dependent variables): (1) home leaving after age 18, (2) marriage, and (3) parenthood with poor and non-poor status as a child as the main predictor variable (200% FPL). They used a sample of offspring of the original sample of adults from 1987–1988. The sample was mostly White youth, ages 18 to 33.
<p>Summary of findings: The authors found that early in adulthood, poor and non-poor youth left home at similar rates, with 50% leaving home by age 19. But as the young adults aged, poor youth reported leaving home less frequently and poor youth did not reach the home leaving rates of non-poor youth at age 22 until age 24. Looked at another way, poor youth were more likely to leave home before age 18, while non-poor youth were more likely to leave home after age 18. The authors found that starting at a very young age (age 16), poor youth were more likely to marry, but that this association varied and reversed over time. As youth got older, the likelihood of marriage for non-poor youth was greater than for poor youth. The analysis found that poor youth were consistently more likely to become parents than non-poor youth, a difference that varied over time (but never reversed) and was greater at young ages. The authors concluded that major life events such as home leaving, marriage, and parenthood were influenced by income growing up, even when controlling for a variety of other factors.</p>				
Ahituv and Lerman (2011)	Marriage and stable employment	Marriage and employment	NLSY79	Regression techniques, ordinary least squares (OLS), then dynamic selection control method to control for selection bias. The authors estimated two models: (1) estimates of job change and wage rates on the probability of marriage, divorce, or remarriage, and (2) a two-stage equation that estimates the effect of job change and wage rates on marriage, divorce, and remarriage, and the effects of marriage, divorce, and remarriage on job change and wage rates. They used a sample of men ages 14 to 19 in 1979 and longitudinal data from 1979 through 1994.
<p>Summary of findings: The authors found that higher wages increased the likelihood of marriage, which suggests a link between employment and marriage and better outcomes. The authors also found that job instability lessened the likelihood of marriage, also suggesting a connection from a sequential perspective. But controlling for all these factors, Blacks were still less likely to get married, which suggests some level of individual agency and choice. Exploring the effects of marriage on job stability and wages, the authors found that marriage increased job stability and increased wages. A marriage of 5 years (the mean for those in the sample in a marriage) increased wages by 14% to 15% over single individuals and 10% over divorcees. Results suggest that marriage is both a cause and an effect of higher wages and job stability.</p>				
Reeves and Grannis (2015)	Income quintiles—bottom 20%, middle 20%, top 20%	They describe five “starts” that are related to income: education (percentage graduating with acceptable grades and percentage enrolled in postsecondary education), labor market (percentage with a postsecondary degree, percentage with no criminal conviction), and family formation (percentage married before first child, working before first child).	Unclear	Descriptive. The authors show a series of charts that describe the percentage of people in the bottom, middle, and top quintile of income according to each “start.” The data source was unclear, and the authors did not provide methodology.

Study	Outcome measures considered	Success sequence milestones included	Data source	Methodology
<p>Summary of findings: The authors reported gaps in the share of people by income quintile that achieved each “start.” Among the bottom quintile, 42% had graduated high school with acceptable grades compared to 70% of the middle quintile and 83% of the top quintile. Enrolling in postsecondary education was less common among those in the bottom quintile (21%) than the middle quintile (45%) and the top quintile (69%). Completing a postsecondary education was also less common among those in the bottom quintile (11%) compared to the middle quintile (29%) and the top quintile (56%). Among those in the bottom quintile, 74% were without a criminal conviction compared to 83% in the middle quintile and 87% in the top quintile. The gaps were similar for being married before having a child, with 24% in the bottom quintile being married before the birth of the first child, 43% of the middle quintile, and 61% of the top quintile. Finally, the authors found that among the bottom quintile, 77% worked before having a child, 88% worked before the first child in the middle quintile, and 93% worked before the first child in the top quintile. The authors concluded that achieving these life “starts” were crucial for economic success and social mobility.</p>				
Sawhill and Rodrigue (2015)	Official poverty rate and middle class (>300% FPL)	Education (HS), full-time work (40 weeks, 35 hours per week), marriage before children and children at age 21 or after	March CPS ASEC 2013 (data year 2012)	Descriptive. The authors calculated the official poverty rate based on the population ages 25 to 64 broken down by adherence to the success sequence milestones. They updated the analysis included in Haskins and Sawhill (2009) with 2012 data. As with that analysis, they included people in families with a head of household ages 25 to 64 who was not receiving disability income.
<p>Summary of findings: The authors found that 2% of the group that fulfilled all three milestones were poor and 71% were in the middle class. Of those who fulfilled one to two milestones, 33% were poor and 21% were in the middle class. And of those who fulfilled none of the milestones, 79% were poor and 5% were in the middle class. The authors concluded that personal initiative as well as government intervention to create an environment more acceptable to norm adherence was needed to increase the share of people fulfilling these milestones and reaching the middle class.</p>				
Reeves, Rodrigue, and Gold (2015)	Low income (0–300% FPL) and middle class (>300% FPL)	Education (HS), full-time work (40 weeks, 35 hours per week), marriage before children and children at age 21 or after	March CPS ASEC 2013 (2012 data)	Descriptive. The authors updated Haskins and Sawhill (2009) using data from 2012 and exploring the gaps in poverty rates by race and adherence to milestones. They calculated the percentage of people in families with a head of household ages 25 to 64 and without disability income that adhered to each norm by race. They also calculated the share of those who adhered to all three milestones by their low-income (0–300% FPL) and middle class (>300% FPL) status and race. Conversely, they calculated the share of those who missed one norm who reached the middle class by race.
<p>Summary of findings: The authors found that 65% of Whites and 45% of Blacks (of people in families with a head of household ages 25 to 64 and without disability income) adhered to all three milestones. Of those in families that adhered to all three milestones, 73% of Whites and 59% of Blacks were in the middle class. Of those families where one norm was missed, 23% of Whites and 20% of Blacks without a HS diploma reached the middle class, 34% of Whites and 23% of Blacks who had a child before marriage reached the middle class, and 23% of Whites and 11% of Blacks without a full-time worker in the family reached the middle class. The authors concluded that the link between adherence to the three milestones and reaching the middle class differed for Whites and Blacks, and that Blacks were less likely to reach middle class than Whites even when adhering to milestones.</p>				
Sawhill and Rodrigue (2016) – The 3 Norms Technical Analysis	Poverty	Education (high school diploma or equivalent), full-time employment (40 or more weeks worked for 35 hours per week), marriage /childbearing (head of household is married or was at time of birth, births did not occur before age 21)	2013 March CPS ASEC (2012) data	Descriptive. The authors calculated the percentage of the people in families with a head of household ages 25 to 64 without disability income by the number of milestones they missed, as well as the share who were poor (0–99% FPL) and not poor (100% FPL and above) within each group.

Study	Outcome measures considered	Success sequence milestones included	Data source	Methodology
<p>Wang and Wilcox (2017)</p>	<p>Official poverty measure for people ages 28 to 34 in 2013–2014 AND low, middle, high income based on size-adjusted family income</p>	<p>Education (high school diploma or equivalent by mid-20s), work (full-time, 35+ hours per week, 50+ weeks or full-time married stay at home parent or student), and married or on track</p>	<p>NLSY97 cohort</p>	<p>Descriptive, using longitudinal data to calculate the official poverty rate when the milestones of the success sequence were sequenced: education, employment, then marriage before childbearing. Regression analysis to assess whether sequencing of marriage then children affected income controlling for education, work status, childhood income, race/ethnicity, sex, and Armed Forces Qualification Test (AFQT) intelligence scores. Regression analysis to assess the association between the number of milestones adhered to and poverty and middle-income status controlling for education (college+), childhood income, race/ethnicity, gender, and AFQT intelligence scores.</p>
<p>Summary of findings: The authors found that breaking more than one norm led to the highest poverty rates. Among those in a family where none of the three milestones were met, 79% were poor, but only 2% of the total fell into this category. Failing to meet the employment norm was the biggest contributor to poverty. Of the 3% of the total that failed the employment and HS graduation rule, 62% were poor. Breaking the child after marriage rule and the employment rule resulted in a poverty rate of 61%, with almost 6% of the total population in this category. But of the less than 2% that failed the child norm (having a child after marriage) and graduation norm (but not the employment norm), 35% were poor. The authors found a similar trend when looking at each norm separately. Of those who broke only the employment norm, 38% were poor, with 16% of those who broke the high school graduation norm being poor and 12% who broke the child after marriage norm being poor. Considering all of the people in poverty, 72% broke the full-time work rule, 29% broke the high school graduation norm, and 42% broke the childbirth after marriage norm. 10% of those in poverty broke none of the milestones. The authors concluded that employment was the driving factor in explaining poverty.</p> <p>Summary of findings: The NLSY is longitudinal, which allowed the authors to assess the share of the sample born between 1980 and 1984 who graduated high school (or equivalent by age 20), worked full-time, then married and had children in that order. They found that 97% were not poor by ages 28 to 34. When they included those in the sample who were “on track” (meaning unmarried but not yet with children), 86% were not poor. They also found that among those who did not follow this sequence, 53% were poor.</p> <p>Next, they explored whether those who married before having children had better economic outcomes than those who had a baby before marrying (or never marrying at all). They found that 5% of those who married first and then had a baby were in poverty by age 28 to 34, compared to 13% of those who never married and were childless and 28% of those who had a baby first. In a regression analysis, they controlled for education, work status, childhood income, race/ethnicity, sex, and AFQT score and found that those who married first then had a baby were 2.39 times more likely to be middle/higher income than those who had a baby first. The authors concluded that even controlling for others things like employment, which in prior research was the primary driver of poverty, those who married before having a child were more likely to be middle/higher income than those who had a baby first. Conversely, they found the married before baby group to be less likely to be poor than the baby before marriage group.</p> <p>Finally, the authors explored whether the number of success sequence milestones achieved affected income status. Using regression analysis, they compared three groups to those who missed all three milestones: (1) those who achieved all three milestones, (2) those who were “on track,” and (3) those who were missing one or two milestones. All three groups had a higher chance of being middle/higher income than those who missed all three milestones; those fulfilling all three milestones were 9 times more likely to be middle/higher income than those who missed all three milestones. This was true when controlling for education, race/ethnicity, income growing up, and AFQT score. Those who were on track (meaning they were married or unmarried without children) were 4 times more likely to be middle/higher income than those who missed all three, and those who missed one or two were 2.8 times more likely to be middle/higher income. Conversely, those in these three groups were all less likely to be in poverty than those who missed all three success sequence milestones. The authors concluded that achieving the three milestones of the success sequence improves the odds of economic success for young adults, and that sequencing these events matters. The authors do not claim a causal relationship, but they acknowledge that the associations they found held even when controlling for things like family income growing up, education, work status, and race/ethnicity.</p>				



Study	Outcome measures considered	Success sequence milestones included	Data source	Methodology
<b>SOCIAL GENOME MODEL</b>				
Sawhill, Winship, and Grannis (2012)	Looked at transition to adulthood, being middle class by age 40 (300% FPL in 2011 dollars)	Four life stages included in the social genome model: (1) early childhood (born to ready parents, school ready by age 5), (2) middle childhood (core competencies by age 11), (3) adolescence (graduate HS with at least 2.5 GPA, not convicted of crime, did not have child of own), and (4) transition to adulthood (lives independently AND college graduate or income equivalent, meaning work)	Social genome model, NLSY97 (with imputations)	The social genome model is a simulation model. It is based on the NLSY97, which the authors used to predict adult incomes depending on which of the six life stages are satisfied. The authors used the social genome model to explore factors that contributed to being middle class by age 40, which they defined as 300% FPL in 2011 dollars.
<p>Summary of findings: The authors found that the highest likelihood of reaching the middle class by age 40 applied to individuals who achieved all four life cycle milestones (81% who achieved all four reached the middle class, and they accounted for 28% of the cohort). The authors found that missing early childhood was less common, with only 6% of the cohort missing this milestone, and was less detrimental to reaching the middle class; 80% who missed the early childhood milestone achieved the other four milestones in the middle class. The lowest chance of reaching the middle class applied to those who missed all four milestones (24% reached the middle class) or missed the adolescence and transition to adulthood milestones (36% reached the middle class). They also found that achieving one milestone increased the likelihood of achieving the next stage. The authors concluded that meeting all four milestones was crucial to reaching the middle class, and for those who did not achieve all four, adolescence (including graduating high school and not having a child) and transition to adulthood (meaning living independently or graduating college) were the most important.</p>				
Moore, Sacks, Manlove, and Sawhill (2014)	Average family income at age 29	Education and delayed childbearing, four models simulated: (1) delayed childbearing 2 years, (2) delayed childbearing 5 years, (3) teen moms get HS diploma, (4) delayed childbearing 2 years AND HS diploma	Social Genome Model, NLSY97 (with imputations)	The authors used the social genome model to simulate the effects of delayed childbearing and education. They compared each of the four simulations to the baseline average family income at age 29 from the NLSY97.
<p>Summary of findings: The authors found that delayed childbearing until adulthood and getting a high school education had the largest positive impact on average family income. In 2011 dollars, the simulations estimated that if all females in the cohort delayed childbearing until adulthood and graduated high school, the average family income at age 29 would increase \$6,660 compared to the baseline. The estimates simulating that all teen mothers got a high school diploma increased average family income by \$5,896, and the simulation that teen moms delayed childbearing by 5 years increased income by \$1,833. The authors detected the smallest effect when simulating that all teen moms delayed childbearing by 2 years, which resulted in an increase in average family income of \$688. The authors concluded that getting at least a high school diploma and delaying childbearing until adulthood would increase average family income for young adult women.</p>				

Study	Outcome measures considered	Success sequence milestones included	Data source	Methodology
Grannis and Sawhill (2014)	Middle class (300% of FPL) by middle age (age 40)	Simulated an early childhood intervention to see whether children starting at same place in early childhood would result in same chance of middle class by middle age.	Social Genome Model, NLSY97 (with imputations)	Simulations/OLS regressions
<p>Summary of findings: The authors found that simulating an intervention using effect sizes from the literature increased “success” from 41% to 46%. The interventions that they simulated included a parenting skill program, reading program, and small school of choice for HS. This sequenced simulation resulted in 53% of people in the sample being in the middle class by middle age vs. 43% without the interventions. Among children born to higher-income families, 64% were middle income by middle age. The authors concluded that one intervention may not be enough but sequencing across the life cycle might be.</p>				
Sawhill and Karpilow (2015)	5 Life stages in Social Genome Model	Simulated how children would do in terms of achieving each life stage if experiencing early intervention like Perry School. They simulated interventions at each stage.	Social Genome Model, NLSY97 (with imputations)	The social genome model is a simulation model. It is based on the NLSY97, which the authors used to predict adult incomes depending on which of the six life stages were satisfied. The authors used the social genome model to simulate gaps between poor and non-poor families (>200% FPL) assuming effects from various evidence-based interventions (like Perry School). At each life stage, they simulated an intervention to see the effect on the poor/non-poor family gap. This study was an update to the Grannis and Sawhill (2014) study.
<p>Summary of findings: The analysis shows that the gap in school readiness and early childhood outcomes between children born to poor and non-poor families (&gt;=200% FPL) narrowed when simulating the effect of a Perry School type of intervention, but that this gap closure faded over time. When the authors simulated an effective intervention (they selected an intervention from the literature at each life stage and used the effect size to simulate a population impact) at each life stage they found that the gap between children born into poor and non-poor families decreased by 15 percentage points and income was similar by adulthood. The authors concluded that interventions at each stage that helped individuals achieve each life stage would close the income gap by age 40. They also found that success at each stage (no matter the income) predicted success at the next stage. The study provides empirical support for the success sequence because it shows that achieving those life stages increase the likelihood of future economic success.</p>				

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