



The Social and Economic Benefits of Women's Ability To Determine Whether and When to Have Children

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HIGHLIGHTS

- A large and growing body of literature explores the social and economic benefits of women's ability to use reliable contraception to plan whether and when to have children.
- Historical research has linked state laws granting unmarried women early legal access to the pill (at age 17 or 18, rather than 21), to their attainment of postsecondary education and employment, increased earning power and a narrowing of the gender gap in pay, and later, more enduring marriages.
- Contemporary studies indicate that teen pregnancy interferes with young women's ability to graduate from high school and to enroll in and graduate from college. Conversely, planning, delaying and spacing births appears to help women achieve their education and career goals. Delaying a birth can also reduce the gap in pay that typically exists between working mothers and their childless peers and can reduce women's chances of needing public assistance.
- Unplanned births are tied to increased conflict and decreased satisfaction in relationships and with elevated odds that a relationship will fail. They are also connected with depression, anxiety and lower reported levels of happiness. Contraceptive access and consistent method use may also affect mental health outcomes by allowing couples to plan the number of children in their family.
- People are relatively less likely to be prepared for parenthood and develop positive parent-child relationships if they become parents as teenagers or have an unplanned birth. Close birthspacing and larger family size are also linked with parents' decreased investment in their children. All of this, in turn, may influence children's mental and behavioral development and educational achievement.
- Because not all women have shared equally in the social and economic benefits of contraception, there is more work to be done in implementing programs and policies that advance contraceptive access and help all women achieve their life goals if and when they decide to become mothers.



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Introduction

Background and History

The approval of the first oral contraceptive by the U.S. Food and Drug Administration (FDA) in 1960 was a major turning point for American society. The introduction of the “the pill” provided U.S. women and couples with an effective, convenient and reversible method of contraception that made real the prospect of reliably timing childbearing. In the years since, other highly reliable methods have been introduced, including the IUD, the implant, the injectable, the ring and the patch. Today, more than 99% of reproductive aged women who have ever had sex with a man have at some point relied on a form of contraception.¹

Access to reliable contraceptives can allow women and couples in the United States to plan when to start a family and decide the timing and spacing of their children, should they choose to become parents. (Access to safe and legal abortion can also be helpful in making these decisions, though it is used by many fewer women and far less frequently than contraception.) In addition to planning and timing births, reliable contraception has allowed women and couples to choose to have smaller families: The average number of children in a U.S. family has dropped from nearly four in 1957 to around two today.² For many, it has also meant choosing to have children later in life: Birthrates for women in their 30s and 40s have increased substantially in recent decades.³

Controlling family timing and size can also be key to unlocking opportunities for economic success, education and equality. Indeed, many leaders of the civil rights and women’s rights movements of the 1960s pointed to contraception as an important tool for social justice. They argued reliable contraception could help women complete their education and join the workplace as full partners with men. It could help families break cycles of poverty and government dependency across generations, patterns often perpetuated by unintended pregnancies, especially among teenagers.^{4,5,6} In the words of Martin Luther King, Jr., contraception could improve the lives of African Americans by offering them a “fair opportunity to develop and advance as all other people in our society.”⁷

FDA approval of the pill was not enough for contraception to have all of these impacts on society. Rather,

the pill—and later, other highly effective contraceptive methods—had to be made accessible. Before the late 1960s, it was not clearly legal in almost any state for a doctor to prescribe the pill to an unmarried minor without parental consent. By 1974, however, laws had been passed in nearly every state that effectively granted legal pill access without parental consent to single women aged 17 or 18, rather than 21. Those laws did not typically address contraception specifically; most often, they lowered the age of legal majority or established “mature minor” doctrines that empowered young people to consent to medical treatments generally.^{8,9} These changes were reinforced by U.S. Supreme Court decisions in 1965 (*Griswold v. Connecticut*) and 1972 (*Eisenstadt v. Baird*) that struck down a few state laws specifically barring the use of contraceptives by married and unmarried individuals, respectively. Because of these legal changes, many young women were able to obtain reliable contraception before they made long-term decisions about school, work and marriage.

A second requirement for contraception to be truly accessible was for it to be made affordable, particularly for disadvantaged Americans. U.S. efforts on this front date back to the 1960s, when the Office of Economic Opportunity made the first federal family planning grants as part of the Johnson administration’s signature War on Poverty.^{10,11} Congress increased the U.S. investment in family planning in 1970 when it enacted Title X of the Public Health Service Act, the sole federal program devoted entirely to family planning. The program’s flexible grant funds subsidize direct client services, especially for economically disadvantaged women who are unable to obtain coverage for reproductive health services. Title X has also proven crucial to establishing thousands of family planning centers and supporting their ongoing infrastructure and staffing needs.

In 1972, Congress took another major step forward by requiring each state’s Medicaid program to include coverage of family planning services and supplies for all beneficiaries of childbearing age and exempted these services from any type of out-of-pocket costs. Congress also committed the federal government to reimburse states for 90% of the cost of providing family planning services to

program enrollees, a far higher share than it contributed for Medicaid services generally. By FY 2010, Medicaid contributed 75% of all government dollars toward family planning services in the United States.¹² Title X and Medicaid form the core of a national effort that, each year, serves more than nine million female clients, helping them to avoid two million unintended pregnancies.¹⁰

Five decades after the pill was introduced, it is clear that consistent access to effective and affordable contraception has indeed served as a catalyst of opportunity. It has helped revolutionize women's expectations about their educational and career prospects and their roles in the home and workplace, and it has helped reshape societal expectations of and opportunities for women. However, this revolution is by no means complete: Not all U.S. women have access to the full range of the most effective methods of contraception, or to the social and economic benefits they provide. While cost remains an obstacle for some women, other factors, including demographic characteristics, health literacy and beliefs about side effects, are also related to contraceptive access and choice.^{13,14} Among women at risk of unintended pregnancy, disproportionate numbers of teenagers, low-income women and never-married women do not use any form of contraception.¹

Lack of access to and ineffective use of contraceptive methods are linked to a heightened risk for unintended pregnancy. About half of all pregnancies each year, 3.2 million of them, are unintended (either mistimed or entirely unwanted).¹⁵ Almost 750,000 women aged 15–19 become pregnant each year, and more than eight in 10 of those pregnancies are unintended.¹⁵ Unintended pregnancies are disproportionately common among poor women (those with an income below the federal poverty level), who have five times the unintended pregnancy rate of women whose income is above 200% of poverty. In turn, economically disadvantaged women continue to have fewer opportunities than higher income women to realize the benefits linked to using effective contraception, specifically educational and economic achievement, stable marriages and success for their children.

Nevertheless, American society has changed dramatically. The case was summed up well by *The Economist* in the magazine's special issue on "what has mattered most during this millennium." Its article on oral contraceptives, entitled "The liberator," concludes: "There is, perhaps, one invention that historians a thousand years in the future will look back on and say, 'That defined the 20th century.'... That invention is the contraceptive pill."¹⁶ Before the pill, "the unpredictability of the arrival of children meant that the rights of many women were more theoretical than

actual." Since its advent, "women have taken a giant step towards their rightful position of equal partnership with men."

Purpose of This Report

This report summarizes and synthesizes the wealth of studies that have been published in recent years on the social and economic benefits of women's ability to plan whether and when to have children through obtaining and using effective contraception. We intend for it to provide scientific evidence for what has long been obvious to women, couples and families. It is meant to complement earlier reports and reviews by the Guttmacher Institute and others extensively demonstrating the impact of contraception generally, and publicly supported contraceptive services specifically, in helping women and couples avert unintended pregnancies and the births, abortions and miscarriages that would otherwise follow.

A large and growing body of literature provides this documentation. It attempts to quantify the impact of effective contraception (or lack thereof) on the "human capital investments" of education and workforce participation, as well as subsequent outcomes related to income, family stability, mental health and happiness, and child well-being. This literature is largely divided between two types of papers: those focusing on historical data and those drawing on more contemporary findings.

The first set of studies, the historical ones, compare trends among young U.S. women before and after they first gained legal access to the pill, making use of "natural experiments" arising from the fact that different states changed their laws in different years. This quasi-experimental approach was pioneered in a seminal paper by Goldin and Katz.¹⁷ In linking the pill to various measurable educational and professional outcomes, Goldin and Katz, and those who have built upon their work, tend to move through a multistep methodology. Researchers first demonstrate that the state-level legislation that made the pill legally available to women at age 17 or 18 (rather than 21) resulted in increased use among this late-adolescent age-group. Next, they show that increased early use of the pill is linked with immediate decreases in women's birthrates. Researchers then extend their analyses to measure the impact of the pill, via this decrease in early childbearing, on their specific outcomes of interest, such as educational attainment and professional achievement.

The second set of studies, those drawing on more recent data, analyze the links between childbearing patterns—particularly those pertaining to teen and unintended pregnancy, family size and birthspacing—and women's opportunities and outcomes. Some of these studies

draw on longitudinal data (data collected from the same individuals at multiple points in time) to help evaluate cause and effect. Others rely on sophisticated statistical techniques to evaluate the role of early, unintended and closely spaced births (versus other competing factors) in accounting for differences in education, employment and relationships among groups of women in recent decades. These contemporary studies cannot directly examine access to contraception because several generations of women in the United States and other developed nations have come of age with the legal right to a diverse range of contraceptive methods.

Using evidence from both historical and current studies, we break down authors' key findings relating women's use of effective contraception to time or space births, or abstain from childbearing, with a variety of social and economic outcomes related to educational attainment, workforce participation, economic stability, union formation and stability, mental health and happiness, and the well-being of children. We next address ongoing challenges in the literature, including assessments of the complicated role of socioeconomic disparities as both a cause and an effect of the outcomes studied in this report, as well as gaps in the relevant literature. The review concludes with a discussion of related policy implications. An appendix provides detailed information on each of the articles and papers included in this literature review.

Methods

This paper draws on an extensive literature review conducted during March through June 2012, along with two preliminary reviews conducted in 2010 and 2011. Across the three reviews, we identified published research on the social and economic impact of family planning—broadly defined to include access to contraceptive methods and services, as well as behaviors associated with contraception, such as delaying, spacing or planning a pregnancy—using the following search engines: PubMed, JSTOR, SocIndex and ISI Web of Knowledge. We also identified unpublished research on this topic, in the form of working papers, using the EconLit database, along with Google and other general-purpose search engines.

The reviews collectively used the following terms: “contraception,” “the pill,” “family planning,” “fertility,” “birth spacing,” “child spacing,” “unintended pregnancy,” “intention status AND pregnancy,” “pregnancy wantedness,” “planning status AND pregnancy” and “unintended birth” in combination with “income,” “marriage,” “marital satisfaction,” “partnership,” “union quality,” “union security,” “education,” “human capital,” “labor force,” “employment,” “work,” “career,” “child achievement,” “stability,” “security,” “Medicaid,” “food stamps,” “WIC,” “low income,” “public welfare,” “poor,” “poverty,” “impoverished conditions,” “public assistance,” “gender equality,” “maternal behaviors,” “parental health” and “child development.”

We searched for all articles published or presented in working paper form between 1980 and March 2012, eliminating those titles that were obviously not relevant. We then collected and reviewed abstracts of the remaining articles to identify those that were eligible for inclusion in the review. To be eligible, articles had to be written in English and had to present or summarize original research and provide details on the social and economic impact of contraception among women, their partners or their children. Except for eight working papers or white papers, all articles had undergone peer review. We focused primarily on U.S. studies but included several studies from the United Kingdom and Canada, along with literature

reviews that summarized both domestic and international research. We examined the citations in each article to identify additional papers to consider for inclusion. We also gathered articles that received media attention during the time of our review and analysis or that were suggested by our reviewers. In all, 66 studies were selected; they are reviewed below and summarized in the appendix (page 32).

Educational Attainment

Although completing high school and continuing on to college or beyond typically requires delaying the start of a full-time job, gains in formal education often lead to a broader range of career opportunities, higher pay and greater social influence later in adulthood. In short, staying in school longer and earning undergraduate and advanced degrees tends to improve long-term economic stability.

The majority of the literature exploring the connections between family planning and education is historical in nature, taking advantage of the natural experiment established by the advent of the pill and women's increased access to it. A smaller body of evidence examines more recent cohorts of women, focusing on the relationship between teenage childbearing (which is usually unintended) and educational attainment. From a fundamental shift in women's educational opportunities in the 1970s to challenges associated with modern teenage pregnancy, the ability to time childbearing has consistently been a key factor in young women's educational attainment.

College Education: Historic Changes

The link between women's ability to plan their pregnancies and their academic achievement appears to be particularly strong when it comes to attending and completing college. Several influential studies on young, single women from the late 1960s through the early 1970s indicate that this generation's ability to obtain highly effective contraception was a significant factor behind greater numbers of women investing in higher education.^{9,17-19} These authors found that access to reliable contraceptives—initially, the pill—improved women's capacity to successfully delay childbearing and thus minimized the economic and opportunity costs of pursuing higher education. At the same time, doors opened to women who could access both contraceptives and higher education; they became seen—for instance, by admissions officials—as more likely than women without contraceptive access to follow through with their educational pursuits.

In their study of the historical impacts of contraception, Bailey and colleagues examined variations in access to the pill by young women's state of residence and age, concentrating on those who gained legal pill access

between the ages of 18 and 21, a critical time in which education-related decisions are often made.⁹ Overall, among women in their early 20s, college enrollment was 20% higher among those who had had legal pill access at age 18, compared with women who could not legally obtain the pill in late adolescence. Further, young women who could access the pill before having to decide whether to pursue higher education obtained an average of about one year more of education before age 30. Bailey and colleagues found that young women of middle and higher ability (as measured by IQ) and those of less advantaged familial backgrounds (as measured by familial education levels, father's occupation and availability of reading material in the home) benefitted most in terms of years of formal schooling from being able to obtain the pill in late adolescence.

A 2008 working paper by Hock found similar results, including a 12% increase in the likelihood of college enrollment among young women who could obtain the pill, compared with those who could not.¹⁸ Hock estimated that legal pill access among young women was responsible for as much as one-third of the considerable rise in 21–22-year-old women's college enrollment from 1969 to 1980. In addition, Hock found that being able to get the pill before age 21 was most influential in enabling women already in college to stay in college: the dropout rate among women with access to the pill was 35% lower than among women without pill access.

Ananat and Hungerman's 2012 study examined the benefits of pill access by studying college graduation rates (among other characteristics) of women between the ages of 30 and 49, many of whom had come of age by the time the pill first became legally accessible.¹⁹ They found that likely due to their ability to postpone their first child, young women with access to the pill before age 21 graduated from college in significantly higher numbers than did women of the same era who came of age before the pill was made legal to them. The authors also found that women with early legal pill access were more likely to both pursue higher education and have children; as a result, in the long run, the average child became increasingly likely to have a college-educated mother. Somewhat contrary to Bailey and colleagues' 2012 findings, these

authors found evidence that in terms of educational attainment, low-income women benefited less than did their higher-income counterparts from laws allowing access to the pill.

In a pair of recent working papers, Edlund and Machado study another route by which some women may have gained access to the pill before age 21: marriage.^{20,21} Their studies found evidence that some women interested in using contraceptives were taking advantage of laws in certain states that allowed them to marry as young as 18 without parental consent and thereby became emancipated regarding their medical decisions, including the use of contraception. A number of states enacted these marriage laws in the early 1960s, before the movement to grant legal access to contraception for unmarried women. Edlund and Machado found that the ability to marry before age 21, and to thereby gain legal pill access, was associated with an 11% increase in the probability of young women's obtaining some years of postsecondary education.²¹ Despite increasing the probability of college exposure, early marriage access had no significant effect on women's college graduation.

Graduate-Level Education: Historic Changes

The number of women earning professional degrees in fields such as medicine, dentistry and law sharply increased beginning around 1970.¹⁷ Analyzing advancements between cohorts of college-educated young women with and without legal pill access, Goldin and Katz's 2002 article touted the pill as a major driver in making the pursuit of these advanced levels of professional education realistic for young women. In the first study of its kind, the authors demonstrated that the pill's "initial diffusion among single women coincided with, and is analytically related to, the increase in the age at first marriage and the increase in women in professional degree programs." That increase in women's participation in professional degree programs was striking: between the 1960s and 1980, the proportion of women in medical school more than quadrupled, and the proportions of women in business administration and law school increased 13- and 14-fold, respectively. In 1980, there were 25 women for every 100 men in dental school, whereas in the 1960s there was about one female per 100 male dental students.²²

Other authors have provided further illustration of the link between contraceptive access and the advancement of women's graduate-level education and corresponding professional pursuits. In their 2012 paper, Bailey and colleagues emphasized the importance of "greater college and nontraditionally-female, professional schooling" in demonstrating how the pill changed the nature of

women's work and thereby their earning potential.⁹ In their 2010 working paper, Edlund and Machado determined that being able to marry at or around age 18 without parental consent increased by 17–21% the proportion of college-educated women pursuing professions, such as medicine and law, likely through increased contraceptive access allowed by way of marriage.²⁰ In their 2011 working paper, these authors found evidence that unmarried women's legal access to the pill in early adulthood also increased the proportion of college-educated women pursuing graduate-level education, in line with Goldin and Katz's conclusions.²¹

High School Education: Contemporary Findings

Contemporary studies of more recent generations of women often examine the relationship between fertility and education through the lens of teenage pregnancy. Although many U.S. high schools have taken steps in recent decades to improve graduation rates among young parents, having a child can still pose a considerable challenge to graduating. In part, this may be because parenthood brings with it new responsibilities and stresses that interfere with academic success. In addition, teen parents may adopt new priorities and expectations for themselves and may be treated differently by their families, educators, peers and society.

Hofferth and colleagues, for example, examined data from the 1960s through the 1990s to examine how the relationship between teen motherhood and educational achievement has changed over time.²³ They concluded that while teen mothers typically completed about two more years of school overall in the 1990s than they did in the 1960s, they remained disadvantaged compared with peers who did not have a teenage pregnancy. Overall, Hofferth and colleagues showed that teen mothers were only about one-tenth as likely to complete high school as those who delayed having a child until after age 30.

Similarly, a cross-sectional study designed to assess the potential short-term negative impacts of teenage childbearing used young women who experienced a miscarriage as the comparison group to those who actually gave birth as teenagers in the mid-1990s.²⁴ The authors found evidence that early childbearing diminished the likelihood of completing high school by 5–10 percentage points. Their findings also suggest that the broader negative consequences associated with teen childbearing in existing literature were at least partially due to these young women's typically disadvantaged backgrounds, not just their having a child at a young age—a common theme in this literature (see Complicating Factors, page 26). Several studies using variations of this methodology, including

Hotz and colleagues²⁵ (who first developed the methodology) and a working paper by Ashcraft and colleagues,²⁶ have, in fact, found no impact of teen childbearing on high school graduation.

Postsecondary Education: Contemporary Findings

Studies analyzing recent data on the effects of teenage childbearing on young women's postsecondary education find that young mothers, especially teen mothers, are less likely than women with no children to receive any college education or to earn a degree, and are likely to achieve fewer years of formal schooling overall. They may instead be working to support their families and may be perceived, by themselves and others, as being on a career trajectory for which higher education is irrelevant.

For instance, Hofferth and colleagues found the most significant difference in educational outcomes between teen mothers and those who wait to have children to be in postsecondary educational attainment. They found the proportion of women who had some formal education beyond high school was 29% for those who had children in their teens, 41% among those who waited to become mothers until their early 20s and 70% for women who waited until their late 20s.²³ Young women who had children as teenagers had odds of obtaining postsecondary education that were only 14–29% as high as those among women who delayed childbearing into their 30s. Moreover, from the 1960s to the 1990s, the gap in postsecondary school attendance between teen mothers and those who delayed childbearing increased from 27% to 44%. Overall, these authors determined that women who experience teen births complete approximately two fewer years of formal schooling as compared with women who wait to have children until age 30 or older.

Findings establishing teen mothers' comparative disadvantage in terms of years of school completed and likelihood of obtaining any amount of postsecondary education are corroborated by several older studies.^{27,28,29} One study by Klepinger and colleagues that focused on educational outcomes for young women in the 1980s found teen motherhood to be negatively connected with college attendance.³⁰ Moreover, they found that having a child before age 20 to be associated with a reduction of about three years in the amount of time white, black and Hispanic teenage women spent in school. This latter finding is unlike many others in that Klepinger and colleagues found educational achievement among teen mothers to be "remarkably consistent across racial and ethnic groups," after controlling for multiple social and economic factors at the individual and community levels.

A recent longitudinal study by Stange focused on

KEY FINDINGS ON EDUCATIONAL ATTAINMENT

There is strong evidence that:

- Historically, legal access to the pill contributed significantly to increases in the number of young women who obtained at least some college education.
- Access to the pill was linked to the increased numbers of college-educated women pursuing advanced professional degrees and making up increased proportions of such degree programs.
- Young women who give birth in their teenage years are less likely than their peers to obtain any college education or to earn a degree, and they are likely to achieve fewer years of formal schooling overall; these findings are partially explained by differences in which women are most likely to become teen parents in the first place.

There is somewhat less evidence that:

- Teen mothers are less likely to graduate from high school than women who delay childbearing into their 20s and beyond; these findings are also explained at least partially by disparities in who becomes a teen parent.
- Contraceptive use may indirectly benefit the education of women's male partners.

educational outcomes among young women who became mothers within eight years of high school. His study of nearly 3,000 young women who graduated from high school in 1992 found that women who became mothers demonstrated significantly lower levels of postsecondary educational investment and degree attainment throughout the eight years following high school than those who delayed childbearing until later.³¹ Stange emphasized that teen childbearing itself did not fully explain this difference in formal postsecondary education; rather, about half of the difference could be explained by existing individual and familial factors, including their educational aspirations and fertility expectations. His work is especially notable, however, because he demonstrated that women who eventually become mothers during that eight-year time frame began obtaining fewer college credits than did other women long before they actually gave birth. He contended that women's "deliberate postponement of childbirth until after completion of college" would explain this finding. In other words, women's plans and expectations about

education and motherhood may matter just as much as whether or not they actually have children.

Men's Education

While the direct effects of contraception on women's lives is much more widely researched, contraceptive access may also have positive effects on the educational attainment of women's male partners. In particular, the historical study by Hock found that for the group of young men likely partnered with the young women who first gained legal access to the pill, the likelihood of completing college increased by about 2.5%.¹⁸ In his working paper, Hock suggested that any educational benefits of the pill to men occurred through a reduction in unintended pregnancies and unplanned births among their young female partners. He argued that gave them more freedom to complete their own education without facing the financial and time commitments of being a father, which might have led them to drop out of school to join the workforce.

Workforce Participation

Completing some level of formal education, from a high school diploma to a professional degree, is an important and helpful step in securing a job. Commonly, advancing one's education increases the chances of entering a stable career that is well-paying and offers opportunities for advancement.

A number of economic studies have examined the impact of contraceptive access on women's participation in the workforce. Similar to those studies looking at educational achievement, one body of evidence focuses on how women's professional pursuits and the amount of time they spent in the paid labor force evolved as state statutes made the pill legally accessible to young, unmarried women around 1970. Another group of studies assesses the more recent effects of teen pregnancy, family size and birthspacing on women's workforce participation and whether they vary according to women's demographic characteristics.

Across studies, a number of authors use census definitions of different professional categories.^{17,20} "Professional" occupations include those requiring advanced education and training. Nurses (and others employed in health care who do not have the authority to diagnose or prescribe) and primary and secondary school teachers are not typically included in the "professional" category in these studies. Careers such as law, medicine and dentistry that require the most advanced levels of schooling and skills are often considered separately.

Professional Advancement: Historical Changes

Once young women were able to satisfy their educational and first full-time job aspirations with a reduced risk of unplanned interruptions, their own expectations of their career trajectories—and the expectations of employers—evolved. Many began to seek and attain jobs and professional status in fields previously dominated by men. Goldin and Katz's 2002 study led the way on research regarding these historic professional advances and found that the initial increase in access to the pill was linked to a sharp rise in the number of unmarried, college-educated women who invested in careers requiring many years of education.¹⁷ They estimated the pill accounted for more than

30% of the increase in the proportion of women in skilled careers from 1970 to 1990.

Edlund and Machado's working papers broadened the scope of this research, comparing educational outcomes among women who were married and unmarried, attending college and not.^{20,21} Overall, Edlund and Machado found that laws permitting teenagers to marry without parental consent, and thereby gain legal access to contraception before age 21, were associated with a more than 5% increase in the proportion of women who went into professional jobs.²⁰ In their 2011 paper, using a different data set, they concluded that these marriage laws primarily benefitted young women without undergraduate degrees: For these women, the legal ability to marry at age 18 increased by 20% their odds of having professional or managerial careers (including teaching and nursing), and by nearly 60% their odds of holding a "high professional occupation."²¹ They also concluded that unmarried young women's legal access to the pill contributed to the historic increase in the proportion of college-educated young women becoming doctors and lawyers (consistent with Goldin and Katz), but found that pill access had no effect on the job prospects of women without college degrees.

There is also evidence linking the advent of the pill with an increase in women's rate of labor force participation and the hours they worked. For instance, Bailey's 2006 study found that young women's ability to obtain the pill significantly increased labor force participation among women who first started to have access to the pill as they turned 18, as compared with young women of earlier decades.³² She also found that access to the pill increased women's time in the workforce: Compared with those who did not have legal access to the pill before age 21, "cohorts with earlier legal access to the pill had fewer births before age 21 and worked more for pay during their late twenties and early thirties." Bailey's 2006 analysis also showed that young women's access to the pill accounted for at least 15% of the increase in the number of hours worked by women who were between the ages of 16 and 30 from 1970 to 1990. Cohorts of young women who were directly affected by changing contraceptive access laws were estimated to have worked about 2–3 weeks more per year than did those without early access to the pill.

Similarly, in another paper, Bailey and colleagues estimated that 39% of women in their mid-20s were working at the time the pill became legally available to young, unmarried women; just one decade later, this figure had jumped to 55% for the generation of women who had access to the pill at younger ages.⁹ Moreover, Bailey and colleagues found that into their late 20s, young women who had legal access to the pill had actually worked 17% fewer hours than those without it. This is likely because a large proportion of women with birth control were spending that time in school. These women eventually overcame this employment deficit, having amassed at least 10% more work hours once into their 30s than women who did not have early access to the pill. Overall, Bailey calculated that women in their 20s and 30s who had access to the pill prior to age 21 accrued many more hours of work compared with young women of previous decades.

Childbearing and Employment: Contemporary Findings

Research on more recent generations of women agrees with historical evidence in showing that the ability to plan whether and when to have children is connected with women's participation in the workforce. Evidence suggests that the availability of effective contraceptive methods has continued to help empower women to seek high-profile jobs and work more hours, likely by improving women's ability to avoid having more than one child in a short period of time or experiencing pregnancy in early adulthood, either of which could hinder women's acquisition of the education and on-the-job training needed to reach higher levels of career achievement.

Recent findings on how, and to what degree, childbearing affects young women's work habits are, however, less clear than the dramatic historical changes associated with the introduction of the pill. It appears that having children affects mothers' need to work in different ways among different groups of women. Economically disadvantaged women may be at particular risk of negative employment outcomes as a consequence of closely spaced or unplanned births. Marital status and the age at which women begin childbearing may also affect the relationship between childbearing and a woman's work experience.

A cross-sectional study measuring the link between childbearing and women's employment that compared single and married mothers found that the more children a woman has over the course of time, the less likely she is to be employed, regardless of marital status.³³ Yet, single women were found to be more likely to work once their children reached school age than were married women. Moreover, timing of childbearing was the most important

predictor of single mothers' returning to work (the older a mother was when she had her first child, the more likely she was to work); by contrast, childspacing was the key factor in predicting married mothers' workforce participation (the more time between children, the more likely to work). Miller and Xiao suggested these differences are due to family dynamics: Many married women are able draw on spousal support in order to stay home and care for their children, while single mothers are likely to have to work in order to provide for their families. Another cross-sectional study estimated that married women having fewer children was responsible for as much as 13% of the substantial increase in their participation in the work force from 1970 to 1980.³⁴

The age at which women have their first child may also influence their capacity to work, though there is no consensus in the literature on the consequences of early—especially teen—childbearing on women's labor force participation. For instance, Klepinger and colleagues compared teen mothers with those who delayed childbearing until age 20 or older or who had not had children, and found that young women who gave birth in their teens experienced significant losses in early adulthood work experience.²⁹ After controlling for multiple commu-

KEY FINDINGS ON WORKFORCE PARTICIPATION

There is strong evidence that:

- The advent of the pill was a driving force behind the societal shift to significantly more young women participating in the paid labor force, including professional occupations requiring advanced education and training.
- Effective contraceptive use can increase the amount of time women are part of the paid workforce, largely by improving women's ability to delay and time childbearing to coincide with their educational and early professional opportunities.

There is somewhat less evidence that:

- Married women may have more flexibility than do unmarried women to leave the workforce when they have children, likely because of the support they receive from their spouses.

The evidence is inconsistent about whether teen childbearing decreases, increases or has no bearing on women's workforce participation.

nity- and family-level factors, they found that having a teen birth was associated with significantly reduced teenage work experience for both black and white young women, with white teen mothers losing just over one year of work experience before age 20 and black teen mothers losing about two years. Klepinger and colleagues found no significant effects of teen childbearing on adult work experience (between the ages of 20 and 24) for black women, but a loss of more than two years' experience for white women in the same age range. Other research, such as a study by Dillard and Pol that aggregated findings from previous studies, has similarly suggested that teenage childbearing generally results in women's lowered labor force participation.²⁷

Other studies have found limited or no evidence that teen childbearing has a negative effect on employment status or experience. A cross-sectional study of women in 1973 and 1974 that examined the relationship between a mother's age of first birth and her workforce participation concluded that postponing childbearing until after the teenage years was significant only among white women, for whom delaying childbirth was in fact associated with a decreased likelihood of being employed in early adulthood.³⁵ A 2005 study by Hotz and colleagues found no negative relationship between teen childbearing and socioeconomic outcomes later in life.²⁵ This paper suggests that had teen mothers instead remained childless through their teenage years, these women actually may have accumulated fewer hours of work experience (and less wages) than they did as teen mothers. Hotz and colleagues speculated that due to the commonly disadvantaged background of teen mothers, these young women are not as likely to pursue careers requiring significant educational investments, and so their having children early rather than leaving the labor market later in life might contribute to their comparative economic gains. Yet, a working paper by Ashcraft and colleagues, building on Hotz and colleagues' methodology, found teen childbearing to reduce a woman's short-term probability of working by five percentage points and the number of hours spent working by about four hours per week.²⁶ They did agree with Hotz and colleagues generally that there are "at most modest adverse causal effects of teen births on the mothers' adult outcomes" (see Complicating Factors, page 26).

Economic Stability

Access to contraception has been shown to help women successfully pursue higher degrees of education and become established in professional careers, both stepping-stones to achieving economic stability for themselves and their families. A large body of evidence has explored how contraceptive access has altered women's—and, to a lesser degree, men's—income levels, largely through facilitating education and work opportunities. Historical research on the consequences of young women's first legal access to the pill has largely focused on how contraception played a role in the observed increase in women's pay and the resultant narrowing of the “gender gap” in pay, as men have historically earned and continue to earn more than women. Contemporary studies have also examined how having a child affects income levels in a well-established phenomenon known as the “family gap,” wherein women's pay decreases with childbearing. Most notably, researchers have extensively examined the effects of delaying childbearing, especially past one's teenage years, on individuals' and families' incomes and financial independence. Researchers also suggest that various workplace policies have the power to influence the relationship between childbearing and women's earnings, though whether a woman benefits from such policies depends largely on what kind of job she has.

Closing the Gender Gap

As women's career opportunities improved in the 1970s with expanded access to the pill, there followed a pronounced increase in U.S. women's pay that steadily reduced the “gender gap” between men's and women's salaries. While a gender disparity in wages persists, evidence suggests the strides that have been made toward pay equity are due in large part to women's ability to time their childbearing.

Bailey and colleagues found that young unmarried women's legal access to the pill was responsible for about one-third of the increase in annual earnings over the 1980s among the first groups of women to gain legal access to the pill in their early 20s, as compared with those who had been born a decade prior.⁹ Similarly, between one-third and one-half of the hourly wage growth experienced by

this same group of women was attributed to their ability to obtain the pill in early adulthood. Young working women with pill access before age 21 initially earned less in their 20s than did young women born in the same years with pill access as of age 21, but the first group was making 8% more by age 50, likely due to their initial prolonged school enrollment and subsequently more economically desirable careers.

Bailey and colleagues also suggested that the decrease in the gap among 25–49-year-olds between men's and women's annual incomes “would have been 10 percent smaller in the 1980s and 30 percent smaller in the 1990s” in the absence of widespread legal pill access.⁹ These findings echo a similar finding by Herr in a 2007 working paper that showed the steady narrowing of the gender gap is in part attributed to the growing trend of women's delayed childbearing.³⁶

Yet despite having grown narrower, the gender gap remains. One review of national wage data in the United States determined that from 1980 to 1991, childless women with an average age of 30 were found to earn about 90% of the total average of the hourly wages earned by men in the same age-group; this proportion is considerably better than that among young mothers, who were earning about 73% of an average man's wage.³⁷

The Persistent Family Gap

Despite women having made significant gains toward pay equity with men, the well-documented phenomenon of the “family gap”—greater earnings among childless working women, compared with working mothers—persists. When a woman has a child, she typically leaves the workforce for some period of maternity leave, creating an immediate lapse in work experience, work hours and pay, and employers may change their perceptions of whether she is willing and capable of taking on substantial responsibilities. If she returns to work on a part-time basis, even temporarily, this can also lead to reductions in pay and responsibility.

Women who have children experience a significant earnings loss compared with their employed, childless counterparts, even after controlling for education and work

experience levels.^{38,39} More specifically, research on recent generations of women has found that having a child creates both an immediate drop in women's earnings and a long-term decrease in their earnings trajectories.^{38,40,41}

In contrast, having children seems to have no ill effect on men's income; some studies even show that childbearing may increase their earnings. In a 2010 working paper, Wilde and colleagues determined that men's earnings trajectories, as observed between 1979 and 2006, did not change with childbirth, while women's immediately plateaued.³⁸ They also found that childless men, "far from being the best performers in the labor market, appear to be among the worst." Chandler and colleagues' cross-sectional study of trends in the late 1980s found that working men's earnings actually increased with the birth of a child, though that effect decreased with time.⁴² They also suggested employers' policies and hiring patterns may continue to favor men, who may be viewed as less prone to leave the workplace for or following childbirth, and who are the traditional breadwinners of a family. Further delineating the differing effect having a child seems to have on men's and women's wages, Waldfogel concluded that "having children had positive or no effects for men" between 1980 and 1991.³⁷ Loughran and Zissimopoulos also found that having a child had no real effect on men's earnings.³⁹

One study, conducted by Correll and colleagues, explores the theory that employer discrimination is behind the family gap.⁴³ A laboratory experiment concluded that motherhood is a factor on which women are negatively judged by employers, who consider mothers less competent and committed than similarly qualified female applicants without children, resulting in the employer's decreased likelihood of offering a job and lower recommended starting salary. A second phase of the study, using responses culled from real-world employers to hypothetical job applicants, confirmed the theory that employers discriminate against mothers, but not against fathers, who, compared with childless men, actually benefitted from more positive employer perceptions of job commitment and higher recommended salaries.⁴³

Role of Delayed Childbearing

Delaying the birth of one's first child has been widely found to contribute to a family's strengthened economic stability. For women in particular, the pill and subsequent methods of contraception have been shown to enhance women's earning potential by enabling delayed childbearing, thus allowing young women to invest in education and obtain crucial early work experience to ultimately

enjoy greater income stability than those who started their families at a younger age.^{39,41,42,44,45}

For women who give birth during adolescence, the opposite is often true: these young mothers tend to experience immediate and long-term losses in income and overall financial well-being compared with other women. For instance, a 1999 study found that "teenage childbearing leads to substantively important wage losses through reductions in formal education and young adult work experience," decreasing white women's wages by at least 23% and black women's wages by at least 13%, compared with those of young women who had not given birth before age 20.²⁹ In their working paper, Ashcraft and colleagues found working teen mothers earned around 6% less (\$1,200 less per year) than the average working teenager.²⁶ Others have echoed the importance of educational attainment, early work experience and time on the job to income stability—and concluded that teen mothers often miss out on these stepping-stones to obtaining a stable, well-paying job.^{41,45}

It is not clear, however, how much effect teen childbearing per se has on young women's opportunities. Several authors' research suggests that many studies overestimate the negative consequences of teen childbearing, positing that because teen mothers are so often already socially disadvantaged, they perhaps have little to lose economically. In fact, they argue, some women may even be better off having children very early in life, when they may have greater support from their family and are not interrupting their participation in the workforce (see *Complicating Factors*, page 26, for further discussion of this debate).^{25,26,38,46,47} Hotz and colleagues suggest that teen parents are particularly likely to end up in jobs that value work experience and continuity of experience over education.²⁵

Early childbearing has also been linked to the need for public assistance. For example, Fletcher and Wolfe found that compared with their childless peers, teen mothers not only have average reductions of \$1,000–3,000 in their incomes, but they are also more likely to receive welfare assistance.²⁴ Hotz and colleagues found that women between the ages of 18 and 22 are more likely to receive some form of public assistance if they have had a child as a teenager than as an adult, although this effect appears to fade in later years.²⁵ Teen mothers also much more often head their own single-parent households, and those households are particularly likely to receive some form of public benefits and to experience food insecurity.⁴⁶ Dillard and Pol concluded that the typically greater numbers of children born to teen mothers over their lives, compared with women who first give birth as adults, can hurt the economic stability of any family, but especially those with

a female head of household.²⁷

For most women, it remains economically beneficial to delay pregnancy not only through the teenage years but also through early adulthood, in order to gain early work experience and the associated gains in income. Wilde and colleagues illustrated this in their 2010 working paper, having found that among women who have invested in education and early work experience, the wage flattening phenomenon associated with childbirth is particularly costly early in their careers, when earnings are accelerating most quickly.³⁸ Taniguchi determined that women who started having children early in adulthood “risk[ed] becoming low wage earners when reentering the workforce,” because they did not gain much early experience in their careers before leaving work to give birth.⁴⁵ The study found that those who first became mothers at age 28 or older “experienced no significant wage penalties at all” with childbirth, while teen and young adult mothers did.

Indeed, the evidence overwhelmingly demonstrates that women who wait to have children until their late 20s or their 30s generally experience a smaller loss of wages than do women who have children in their earlier years, at least in part due to their increased likelihood of having more advanced schooling and early career growth.^{27,36,40–42,44–45,48}

Research on the effects of delayed childbearing for men is less common. One review of available research determined that the decreased earning power of teen fathers has resulted in a loss of personal income and sales taxes paid of about \$2.6 billion annually.⁴⁹ Moreover, men, like women, are found to benefit financially from delaying family formation until later in adulthood.^{38,39,42}

Findings Among Highly Educated Women

Highly educated women in well-paying jobs have been found by a number of authors to experience the most significant losses proportional to their earnings upon having a child and to experience the greatest economic benefit from delayed childbearing, as their positions often experience the most wage growth early on.^{38,41} In particular, Wilde and colleagues’ 2010 working paper found that the proportional loss of wages is drastically larger, and is persistent over the long term, for highly skilled women as compared with lower-skilled women.³⁸ They found that among the top third of women according to skill level, “wage trajectories seem to shift rather dramatically after they have children,” increasing steadily before childbirth but flattening out “almost at the precise moment they bear children.”³⁸ These women lost 21–33% of their lifetime earnings after having a child, whereas the income trajectories for lower-skilled women shifted much less with childbirth, resulting in a lifetime earnings loss of 10–14%.

Importantly, delaying children was found to reduce, but not eliminate, the family gap among skilled women; for the most highly skilled, waiting to have a child until age 30 was associated with a gain of nearly \$125,000 in lifetime earnings compared with those who had had children in their early 20s.³⁸

However, not all studies agree on these points. A 1999 study by Taniguchi found that, compared with those women who did not complete high school, those with a college or graduate-level education lost less income upon having a child.⁴⁵ Going a step further, Amuedo-Dorantes and Kimmel’s 2005 study found that college-educated women who had a child actually experienced a “wage boost” of about 4% over their college-educated childless peers.⁴⁸ This study did, however, confirm that delaying childbearing may be especially beneficial for highly educated women: College-educated women who began childbearing after age 30 earned about 13% more than college-educated working mothers of the same age who had had children before age 30. The authors suggested that the “wage boost” they identified may be a result of the types of jobs sought by highly educated mothers and mothers-to-be: Their search for family-friendly employers—for instance, those offering flexible work hours—might also yield more female-friendly employers, who offer greater opportunities for women’s advancement and are less likely to practice sex discrimination.⁴⁸

Role of Workplace Policies

A woman’s choices about childbearing, education and career are not the only factors influencing her economic stability. Employers’ policies and attitudes toward working parents, and the societal laws and norms that shape them, can also influence the economic realities for women, men and families. Just how negatively childbearing affects a woman’s earnings can depend largely on the type of job she holds and whether she is working full or part time. Women who work for organizations that enable them to return to their same position and pay, with flexibility to balance work and the new demands of parenthood, do not seem to suffer as significant a long-term decrease in pay as do women without such professional benefits.

In her review of literature on the family gap and its connection with maternity leave, Waldfogel found that American women who have the security of maternity leave are much more likely to keep their jobs after childbirth than are women who do not have maternity leave.³⁷ As a result, women with maternity leave may also have increased work experience, tenure and job retention, and therefore higher wages. Waldfogel also suggested that unpaid maternity leave of a relatively short 12 weeks—

KEY FINDINGS ON ECONOMIC STABILITY

There is strong evidence that:

- Access to contraception has significantly contributed to increasing women's earning power and to decreasing the gender gap in pay.
- Having a child tends to decrease a woman's earnings in both the short and long term, a phenomenon known as the family gap.
- By delaying having a first child until her late 20s or 30s, a woman can mitigate the family gap and contribute to her family's strengthened economic stability.
- Highly educated women are the group that receives the greatest economic benefits from delayed childbearing.
- Family-friendly policies in the workplace can mitigate the costs associated with childbearing, especially for the highly skilled women who are most likely to receive these benefits.

There is somewhat less evidence that:

- Unlike women, men seem to avoid a wage decrease when they have a child, and may even experience a wage increase.
- Teen mothers tend to experience immediate and long-term decreases in income after their first birth, and they are particularly likely to rely on public assistance in the short-term; the extent to which these patterns are the result of teen motherhood per se is not clear.

opportunities of working mothers) that discourage women from becoming mothers, along with mothers' career and fertility choices, as contributing to the family gap.⁴¹ Correll and colleagues' 2007 study also indicated the significance of employer discrimination in limiting job opportunities and benefits, namely salary, for working mothers.⁴³ Some authors have expressed concern that employer programs that ease the cost of having a child and make balancing family and work-life more realistic are available largely to well-educated women in professional or managerial roles, which heightens the disparity between highly educated and less-educated mothers.^{45,48}

as provided for in the U.S. Family and Medical Leave Act of 1993—results in very small or no decreases in working mothers' employment rates and pay. She noted that despite that law and earlier equal opportunity and pay laws from the 1960s and 1970s, the United States still comes up short with regard to benefits supporting working mothers and families, compared with other industrialized countries.

In addition to maternity leave, Waldfogel's review highlights evidence supporting the importance of other employer benefits, including child care subsidies and flexible work hours, to working mothers' economic stability.³⁷ Other literature on women's work and pay also investigates and recommends implementing workplace policies supportive of working mothers in order to narrow the family gap. Miller and colleagues' 2011 study cited employers' actions (such as limiting the professional advancement

Union Formation and Stability

Economic outcomes such as education, career paths and income are all linked to another important aspect of people's lives: their romantic relationships. Women and men who invest early in an education and a career may delay marriage and children, but may then be better positioned to find a partner to whom they are more likely to stay married and who is attractive from an economic perspective later in life. Conversely, marriage and cohabitation can also be a path toward improved economic stability; for instance, one partner may provide financial support while the other pursues a degree, and couples can share expenses to achieve a higher standard of living when both are working.

The timing and spacing of children may also affect the formation and stability of romantic unions. On the one hand, children can lead to increased commitment and investment in a union and generate social and practical pressures against a couple's separation. Yet, the emotional and financial demands of caring for a child can also be a source of stress on a relationship, particularly if a couple had not planned to have a child. The research reviewed in this chapter analyzes the potential connections of contraceptive use and the prevention of unintended and teen pregnancy with relationship conflicts and satisfaction, the likelihood of a relationship dissolving, and historical trends in marriage and divorce.

Relationship Conflict and Satisfaction

Multiple studies indicate that an unintended pregnancy can lead to relationship problems. For example, several studies from Child Trends (which draw on longitudinal U.S. data and control for a wide array of demographic, economic and mental characteristics) have found that mothers and fathers who had had an unplanned birth reported being less happy in their relationships, compared with similar women and men who had had a planned birth.⁵⁰ Those experiencing an unplanned birth were also more likely to report conflict, defined as arguments over a wide range of topics, including chores, money and sex.^{50,51} Men facing an unplanned pregnancy were less likely than those involved in a planned pregnancy to participate and invest in

the preparation for having the child, for instance by joining their partners for doctors' visits and birthing classes.⁵¹

Several smaller U.S. longitudinal studies have shown similar findings. Cox and colleagues found that couples experiencing unintended pregnancies reported less marital satisfaction, along with lower levels of positive marital interaction, such as communication skills and support, compared with couples who planned their pregnancy.⁵² This phenomenon occurs in both directions: One study found that couples who reported being satisfied with their relationship prior to a pregnancy were more likely than dissatisfied couples to plan their pregnancies, but for husbands at least, an unplanned birth led to steeper declines in marital satisfaction.⁵³

Earlier reviews of the literature identify studies indicating that women with unintended pregnancies are at particular risk of experiencing physical and sexual abuse within their relationships—an extreme sign of marital distress—but the evidence in this area is limited and the direction of causality is unclear.^{54,55} Because the risk of abuse is higher not only during an unintended pregnancy but even before that pregnancy occurs, some of these studies imply that the pregnancy itself is not—or at least, not always—the direct trigger of abuse.⁵⁴

Relationship Dissolution

Contraception helps couples avoid unintended pregnancy, which can cause stresses and conflicts that may lead couples to break up. Multiple U.S. studies have confirmed that married and cohabiting relationships are more likely to dissolve after an unplanned pregnancy or birth than after a planned one.^{50,56–58} A 2012 study by Guzzo and Hayford examined this trend in particular detail, finding unplanned second or subsequent births to be even more strongly associated with relationship dissolution than first unplanned births. They also found that births in which the parents disagree on their pregnancy intentions are more likely to be associated with breakup than mutually planned births, although not to as great a degree as births that parents agree were unplanned.⁵⁶

Guzzo and Hayford noted that, to some extent, these associations may be driven by personality traits, as

“couples who are effective communicators may be able to both prevent unintended fertility and maintain a stable relationship.”⁵⁶ Yet, they found evidence that unintended pregnancy did have an independent effect on union instability: “The transition to parenthood *and* the addition of more children to a partnership disrupts patterns of leisure, communication, and employment and introduce additional demands on social and economic resources. Those couples who intentionally become parents or who intentionally have additional children likely anticipate these changes (to a degree) and postpone childbearing until they feel equipped to handle the challenges; for those whose entry into parenthood is unplanned or for those [whose] family grows unintentionally, these challenges may be far more detrimental to relationship quality, functioning, and stability.”⁵⁶

Most teen pregnancies are unintended, and so it is not surprising that researchers have found a similar negative link between early childbearing and the break-up of relationships. One U.S. study, for example, found that the younger the mother, the higher the odds faced by children of their parents’ relationship ending.⁵⁸ Another study found that among women who were cohabiting, those who were older, were more educated or had an employed partner were less likely than other women to experience a break up after a nonmarital birth.⁵⁹

Marriage Trends

The 1960s and 1970s were a time of many changes in American culture, including changes in patterns of marriage and unions. Women and men coming of age in those years—particularly college graduates—were more likely than those in previous generations to delay marriage until their late 20s and beyond. As more Americans delayed marriage, many of them chose to live with a romantic partner outside of marriage. Divorce, as well, became considerably more common in the United States in the 1970s. Some critics have charged that birth control is at least partially to blame for what they see as a breakdown in the institution of marriage. Several studies indicate otherwise, however, with researchers positing that the advent of the pill in fact led to more economically desirable and equitable matches, and therefore less divorce, than otherwise would have occurred.^{17,19}

In their 2002 study, Goldin and Katz demonstrated that young women’s legal access to the pill helped to drive a U.S. trend toward later and more stable marriages.¹⁷ They theorized that reliable birth control would have this effect on marriage trends during young adulthood, when women and men often make crucial decisions not only about their careers, but also about marriage and family. Two important

“costs,” traditionally, for women and men choosing to delay marriage were that there would be fewer professionally accomplished, financially stable individuals who remained single later in life and that, while they remained unmarried, they would have to forgo sex or else risk an unintended pregnancy. Young women’s legal access to contraceptives greatly reduced both of those costs and made delaying marriage to first pursue an education and a career more attractive. In fact, as the typical age of first marriage increased, more and more women invested in education and work experience early in adulthood, in turn becoming more attractive potential mates for single men from an economic point of view.

At the same time, Goldin and Katz also found that young women’s access to and greater use of the pill were related to lower rates of divorce among those who ever married.¹⁷ Ananat and Hungerman confirmed that finding, showing that young women’s legal access to the pill decreased the share of children who had divorced mothers and led to greater numbers of children having a married mother.¹⁹ Both groups of authors attributed these trends to the idea that effective contraception helps women and men delay marriage long enough to figure out what they want and need out of a relationship and to identify a partner who fits those preferences.

KEY FINDINGS ON UNION FORMATION AND STABILITY

There is strong evidence that:

- The advent of the pill helped spark a U.S. trend toward later marriage, helping women and men to find stable, economically attractive matches.
- Unintended pregnancies and unplanned births are associated with heightened conflict and decreased satisfaction in relationships.
- Marital and cohabiting relationships are more likely to dissolve after an unplanned pregnancy or birth than after a planned one.

There is somewhat less evidence that:

- Women with unintended pregnancies are more likely than other women to experience physical and sexual abuse within their relationships.
- Early childbearing is linked with an increased likelihood that a couple will break up, particularly among teen parents.

Women who do not delay having children may have particular difficulty finding a desirable partner later in life. A recent study of British women, for example, found that a teen birth greatly increases a woman's "chances of partnering with poorly educated and unemployment-prone men."⁶⁰

Another historical study, by Christensen, provided further support for the role of contraception in promoting stable marriage. Comparing women with and without access to the pill before age 21, he found no differences in marriage rates by age 29.⁶¹ Rather, he found that young women's legal access explained about one-third of the increase in the number of women cohabiting with their eventual husbands prior to marriage, among women born in the 1950s versus those born in the 1940s. Christensen asserts that access to contraception led more young people to use cohabiting as a tool for helping them select a marriage partner.

Mental Health and Happiness

Education, employment, income and relationship stability are connected to mental health, happiness and quality of life for individuals and couples. By affecting these central life experiences, access to contraception may also affect mental health and well-being. On the one hand, the unplanned birth of a child, particularly at an early age, might be a stressful and unwelcome event that can significantly disrupt the life plans of a woman and her partner. This disruption can create considerable hardship, particularly in the short run. On the other hand, having children is often cited by individuals and couples as a central life goal, bringing joy and companionship to parents, and potentially providing them with social and financial support later in life. Thus, the link between contraception and unintended pregnancy on mental health and happiness seems likely to vary across people with different life priorities and experiences. To date, relatively few studies have looked carefully at these relationships.

Role of Unintended Births

By helping women and couples avoid unplanned births and the educational, economic and social stresses and challenges that often follow, contraception may help maintain mental health and happiness. In their 2008 review of the literature on the health impact of unintended pregnancy, Gipson and colleagues examined eight studies that explored its potential link with maternal mental health outcomes. Several studies they found indicated that births resulting from unintended pregnancy are associated with depression, anxiety and lower reported levels of happiness.⁵⁴ They highlighted one study by Barber and colleagues that drew on U.S. longitudinal data and found that mothers experiencing unwanted births reported higher levels of depression and lower levels of happiness than did those with wanted births, independent of socioeconomic conditions and other family characteristics, including whether they had any children living at home.⁶²

A 2008 study found similar results and extended them to fathers, in addition to mothers.⁵⁰ Analyzing U.S. longitudinal data and controlling for background characteristics, the authors showed that among parents with an unplanned birth, 47% of mothers and 38% of fathers

reported some symptoms of depression nine months following the birth of their child, compared with 39% and 29%, respectively, among those with planned births. Mothers with an unplanned birth were also significantly more likely to experience moderate or severe symptoms of depression (as opposed to merely any symptoms).

Role of Teen Births

Access to contraception may be positively connected with mental health outcomes by helping people avoid having children when they are young or unmarried. Exploring multiple waves spanning 25 years in a survey conducted in 86 countries, Margolis and Myrskylä found that for teenagers, having children—especially having multiple children—is consistently associated with lower reported levels of happiness at the time of the study.⁶³ They found that this pattern held across time, sex, marital status, income and health status.

This link between early childbearing and decreased happiness may even persist late in life: Read and Grundy examined a sample of British men and women in their 50s, 60s and 70s, and found that those who had experienced an early birth (defined as before age 20 for women and before age 23 for men) were less likely than those who became parents later to report positive ratings for their quality of life across four measures: having control over one's life, having a sense of autonomy to carry out plans, feeling life to be pleasurable and meaningful, and seeing opportunities for self-realization.⁶⁴ The authors found that these associations between early parenthood and quality of later life are largely mediated by later socioeconomic and health status—meaning that because teen parents are more likely than other parents to end up with relatively less education, lower incomes and poorer health, they are also less likely to rate their later quality of life as positive (see Complicating Factors, page 26).

Similarly, Henretta and colleagues found that having given birth as a teenagers was linked to poor mental health among U.S. and British women in their 50s.⁶⁵ Their results suggest that events around the time of the woman's first birth, including those related to education and marriage, may determine not only their midlife socio-

KEY FINDINGS ON MENTAL HEALTH AND HAPPINESS

There is strong evidence that:

- Women and men who experience unintended pregnancy and unplanned childbirth are more likely than those who do not to experience depression, anxiety and lower reported levels of happiness.

There is somewhat less evidence that:

- Early childbearing is connected to lower levels of happiness, as well as to lower reported quality of life and worse mental health in later years.
- The number of children in a family is associated with different mental health and happiness outcomes over the course of a person's life, depending on individual and family circumstances and across country contexts.

economic circumstances, but also their level of physical and mental health later in life. Mirowsky and Ross, in examining a sample of U.S. women and men, came to a similar conclusion: Early childbearing was linked to symptoms of depression later in life because of associations with earlier first marriages, lower educational attainment and higher risk of economic problems.⁶⁶ Kalil and Kunz, by contrast, looking at U.S. longitudinal data, found that having a first child outside of marriage, whether as a teenager or not, was connected with depressive symptoms among women in their late 20s.⁶⁷

Role of Family Size

Compared with their findings on teen births, these studies provide a considerably less clear picture of the relationship between family size and mental health outcomes. Margolis and Myrskylä found that globally, people's early happiness generally decreases with the number of children in their family, but this feeling typically changes over the course of one's life and "evolves from negative to neutral to positive above age 40."⁶³ This pattern may arise because the initial stresses and burdens of having children often give way to the benefits of children as a "long-term investment in well-being." The authors also found that the link between happiness and family size is tied to economic factors: The negative impact of having many children as a teen or young adult is strongest among lower-income people, who may face the greatest economic stresses from a large family. The connection between large family size and

reduced happiness among young adults is also "weakest in countries with high public support for families," such as many of those in Western Europe, and the findings of more happiness for older adults is "strongest in countries where old-age support depends mostly on the family."⁶³

Read and Grundy's study of older British men and women found similar complexities. Having four or more children was associated with lower scores on several quality of life measures, particularly for men.⁶⁴ At the same time, women who had never had children reported better outcomes on measures of autonomy and self-realization in their 50s, 60s and 70s, compared with women with children, while childless men were no better off than their counterparts with children. The authors caution that the relationship between family size and quality of later life may depend in part on circumstance—for example, whether someone is childless by choice.

The Well-Being of Children

For many people, a better education, a better job, better pay and a better relationship with their partner are not merely personal goals but also the means to an end: an improved life for their family and, especially, their current or future children. What constitutes a “better life” may range from providing basic economic necessities and a stable home to ensuring that children have all the advantages they might need to get a head start toward success.

Family-related worries and aspirations are often cited by women and couples when asked why they make use of contraceptive services.⁶⁸ So it is not surprising that many researchers have studied the connection between pregnancy planning and spacing and children’s outcomes. It is clear that some such connections are mediated by parents’ education, income, relationships and mental health. Yet, research has also explored whether there are additional, independent outcomes from the planning and timing of pregnancies, which could affect whether individuals are ready to be parents, are emotionally attached to their children and are able to provide sufficient investments in their children’s future. Those factors, in turn, may lead to better outcomes for children throughout their lives.

Parental Preparedness and Parent-Child Relationships

One of the obvious reasons that access to contraception might matter for child outcomes is that carefully timing and planning a family allows people to prepare themselves for parenthood. Such preparation may involve maintaining preconception and prenatal health and adopting healthy behaviors. Taking folic acid supplements, managing chronic conditions like diabetes, quitting smoking, receiving appropriate vaccinations while pregnant—all of these are steps that women are encouraged to take because of their potential impact on their children’s health as infants and later in life.⁶⁹ Even beyond these basic health issues, however, there are other ways that parental preparation and investment could affect their children’s well-being and success. Parents experiencing a teen or unplanned birth, for example, may be less ready or interested than other parents in bonding emotionally with their children and less likely to have the maturity and wisdom to deal with their

children’s needs and problems.

An analysis of U.S. longitudinal data by Mollborn and Dennis, for example, found that after controlling for other key differences among women, teen mothers were one-sixth as likely as women whose first birth came at age 20 or older to report that they were ready to have a child.⁴⁶ Teen mothers were also less than half as likely to view their partners as ready to have a child. The implication that so many young parents do not believe themselves to be ready for parenthood is borne out by other findings in this study: Teen mothers scored lower than other mothers on four different direct assessments of the parent-child relationship and parenting behaviors (including an assessment of the child’s attachment to the parent) and spent comparatively less time on activities such as reading to their children and singing songs with them. However, the authors emphasized that economic disadvantage, rather than teen motherhood itself, is primarily responsible for these findings.⁴⁶ A review of earlier literature by Coley and Chase-Lansdale found limited evidence that teen mothers are “just as warm but less verbal, less sensitive, and less responsive to their infants than older mothers” and that they “tend to provide a less stimulating home environment, to perceive their infants as being more difficult, and to have unrealistic expectations.”⁷⁰

In addition, analysis of administrative records in Illinois provide evidence that the children of teen mothers have a substantially increased risk of experiencing incidents of abuse, neglect or foster care placement.^{49,71} That study concluded that after controlling for other key risk factors, delaying a birth from age 17 or earlier to age 20–21 is linked to reduced rates of foster care placement, abuse and neglect.

Unintended pregnancy appears to have some similar connections with the mother-child relationship. In the short run, according to a 1999 study by Barber and colleagues, compared with other mothers, mothers with unwanted births spend less leisure time with their children and are more likely to spank or slap them.⁶² In the long run, mothers with unwanted births are less likely to feel strong affection for their adolescent and adult children and provide less assistance than other mothers do when they need help or advice. In fact, Barber and colleagues found

that if any child in the family is born as the result of an unwanted pregnancy, all of the children in the family have an increased likelihood of having a poor relationship with their mother. The authors cite earlier studies finding that poor relationships, in turn, are associated with “psychological distress among both parents and children, learning disabilities and anxiety disorders in children, withdrawn behavior in daughters, and aggressive behavior in sons,” and also with an impeded socialization process for children, with implications for children’s educational and occupational attainment, self-esteem and marital relationships later in life.⁶² Additional research has found that parents of children resulting from an unintended pregnancy display what the authors characterize as “less favorable” parenting styles.⁵⁴

Parental Investments

Another way in which access to contraception may affect children’s outcomes is that parents with several or closely spaced children may find their time, energy and resources stretched thin. That includes time for reading, playing and helping their children with their school work; educational resources, such as books and computers; and economic and emotional support for their children when they leave home.

A 1995 study by Downey explored the theory that having multiple children may dilute the resources parents can devote to any given child.⁷² The study found evidence of this effect among eighth graders with regard to nine different categories of resources, including how often parents talk to their child about school, how well parents know their child’s friends, whether they have computers and other educational tools in the home, and the amount of money they have saved for their child to attend college. Resources that depend on a financial investment were generally found to see more of a decline with each additional child than were resources that depend on an investment of time and attention. Similarly, a more recent study by Frenette looked at Canadian adolescents and found that larger family size is linked to less investment in each child’s education, including fewer computers in the home per child, less money saved per child for education and a smaller chance of the child attending private school.⁷³

Close spacing appears to heighten resource constraints. Apart from the impact of family size, having siblings within two years of each other substantially reduces the likelihood that children will attend private school, have newspapers and other educational materials in the home, talk to their parents frequently about school and view their mothers as having positive aspirations for their educational future.⁷⁴ In a separate study, the same authors link

both the spacing and number of children in a family to the amount of financial assistance parents provide to their children as they make the transition to adulthood; the connection with close spacing was found to be particularly strong within smaller families.⁷⁵ They speculate that “spacing may have this impact because the family can recover more rapidly from financial setbacks or can plan more effectively for financial contingencies if time intervals between children are longer.”

Children’s Mental and Behavioral Development

By enabling individuals to prepare themselves for parenthood and invest in their children, access to contraception has the potential to influence a child’s mental and behavioral development. That development is crucial, because it can influence children’s educational attainment, their employment prospects later in life, and other critical goals and milestones.

Children of teenage mothers have long been known to be at increased risk for poor developmental outcomes. A 1986 review by Brooks-Gunn and Furstenberg, for example, found evidence that there are intellectual differences between the children of teen and older mothers that start out small in the preschool years and grow larger by elementary school age.⁷⁶ They also found evidence of behavioral differences; for example, they found that the children of teen mothers, particularly boys, display higher levels of aggression and less control of their behavior, compared with children born to older mothers. Similar findings have been seen in more recent studies, with children of teen mothers lagging behind their peers at age two in terms of behavioral and cognitive development⁴⁶ and being more prone to risky behaviors, such as fighting, truancy and smoking.⁷⁷ Several studies, however, argue that some, or even all, of the apparent impact of teen childbearing on children is actually due to differences in parents’ family background or current economic characteristics, rather than the mother’s age in itself (see *Complicating Factors*, page 26).⁷⁸

Unintended pregnancy has also been tied, at least tentatively, to child development. A literature review by Gipson and colleagues, for example, identified some disadvantages in social and intellectual development among children of unintended pregnancies, although those findings diminish when factoring in other family characteristics.⁵⁴ The father’s pregnancy intentions appear to have a small but significant link to toddlers’ mental proficiency and attachment security (their bond with their parents), independent of the mother’s pregnancy intentions.⁵¹ One long-term study found that parents’ childbearing intentions may influence their children’s self-esteem even as young

KEY FINDINGS ON THE WELL-BEING OF CHILDREN

There is strong evidence that:

- Individuals are particularly likely to start off unprepared to be parents and to develop a poor relationship with their children if they become parents as teenagers or if the birth of a child is unplanned.
- Parents' economic and emotional investments in each child are increasingly constrained as family size increases and are limited by close childspacing.

There is somewhat less evidence that:

- Compromised mental and behavioral development among children is linked to early childbearing, unintended pregnancy and close spacing of children.
- Reduced educational attainment among children is connected to early childbearing, large family size and close spacing of children, in part through these factors' influence on parental behavior and investment.

adults, perhaps because of decreased support and investment throughout those children's lives.⁷⁹ By contrast, Joyce and colleagues found little relationship between unintended pregnancy and children's cognitive outcomes.⁸⁰

There is some evidence that family size and spacing can also influence child development. Powell and Steelman, notably, found that after controlling for background factors, larger family size and close spacing were both linked to an increased likelihood that a child will display a learning disability.⁷⁴ A more recent study by Hayes and colleagues demonstrates that children born within two years of a sibling are particularly likely to fail an assessment of their readiness to begin elementary school.⁸¹

Children's Educational Attainment

Researchers have long studied the link between childbearing patterns (such as teen pregnancy and family size and spacing) and children's educational achievement. Succeeding in school is often highly valued in its own right and is a central predictor of an individual's future economic success.

A 2009 study by Miller, for example, found a strong relationship between a mother's age and her children's math and reading test scores.⁸² This study found that waiting 10

years before having a child appears to improve children's test scores as much as the mother's having a college degree would (compared with dropping out of high school). Earlier studies explored the relationship between teen motherhood and children's educational outcomes, including dropping out of school and repeating a grade, but found little evidence that teen pregnancy itself was the root cause; rather, many of them concluded that the mother's family background and history of disadvantage accounted for much or all of the disparities they identified.^{28,77, 83-84}

Family size and spacing has also been tied to educational achievement. Downey, for example, described a long history of studies documenting a relationship between family size and such outcomes as grades and test scores, years of education attained, and the probability of graduating high school and of entering and graduating college.⁷² His study found that the resources parents devote to their children's education—such as how often they talk with their children about school, their expectations for their children's education and the money they save for their children to attend college—are driving factors behind this relationship. Notably, many of these resources are typically both less available and less effective in improving educational outcomes the more children there are to share them.

Powell and Steelman also found that close spacing has a strong negative relationship with grades and test scores. Their evidence indicates that close spacing increases the odds that a child will drop out of high school and reduces the odds that he or she will attend a postsecondary school.⁷⁴ They, too, conclude that parental investment goes a long way toward explaining these relationships.

Complicating Factors

Alternative Hypotheses

While existing research finds evidence of myriad benefits of planning and delaying childbearing, there is some disagreement about the true driving factors behind the negative life consequences commonly linked to unplanned and teen births. Assessing whether some groups benefit more than others from contraceptive access and delayed childbirth is complicated by the fact that characteristics such as family income and race are important predictors of contraceptive access and social and economic outcomes in their own right. Low-income women and women of color are particularly likely to become pregnant as teenagers and to experience unintended pregnancy in general; they are also particularly likely to experience poor socioeconomic outcomes and other impediments to individual and family well-being, regardless of pregnancy timing.

Disagreements are particularly prominent in the literature on the potential impacts of having a child as a teenager. Fletcher and Wolfe specifically stressed the difficulty of fully accounting for the many individual, familial and community variables that influence this relationship and the “difficulty of estimating [teen pregnancy’s] causal effects.”²⁴ As detailed by Hofferth and colleagues, there are those whose studies provide evidence that teenage childbearing leads to significantly diminished educational and job opportunities, while others counter that the apparent negative impacts of teenage childbearing are largely or entirely the result of differences in mothers’ background characteristics.²³

Researchers who argue that the negative impacts of teenage childbearing have been overestimated hypothesize that many teens who have children are predisposed to experience poorer socioeconomic outcomes and have less to lose economically in giving birth early in life than do their more advantaged peers.^{25,38,46,47} For instance, Hotz and colleagues’ 2005 study on the first cohorts of women who gained access to the pill, which made use of a natural experiment by comparing women who had given birth with women who had had a miscarriage, found that the adverse educational, workforce and economic outcomes typically associated with having a child as a teenager are largely both less significant and more short-lived than the

connections found in other studies.²⁵

Yet, such findings are far from clear-cut. For example, Hotz and colleagues found no negative effect of having a child as a teen on high school completion, but Fletcher and Wolfe, using a similar methodology, did find evidence of a substantial effect from teen motherhood.²⁴ Hotz and colleagues’ methodology has been called into question by Ashcraft and colleagues, who note in their working paper that “one potential concern with the strategy [of comparing women who gave birth with those who had a miscarriage] is that miscarriage may not be random”; however, they too found no effect of having a child as a teenager on young women’s likelihood of graduating from high school.²⁶

This same debate has played out in research on the potential connections between teen pregnancy and outcomes among children. As described in the chapter on children’s well-being, teen mothers score lower than other parents on assessments of their parenting behaviors and their relationship with their children, and the children of teen mothers are particularly likely to experience poor developmental and educational outcomes. Yet, several researchers have advanced the theory that economic disadvantage, rather than teen motherhood itself, is primarily responsible for these results.^{77, 83} In fact, several authors find evidence that maternal age has no causal effect at all. Geronimus and colleagues pioneered this alternative theory, comparing sets of first cousins where one mother gave birth as a teen and others had first births after their teen years. They found no differences in a variety of developmental and educational outcomes between these sets of cousins, suggesting that it is a mother’s familial background, rather than her age, that matters.⁷⁸ Turley found similar results in comparing test scores and behavioral problems among children born to sisters.⁸⁴

While these alternate hypotheses call into question the relative importance of teen childbearing, the weight of the evidence indicates it does have some impact on women’s social and economic outcomes and those of their families. Moreover, the collective body of literature suggests an interconnected and cyclical relationship between the timing and spacing of pregnancies on the one hand and educational, professional and relationship outcomes

on the other. These cycles extend across generations, because all of these factors—contraceptive use, as well as parents' educational and economic achievements, the stability of their relationships, and their mental health and happiness—are important predictors of children's well-being. Additional research is needed to further explore these types of complexities.

Gaps in the Literature

Despite the considerable body of literature on the social and economic benefits of women's consistent access to effective contraception, substantial gaps remain. Most of the studies included in this review focus on the average impact of contraceptive access or of pregnancy planning outcomes, such as unintended pregnancy and birthspacing, on women and their families. Few studies delve deeply into the impact of planning, or not planning, one's family on people on the margins. Those that do so indicate that contraceptive access or unintended pregnancy may influence different women in different ways, according to their income, race and ethnicity, marital status and other characteristics. Young women who start out disadvantaged—for example, without many individual or familial economic resources—may benefit most from completing their education and may be least able to achieve income and relationship stability when facing the demands of teen motherhood. Single mothers, who do not have the benefit of sharing expenses and the time and emotional demands of parenthood with a partner, may have less ability than do other mothers to invest in their own education and to pursue high-income careers with employers supportive of working mothers.

More research is needed to identify how and why these and other disparities persist, particularly across generations. Such research could explore how the impact of women's reproductive choices and contraceptive access is shaped by the particular expectations, challenges and opportunities faced by disadvantaged women and men. For instance, compared with their higher income counterparts, lower income women may not have the resources to experiment with different contraceptive methods to identify the one they can use most effectively, and they may have a harder time getting back on track with their education or career path after an unplanned birth. Disadvantaged individuals may also face particular stigma in the eyes of educators and employers in becoming a parent when young or unmarried, and may find their opportunities limited to part-time and low-benefit jobs that do not give them the freedom and support needed to be financially successful and happy as a working parent.

Research that draws on historical data to look at the

impact of contraceptive use at a time when it was not nearly as common as it is today has additional, specific limitations. The introduction of the pill in the United States happened around the same time as other important social changes, including the women's rights and civil right movements, expansions to the government safety net and, by the early 1970s, the legalization of abortion. All of these changes could have had significant effects on women's education, jobs, income, marriage, happiness and children. In fact, historical studies of the various effects of the pill acknowledge that without the context of broader social change, the pill likely would not have had the influence it did. Additionally, Goldin and Katz's methodology isolated the impact of contraceptive access on educational and economic outcomes by using the natural experiment established through changing state laws in the late 1960s and early 1970s that gave some groups of young women legal access to contraception before age 21. In only looking at differences in contraceptive access before age 21, however, this methodology can provide little evidence about the impact of older adult women's contraceptive use on their social and economic outcomes.

Despite the many assessments of how the initial legalization of the pill affected women's social and economic outcomes, continued research in this area is inherently problematic because contraceptive use has now become so common in the United States. Unlike in the past, when there were widespread disparities among who could gain any access to effective contraception, inequities today around contraceptive use center on access to the full range of methods—especially those that are highly effective but have high up-front costs—and on the consistent and correct use of one's chosen method. And although a growing body of evidence examines why access to contraceptives does not necessarily translate into correct or consistent use—a pattern that is mediated by factors including cultural influences, health literacy and drug side effects^{13,14}—there remain questions as to why contraceptive use may not benefit all women equally in terms of opportunities for education, employment, income or familial stability. We identified no studies looking at the links between method choice or effective method use and social or economic outcomes.

Instead, much of the contemporary literature looks to the potential consequences of contraceptive failure or nonuse. All of these consequences have their own limitations as the objects of research. Close pregnancy spacing, for example, has clear health, social and economic consequences for children and families, but many U.S. couples choose to closely space their children. In theory, couples who make that choice may be more likely to have the

resources and ability to mitigate any potential harm than would couples who have unplanned, closely spaced births, but that theory has not been tested in the literature. Similarly, studying unintended pregnancy has its own complications. For example, women's pregnancy intentions are typically measured after the fact, a problem identified by numerous studies in this area. That could lead to biased findings because women experiencing better outcomes after giving birth may be particularly likely to retroactively declare their pregnancy to have been wanted.

Discussion

The social and economic benefits of contraceptive access and consistent use are no secret to U.S. women. Indeed, in a recent Guttmacher Institute survey of women seeking contraceptive services, a majority said that over the course of their lives, access to contraception had allowed them to take better care of themselves or their families (63%), support themselves financially (56%), complete their education (51%), or keep or get a job (50%).⁶⁸

This review of the existing evidence confirms women's belief that contraception matters in these myriad ways. The literature provides a good deal of evidence that the ability to plan whether and when to have children, and the use of contraception as a driver of such planning, has numerous important social and economic benefits for U.S. women and their families.

These benefits start with educational attainment. Research indicates that teen pregnancy interferes with young women's ability to graduate from high school and to enroll in and graduate from college. Indeed, research has linked states' granting young women legal access to the pill before they made lifelong decisions about education, employment and marriage to substantial historical increases in their pursuit of college and advanced professional degrees.

Because higher degrees of education often lead to more financially desirable jobs, access to effective contraception has also helped improve women's status and participation in the labor force. Specifically, young women's legal access to the pill contributed historically to the trend of more women pursuing paid, full-time jobs, including career trajectories with higher pay and prestige. Planning, delaying and spacing one's children generally appear to help women achieve their career goals.

Because access to and use of reliable contraception has helped women invest in their education and in financially desirable careers, it has also contributed to their increased earning power and a narrowing of the gender gap in pay. By delaying the birth of a first child, working mothers can reduce the degree to which they are paid less than their childless peers, and they can reduce their chances of having to rely on public assistance.

The impact of planning a pregnancy and childbirth also extends to the realm of marriage and relationships.

Historically, the advent of the pill was an important factor behind the U.S. trend toward later marriage, and it helped women enter into marriages that were more economically desirable and more likely to endure. Today, research indicates that unplanned births are tied to increased conflict and decreased satisfaction in relationships, and ultimately with elevated odds that a relationship will fail.

Given its connections to so many central aspects of women's lives, it makes sense that the ability to successfully determine whether and when to have children also plays a part in an individual's mental health and happiness. Women and men who experience unplanned births appear particularly likely to experience depression, anxiety and lower reported levels of happiness. Early childbearing is also linked to lower levels of happiness. Contraceptive access and consistent method use may also affect these outcomes by allowing couples to plan the number of children in their family, though the impact of family size may differ across cultures and over the course of one's life.

Finally, contraceptive use and pregnancy planning have implications for the well-being of the next generation. Research indicates that people are less likely to be prepared for parenthood and to develop a positive relationship with their children if they become parents as teenagers or have an unplanned birth than otherwise. Close birth spacing and larger family size are linked with decreased parental investment in their children. All of this, in turn, may influence mental and behavioral development and educational achievement.

Unfortunately, judging from the limited number of studies that explore differences across groups of women, it does not appear that all U.S. women have benefited equally from access to contraception. Being able to plan whether and when to have children, for example, has not benefited low-income women and women of color in terms of their education as greatly as it has benefited their higher-income and white counterparts. Similarly, because lower-income and single mothers with lower levels of education may have less freedom in their choices of when and where to work than do other women, their job security does not benefit as much from contraceptive access.

Because not all women have shared equally in the so-

cial and economic benefits of contraception, there is more work to be done in implementing programs and policies that support improved contraceptive use. The current U.S. investment in family planning is not enough: That effort is only able to meet 54% of the need nationally for publicly funded family planning care, and the budgets of the nation's network of more than 8,000 family planning centers have been stretched thin.

The Patient Protection and Affordable Care Act (ACA) of 2010 may go a long way toward eliminating that unmet need for affordable contraceptive services, still disproportionately borne by low-income women and women of color. The ACA, if fully implemented, has the potential to extend comprehensive health coverage to more than 30 million individuals who would otherwise be uninsured, through expanded eligibility for Medicaid and other public insurance programs and through federal subsidies to purchase private insurance on new health insurance "exchanges." Moreover, the ACA requires most private plans to cover a full range of contraceptive methods, counseling and services without out-of-pocket costs.

Combined, these provisions are expected to eliminate the financial barriers millions of women have long faced in choosing the method that they can use most effectively, barriers that are particularly daunting for low-income women. A 2012 study by Hall and colleagues, for example, found that women with health insurance are much more likely than uninsured women to use sexual or reproductive health services, including contraceptive care.⁸⁵ Moreover, eliminating out-of-pocket costs should make coverage even more effective. A recent pilot program in the St. Louis area that gave women the option of any contraceptive method without out-of-pocket costs resulted in dramatic increases in the use of the most effective reversible methods, IUDs and implants, and substantial reductions in unintended pregnancy.⁸⁶

The social and economic benefits of contraceptive access also present an argument for continued and enhanced investment in the national network of safety-net family planning centers that millions of low-income women rely upon for their care. The ACA should mean that more of the clients these providers serve will be insured, but additional grant funding, such as Title X and state-funded grants, will also be needed. Indeed, the experience in Massachusetts, which began its own health reform experiment several years before the ACA, has demonstrated that the need for safety-net funding and health centers may even intensify as health care reform is fully implemented.⁸⁷

Moreover, safety-net centers will be needed because the expansions in insurance coverage under the ACA

are by no means guaranteed. Notably, the U.S. Supreme Court, in its 2012 decision upholding the law overall, ruled that the federal government could not enforce the requirement that all states expand their Medicaid programs to cover Americans with incomes up to 138% of the federal poverty level—a requirement that was expected to account for about half of all the gains in U.S. insurance coverage under the law. In states that choose not to expand Medicaid, at least initially, millions of their most disadvantaged residents may be left with no affordable insurance options. This would expand the already sizable and persistent economic, racial, ethnic and geographic inequities in access to coverage and care—inequities that safety-net family planning centers exist to redress.

Although this literature review did not directly assess the benefits of abortion, it should be noted that its findings support expanded access to abortion in addition to contraception. The social and economic harms associated with unplanned pregnancy are all specifically associated with unplanned births. Indeed, several historical studies on outcomes associated with access to the pill considered abortion as another possible driver of educational and workforce trends. They found abortion to be an important option, especially for low-income women, as a single abortion was less expensive than ongoing use of the pill.^{9,19,24} The reasons women give for having an abortion are quite similar to those they give for using contraception; for example, three-quarters of women seeking an abortion say that having a baby would interfere with work, school or the ability to care for dependents.⁸⁸ While contraception will always remain the primary method of ensuring that all births are wanted ones, abortion is an important secondary method of helping women and couples achieve that goal and should be treated as an integral part of comprehensive women's health care.

Beyond reproductive health, the findings of this review lend credence to a wide range of other government policies intended to mitigate the social and economic harms of unintended pregnancy and to fully support women's and couples' reproductive choices. Many such policies and programs are already in place, including laws prohibiting discrimination in education on the basis of sex, pregnancy and parenthood; requirements to provide unpaid parental leave to some workers; welfare programs that provide financial support and nutrition assistance to families with children; and government policies to prevent family violence and abuse and to support the long-term welfare of children. Yet more should be done. For example, many authors who have studied the impact of contraceptive access on women's income suggest additional policies—such as paid maternity leave, child care subsidies and flex-

ible work hours—could help mothers, particularly those in lower-paying and part-time jobs, continue their careers and mitigate the loss of work and income that typically comes with having children.^{37, 41} Moreover, existing safety-net programs—well beyond family planning—have found themselves stretched thin by funding cuts and increasing levels of poverty and need. Unless that is rectified, the most disadvantaged will find it increasingly difficult to escape from poverty or to help their children do so.

One policy intervention that often brings many of these streams together is comprehensive sex education. Many of the most effective curricula and programs not only provide information about contraception, abstinence, pregnancy and sex, but also aim to bolster students' life and relationship skills and increase their sense of personal responsibility. Grantees under the federal Personal Responsibility Education Program, for example, teach adolescents about a variety of subjects to prepare them for adulthood, including healthy relationships and positive self-esteem; life skills such as goal setting, decision making, negotiation and communication; and career skills, such as for employment preparation, job-seeking, workplace productivity and financial self-sufficiency. These programs are based on the recognition that reproductive health and social and economic outcomes are intrinsically linked, both in their effects and in the skills and knowledge needed to avoid harm and achieve success. Another intervention that could help on multiple fronts is the establishment school-based health centers, which can provide a wide range of health care services and information, often including reproductive health care. School-based health centers can be particularly valuable for disadvantaged teens because of their accessibility and affordability.

Clearly, access to reproductive health care and the recognition of reproductive rights cannot be addressed in isolation from the rest of an individual's life, or from the rest of society's inequities. Rather, policies and programs that advance contraceptive access and those that affect whether a woman is still able to achieve her life goals if and when she becomes a mother should be considered as part of a greater whole. By helping women and couples, regardless of background or income, determine and exercise their own reproductive choices, government and organizational policies can help advance broader economic equality and social justice for individual women, families and society.

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Amuedo-Dorantes C and Kimmel J (2005)	Longitudinal study of college-educated women; United States; National Longitudinal Survey of Youth (1979–2000)	Predictors: Age at first birth, childbearing Outcomes: Wage earnings	“College-educated mothers do not experience a motherhood wage penalty [and they experience] a wage boost when compared to college-educated childless women.” “Fertility delay enhances this wage boost even further.”
Ananat EO and Hungerman DM (2012)	Cross-sectional and longitudinal study of women; United States; Census (1980)	Predictors: Early access to the pill Outcomes: Short-term fertility, family characteristics (welfare receipt, single parenthood, living in poverty, low birth weight), human capital, marital capital, abortion rates	“Early access to the pill increased the likelihood that a child had a college-educated, married mother.” “Reductions in abortion rates [suggest] the pill reduced pregnancies even more than it reduced births. These pregnancy declines were temporary; over the long-term, the pill had no effect on total childbearing.”
Ashcraft A, Fernandez-Val I and Lang K (2012; working paper)	Cross-sectional study of women who became pregnant as a teenager (n=1,913); United States; National Survey of Family Growth (1995)	Predictors: Teenager at first birth Outcomes: Years of education, high school diploma/GED, marital status, work force participation, annual earnings, total family income, poverty status	“The estimated causal effects of giving birth [as a teenager] are consistently adverse but generally negligible.” “There is no difference in the probability of having a high school diploma and only about one-sixth year difference in average education, although there is a four or five percentage point difference in the probability of having a GED.” “Teen mothers are less likely to be working, by about five percentage points. On average, they work about four fewer hours per week, compared with a mean of twenty-four. They also earn about \$1,200 less if working or about 6% less than the overall mean.”
Axinn WG, Barber JS and Thornton A (1998)	Longitudinal study of mothers with children (n=867); Detroit (1961–1984)	Predictors: Unintended childbearing Outcomes: Children’s self-esteem	“Children who were unintended by their mothers have significantly lower self-esteem 23 years later [compared with children resulting from intended pregnancies].”
Bailey MJ (2006)	Cross-sectional study of women born in 1935–1960; United States; June and March supplements, Current Population Survey (1964–2001)	Predictors: Early access to the pill through marriage Outcomes: Labor force participation	“Legal access to the pill before age 21 significantly reduced the likelihood of a first birth before age 22, increased the number of women in the paid labor force, and raised the number of annual hours worked.”
Bailey MJ, Hershbein B and Miller AR (2012)	Longitudinal study of women born in 1943–1953; United States; National Longitudinal Survey of Young Women (1968)	Predictors: Early legal access to the pill Outcomes: Wage earnings, human capital investment	“Early access to the Pill lowered women’s wages in their early twenties...but raised their wages in their thirties and forties....By their late forties, women with early access to the Pill earned a statistically significant hourly premium of 8 percent—enough to account for between a third and half of the total hourly wage gains for these cohorts over their peers born a decade earlier.”

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Barber JS, Axinn WG and Thornton A (1999)	<p>Longitudinal study of mother-child pairs (n=1,113); United States; Intergenerational Panel Study of Mothers and Children (1961–1992)</p> <p>Cross-sectional study of women with at least one child under the age of 18 (n=2,162); United States; National Survey of Families and Households (1987–1988)</p>	<p>Predictors: Unwanted childbearing</p> <p>Outcomes: Mother-child relationship, mother’s mental health</p>	<p>“Mothers with unwanted births have lower quality relationships with their children from late adolescence (age 18) throughout early adulthood (ages 23 and 31). Furthermore, these lower quality relationships are not limited to the child born as a result of the unwanted pregnancy; all the children in the family suffer.”</p> <p>“Mothers with unwanted births suffer from higher levels of depression and lower levels of happiness [and they] spank their young children more and spend less leisure time with them.”</p>
Blackburn ML, Bloom DE and Neumark D (1993)	Longitudinal study of working women (n=1,210) aged 28–38; United States; National Longitudinal Survey of Young Women (1968–1982)	<p>Predictors: Age at first birth</p> <p>Outcomes: Wage earnings</p>	“Late childbearers will tend to invest more heavily in human capital than early childbearers....Fertility timing is strongly associated with differences in wages, as well as differences in education, experience, and tenure. The wage differences are largely explained by differences in these latter variables.”
Bronte-Tinkew J, Scott ME and Horowitz A (2009)	Longitudinal study of biological fathers at nine months and 24 months postbirth (n=5,300); United States; Early Childhood Longitudinal Study—Birth Cohort (2001, 2003–2004)	<p>Predictors: Men’s pregnancy intentions</p> <p>Outcomes: Child’s mental proficiency, attachment security</p>	“Unwanted and mistimed pregnancies for fathers had negative consequences for toddlers’ mental proficiency and attachment security.”
Buckles K (2008)	Longitudinal study of women (n=2,401); United States; National Longitudinal Survey of Youth (1979–2004)	<p>Predictors: Age at first birth</p> <p>Outcomes: Wage earnings</p>	<p>“There is a wage penalty to motherhood that increases with time since the birth, and...these penalties are greatest for high-skilled women. However, this effect is attenuated for women who delay childbirth.”</p> <p>“ Women who delay [their first birth] are more skilled, more educated, more likely to be in professional or managerial careers, and have more experience.”</p>
Chandler TD, Kamo Y and Werber JD (1994)	Cross-sectional study of married men (n=1,997) and women (n=1,670) with full-time employment; United States; National Survey of Families and Households (1987–1988)	<p>Predictors: Age at first birth</p> <p>Outcomes: Wage earnings</p>	<p>“Delaying childbirth increases the wages of married women with children.”</p> <p>“Married men who delayed the birth of their first child earn significantly higher wages for several years after becoming a father. However, the wage benefits to men who delay childbirth erode over time.”</p>
Christensen F (2012)	Cross-sectional study of women born in 1935–1960 whose first marriage occurred at age 18–27; United States; National Survey of Families and Households (1987–1988)	<p>Predictors: Early access to the pill</p> <p>Outcomes: Cohabitation before marriage, age at first marriage</p>	“Early legal access to the pill played a significant role in making pre-marital cohabitation a more common experience among young women. [Early legal access] to the pill delays marriage but has no lasting effect on the probability a woman eventually marries.”
Correll SJ, Stephen B and Paik I (2007)	Laboratory experiment of male and female undergraduate volunteers playing job applicants with different parent statuses (n=192); United States	<p>Predictors: Parenthood</p> <p>Outcomes: Discrimination at the point of hire, salaries</p>	<p>“Evaluators rated mothers as less competent and committed to paid work than nonmothers, and consequently, discriminated against mothers when making hiring and salary decisions.”</p> <p>“Fathers were advantaged over childless men in several ways, being seen as more committed to paid work and being offered higher starting salaries.”</p>

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Cox MJ et al. (1999)	Longitudinal study of married couples with children (n=136); Southeastern United States	Predictors: Pregnancy planning, sex of the child, depression, marital satisfaction, spousal interaction Outcomes: Marital satisfaction	“Couples with unplanned pregnancies showed decreases in marital satisfaction relative to those with planned pregnancies. This was true for both husbands and wives, even when controlling for other variables that might be related to planning, such as the individual’s depressive symptoms, age, and education.” “When the pregnancy was unplanned, both husbands and wives exhibited lower levels of positive marital interaction, compared with [those] who had planned the pregnancy.”
Dillard KD and Pol LG (1982)	Cross-sectional study of women; United States; multiple data sources, including Current Population Reports (1978)	Predictors: Teenager at first birth Outcomes: Educational attainment, labor force participation, fertility, wages	“Long-term consequences of early childbearing [include] loss of education, higher subsequent fertility, low labor force participation and reduced earnings.” “Children born to teenagers were substantially more expensive than those born to women who delay first births until their twenties.”
Downey DB (1995)	Longitudinal study of eighth graders (n=24,559); United States; National Education Longitudinal Study (1988)	Predictors: Number of siblings Outcomes: Educational performance, interpersonal resources, economic resources	“Availability of parental resources decreases as the number of siblings increases, net of controls.” “Parental resources explain most or all of the inverse relationship between [number of siblings] and educational outcomes....Children benefit less from certain parental resources when they have many versus few siblings.”
Edlund L and Machado C (2010; working paper)	Cross-sectional study of women aged 31–45 who married at age 18–20; United States; Census data, 5% sample of the Integrated Public Use Microdata Series (IPUMS; 1980 and 1990)	Predictors: Early access to the pill through marriage Outcomes: Some college attendance, college completion, occupational outcomes	“Women with early access [to the pill] through marriage were more likely to have some years of college and to be in professional occupations (excluding teachers and nurses).”
Edlund L and Machado C (2011; working paper)	Cross-sectional study of women born in 1935–1959; United States; Current Population Survey (1977–1995)	Predictors: Early access to the pill through marriage Outcomes: Some college attendance, college completion, occupational outcomes, fertility, divorce	“[Early marriage laws] precipitated marriage, delayed fertility within marriage, and improved the educational and occupational outcomes of women, especially non-college women.”
Ermisch J and Pevalin D (2005)	Longitudinal study of women who experienced pregnancy as a teenager (n=840); United Kingdom; British Cohort Study (1970–2000)	Predictors: Teenager at first birth Outcomes: Marital outcomes	“Results suggest that teen-birth causes a woman to fare worse in the marriage market, greatly increasing her chances of partnering with poorly educated and unemployment-prone men.”
Fletcher JM and Wolfe BL (2009)	Longitudinal study of women with a first pregnancy by age 18 (n=1,054); United States; National Longitudinal Study of Adolescent Health (1995)	Predictors: Teenager at first birth Outcomes: High school diploma, GED, years of education, welfare receipt, wages, total income	“Teenage childbearing likely reduces the probability of receiving a high school diploma by 5 to 10 percentage points, reduces annual income as a young adult by \$1,000 to \$2,400, and may increase the probability of receiving cash assistance and decrease years of schooling.”

Appendix: Individual Studies

Study	Sample	Variables measured	Key findings (quoted from original sources)
Frenette M (2011)	Cross-sectional study of 15-year-olds with at least one sibling (n=15,429); Canada; Youth in Transition Survey matched with data from Programme for International Student Assessment (1999)	Predictors: Number of siblings, birth order Outcomes: Test scores, parent investment in child's education	"Examining a...range of parental investments (overall and non-sectarian private school enrolment, the number of computers in the home per child, and saving for the child's education)...the evidence suggests a strong negative relationship between fertility and each measure."
Frost JJ and Lindberg LD (2012)	Cross-sectional study of women seeking services at family planning clinics (n=2,094); United States; Survey of Clinic Clients (2011)	Predictors: Contraceptive use to prevent pregnancy Outcomes: Ability to take care of self or others, financial stability, educational attainment, career	"Respondents reported that birth control use had allowed them to take better care of themselves or their families (63%), support themselves financially (56%), complete their education (51%), or keep or get a job (50%)." "Young women, unmarried women and those without children reported more reasons for using contraception than others. Not being able to afford a baby, not being ready for children, feeling that having a baby would interrupt their goals and wanting to maintain control in their lives were the most commonly reported very important reasons for using birth control."
Furstenberg FF, Brooks-Gunn J and Morgan SP (1987)	Longitudinal study of primarily urban black women who gave birth as teenagers (n=322); Baltimore (1966–1984)	Predictors: Teenager at first birth Outcomes: Years of schooling, high school completion, marriage, fertility, use of public assistance, child development	"Teenage childbearing lowered the women's likelihood of economic success and increased their likelihood of having a large family. However, the women who had more economically secure and better-educated parents were more likely to succeed."
Geronimus AT and Sanders K (1992)	Longitudinal study of women with children and at least one sister surveyed; United States; "(n=318) National Longitudinal Survey Young Women's Sample (1968–1982) "(n=348) Panel Study of Income Dynamics (1968–1989) "(n=680) National Longitudinal Survey Youth (1979–1988)	Predictors: Teenager at first birth Outcomes: Total family income, income-to-needs ratio, poverty status, welfare status, high school completion, employment, marital status	"Within-family estimates suggest that the standard cross-sectional approaches to studying the effects of teen childbearing on future socioeconomic well-being overstate the costs of teen childbearing." "Observed differences in socioeconomic status result from exogenously determined differences in women's fertility timing."
Geronimus AT, Korenman S and Hillenmeier MM (1994)	Longitudinal study of children with at least one first cousin in the sample (n=1,764); United States; National Longitudinal Survey of Youth (1986, 1988, 1990)	Predictors: Age at first birth, birth order Outcomes: Test scores, home environment, behavior problems	"Children of teen mothers appear to fare no worse on developmental indicators than their cousins whose mothers postponed childbearing." "The lower performance observed among children with teen mothers may reflect their mothers' pre-childbearing characteristics, or test biases, rather than the effects of a teen birth."

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Goldin C and Katz LF (2002)	Longitudinal study of women; United States; Census IPUMS 1% sample, National Longitudinal Survey of Youth (1980)	Predictors: Early access to the pill Outcomes: Age at first marriage, professional outcomes, enrollment in professional degree programs, divorce	“Initial diffusion [of the pill] among single women coincided with, and is analytically related to, the increase in the age at first marriage and the increase in women in professional degree programs.” “The timing of greater pill use among cohorts of college graduate women coincided with the increase in the age at first marriage and the initial increase of female first-year students in professional programs, such as law, medicine, dentistry, and business administration.”
Guzzo KB and Hayford SR (2012)	Cross-sectional study of women (n=2,114) with at least one child who were married or cohabitating at the time of the first birth; United States; National Survey of Family Growth (2002)	Predictors: Intendedness of first birth Outcomes: Union dissolution	“Couples with an unintended first birth are more likely to break up than those with an intended first birth, with those who disagree over birth intendedness falling in the middle. These associations persist even when controlling for individual and couple factors and accounting for subsequent fertility among couples who stayed together long enough to have additional children.”
Hayes H et al. (2006)	Cross-sectional study of children (n=6,915); South Carolina; Medicaid records, Cognitive Skills Assessment Battery scores (2000)	Predictors: Birth spacing Outcomes: School readiness	“Birth interval is a significant predictor of school readiness...even after controlling for various socio-demographic factors.” “Children born with inadequate birth intervals (less than 24 months) are more likely to fail the Cognitive Skills Assessment Battery compared with those with adequate birth intervals.”
Henretta C et al. (2008)	Cross-sectional study of women with children born in 1946 (n=1,062); Great Britain; MRC National Survey of Health and Development (1999) Cross-sectional study of women with children born in 1931–1941 (n=4,430); United States; U.S. Health and Retirement Study (1992)	Predictors: Age at first birth Outcomes: Mental health	“A first birth before 21 years, compared to a later first birth, is associated with poorer mental health.” “The association between early first birth and poorer mental health persists in the British study even after controlling for early socioeconomic status, midlife socioeconomic status and midlife health.” “In the U.S. sample, the association becomes non-significant after controlling for educational attainment.”
Herr JL (2007; working paper)	Longitudinal study of married women who had first child after entering the labor force (n=912); United States; National Longitudinal Survey of Youth (1979–2004)	Predictors: Age at first birth Outcomes: Wage growth	“A one-year delay [in childbearing] increases women’s wage growth over the first 15 years after labor market entry by 3 percent, or up to 5 percent among the college educated.” “The effect is not only stronger among the more educated, but also more permanent.”
Hock H (2008; working paper)	Cross-sectional study of women aged 21–22 (n=28,689); United States; October supplements of Current Population Survey (1968–1979)	Predictors: Early access to the pill Outcomes: College enrollment, college dropout rates, college completion	“Unconstrained access to the pill increased female college enrollment rates by over 2 percentage points and reduced the dropout rate by over 5 percentage points.” “Early pill access led to a rise in college completion of approximately three quarters of a percentage point among women over the age of thirty.” “Male educational opportunities also improved due to reductions in undesired early fertility among their female partners.”

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Hofferth SL, Reid L and Mott FL (2001)	<p>Longitudinal study of women (n=4,013); United States; National Longitudinal Survey of the Labor Market Experience of Youth (1986–1994);</p> <p>Longitudinal study of women (n=3,562); United States; Panel Study of Income Dynamics (1968–1995)</p>	<p>Predictors: Age at first birth</p> <p>Outcomes: High school completion, college enrollment, years of completed schooling</p>	<p>“There is a significant negative impact of a teenage birth on rates and years of completed schooling....[T]eenage mothers complete 1.9–2.2 fewer years of education than do women who delay their first birth until age 30 or older.”</p> <p>“Compared with women who give birth at age 30 or older, teenage mothers have odds of high school completion 10–12% as high and odds of postsecondary schooling 14–29% as high.”</p> <p>“Gap between early and later childbearers in postsecondary school attendance widened from 27 to 44 percentage points between the early 1960s and the early 1990s.”</p>
Hotz VJ, Williams McElroy S and Sanders SG (2005)	<p>Longitudinal study of women (n=4,926); United States; National Longitudinal Survey of Youth (1979)</p>	<p>Predictors: Teenager at first birth</p> <p>Outcomes: Wage earnings, annual hours of work, high school diploma/GED, marriage, future fertility, poverty, public assistance</p>	<p>“Many of the negative consequences of teenage childbearing are much smaller than those found in previous studies. For most outcomes, the adverse consequences of early childbearing are short-lived.”</p> <p>“For annual hours of work and earnings...a teen mother would have lower levels of each at older ages if they had delayed their childbearing.”</p>
Jacobsen J, Rosenbloom JL and Pierce W (1999)	<p>Cross-sectional study of married mothers who had twins first (n=3,445) and married mothers who did not have twins first (n=485,991), United States; United States Census (1970)</p> <p>Cross-sectional study of married mothers who had twins first (n=8,976) and married mothers who did not have twins first (n=1,201,239), United States; United States Census (1980)</p>	<p>Predictors: Intendedness of birth</p> <p>Outcomes: Labor market participation, earnings</p>	<p>“Although the overall effects of an unplanned birth on labor supply are small, [there were] significant effects in the years immediately following the unplanned birth, especially in 1970.”</p> <p>“Declining fertility explains between 6 and 13 percent of the increase in married women’s labor supply between 1970 and 1980.”</p>
Joyce TJ, Kaestner R and Korenman S (2000)	<p>Longitudinal study of children born after 1978 (n=5,329); United States; National Longitudinal Survey of Youth (1979–1992)</p>	<p>Predictors: Unintended pregnancy</p> <p>Outcomes: Child development</p>	<p>“Unwanted pregnancy has little association with...child cognitive outcomes.”</p>
Kalil A and Kunz J (2002)	<p>Longitudinal study of women (n=990); United States; National Longitudinal Survey of Youth (1979–1992)</p>	<p>Predictors: Teenager at first birth, marital status</p> <p>Outcomes: Mental health</p>	<p>“Unmarried teenage childbearers displayed higher levels of depressive symptoms in young adulthood than did women who first give birth as married adults.”</p> <p>“The psychological health of married teenage mothers in later life was as good as that of married adult mothers, whereas unmarried adult mothers and unmarried teenage mothers had similarly poor outcomes. [This suggests] that marital status, rather than age at first birth, may be more relevant for later-life psychological health.”</p>

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Kamp Dush CM (2011)	Longitudinal study of mothers cohabitating at the time of a nonmarital birth (n=1,624); United States; Fragile Families and Child Wellbeing Study (1998–2005)	Predictors: Age at first birth, nonmarital birth Outcomes: Cohabitation dissolution	“The unions of low-income mothers who were cohabiting at the birth of their child often dissolved and dissolved quickly, 46% within 3 years and 64% dissolved within 5.” “Older and more educated mothers and those with employed partners were less likely to [end their] cohabitation [after a nonmarital birth].”
Klepinger D, Lundberg S and Plotnick R (1995)	Longitudinal study of women (n=2,795); United States; National Longitudinal Survey of Youth (1979–1991)	Predictors: Teenager at first birth Outcomes: Years of schooling	“Early childbearing [before age 20] reduced the educational attainment of young women by one to three years. These strong negative effects held for white, black and Hispanic women.” “Having a child before age 18 has a significant effect only among blacks, reducing years of schooling by 1.2 years.”
Klepinger D, Lundberg S and Plotnick R (1999)	Longitudinal study of non-Hispanic white women (n=1,768) and non-Hispanic black women (n=1,035) aged 14–20; United States; National Longitudinal Survey of Youth (1979–1991)	Predictors: Teenager at first birth Outcomes: Years of schooling, years of early work experience, years of adult work experience, hourly wage	“Adolescent fertility substantially reduces years of formal education and teenage work experience and, for white women only, early adult work experience.” “Through reductions in human capital, teenage childbearing has a significant effect on market wages at age 25.”
Lawrence E et al. (2008)	Longitudinal study of married couples aged 18–35 (n=156); Los Angeles	Predictors: Pre-child marital satisfaction; pregnancy planning Outcomes: Marital satisfaction	“Spouses who were more satisfied prior to pregnancy had children relatively early in marriage, and parents experienced greater declines in marital satisfaction compared to nonparents.” “Couples with planned pregnancies had higher prepregnancy satisfaction scores [than those with unplanned pregnancies], and planning slowed husbands’ (but not wives’) postpartum declines.” “Parenthood hastens marital decline...but planning status and prepregnancy marital satisfaction generally protect marriages from these declines.”
Levine JA, Pollack H and Comfort ME (2001)	Longitudinal study children younger than 14 (n=3,899) and young adults aged 14–21 (n=1,341); United States; National Longitudinal Survey of Youth (1979)	Predictors: Teenager at first birth Outcomes: Children’s test scores, grade repetition, adolescent behavioral factors	“Early motherhood’s strong negative correlation with children’s test scores and positive correlation with children’s grade repetition is almost entirely explained by prebirth individual and family background factors of teen mothers themselves.” “Early childbearing is associated indirectly with reduced children’s test scores through its linkage to family size (and thus to child birth order).” “In predicting...problem behaviors among adolescent and young adult offspring...maternal age at first birth remains an important risk factor even after controlling for a wide range of background factors and maternal characteristics.”

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Loughran DS and Zissimopoulos J (2009)	<p>Longitudinal study of men (n=4,610) and women (n=4,618); United States; National Longitudinal Survey of Youth (1979)</p> <p>Longitudinal study of men (n=4,445); United States; National Longitudinal Survey of Youth: Young Men (1966);</p> <p>Longitudinal study women (n=4,231); United States; National Longitudinal Survey of Youth: Young Women (1968)</p>	<p>Predictors: Age at first birth</p> <p>Outcomes: Labor force participation, wages</p>	<p>“First birth lowers female wages 2–3 percent, but has no effect on wage growth.”</p> <p>“Male wages are unaffected by childbearing.”</p>
Manning WD, Smock PJ and Majumdar D (2004)	Cross-sectional study of children born in cohabitating unions (n=1,001) and children born into first marriages (n=5,557); United States; National Survey of Family Growth (1995)	<p>Predictors: Cohabitation vs. marriage</p> <p>Outcomes: Union instability</p>	<p>“White, black and Hispanic children born to cohabiting parents experience greater levels of instability than children born to married parents.”</p> <p>“Black and Hispanic children whose cohabiting parents marry do not experience the same levels of family stability as those born to married parents; among white children, however, the marriage of cohabiting parents raises levels of family stability to that experienced by children born in marriage.”</p>
Margolis R and Myrskylä M (2011)	Longitudinal study of men and women older than 15 (n=201,988); 86 countries; World Values Surveys (1981–2005)	<p>Predictors: Number of children</p> <p>Outcomes: Level of happiness</p>	<p>“Globally, happiness decreases with the number of children parents have. This association is strongly modified, however, by individual and contextual factors.”</p> <p>“The association between happiness and fertility evolves from negative to neutral to positive above age 40, and is strongest among those who are likely to benefit most from support from children in their later years.”</p> <p>“The negative fertility/happiness link at young adult ages is weakest in countries with high public support for families, and...the positive association at ages above 40 is strongest in countries where old-age support depends mostly on the family.”</p>
Miller AR (2009)	Cross-sectional study of first-born children aged 5–14; United States; National Longitudinal Survey of Youth (1979)	<p>Predictors: Age at first birth</p> <p>Outcomes: Cognitive ability of first-born children</p>	“A year of motherhood delay leads to [an] increase in test scores [that is] equivalent to 10 percent of the test score difference between children of college graduates and those of high school dropouts and one-seventh of the black-white score difference.”
Miller AR (2011)	Longitudinal study of women (n=1,030) who had a first birth at age 21–33; United States; National Longitudinal Survey of Youth (1979–2000)	<p>Predictors: Age at first birth</p> <p>Outcomes: Career earnings, total career hours worked, average career wage rates, hourly wage rates for each age between 21 and 34, changes in hourly wage rates</p>	<p>“Motherhood delay leads to a substantial increase in [lifetime career] earnings of 9% per year of delay, an increase in [hourly] wages of 3%, and an increase in work hours of 6%.”</p> <p>“The advantage is largest for college-educated women and those in professional and managerial occupations.”</p>
Miller CF and Xiao JJ (1999)	Cross-sectional study of women with at least one child (n=18,511); United States; Current Population Survey (1991)	<p>Predictors: Number of children, birth spacing</p> <p>Outcomes: Labor force participation</p>	“The number of children present in the household negatively affected [the mother’s labor market] participation while an increase in the age of children positively influenced [her] participation.”

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Mirowsky J and Ross CE (2002)	Cross-sectional study of adults aged 18–95 (n=2,592); United States; Aging, Status and the Sense of Control survey (1995)	Predictors: Age at first birth Outcomes: Depression	“Respondents who had a first birth before age 23 report more feelings and signs of depression than do nonparents; those who had a first birth after age 23 report fewer than do nonparents.”
Mollborn S and Dennis JA (2012)	Longitudinal study of 950 teen mothers (n=950); United States; Early Childhood Longitudinal Study—Birth Cohort (2001–2007)	Predictors: Teenager at first birth Outcomes: Socioeconomic situations, child development, parenting behavior, home environment	“Compared to children of mothers who never gave birth as teens, teenage mothers’ children experience strong socioeconomic disadvantages, and their home environments have some greater risks.” “[Teen] mothers’ parenting behaviors are not rated as favorably [as those of older mothers] and many measures of [child] health and development at age 2 are compromised.” “Many...parenting and developmental disparities are explained by teenage mothers’ low levels of current socioeconomic status.”
Moore KA and Snyder NO (1991)	Longitudinal study of first-born children aged 3–7 (n=1,242); United States; National Longitudinal Survey of Youth (1979–1986)	Predictors: Age at first birth Outcomes: Child’s cognitive abilities	“Mother’s age at first birth and school enrollment status at conception were less important predictors of the child’s cognitive score than was the mother’s score on a test of cognitive achievement.” “Environmental factors, such as the degree of intellectual stimulation in the child’s home, also predicted the child’s test score.”
National Campaign to Prevent Teen and Unplanned Pregnancy (2008; white paper)	Longitudinal study of mothers and fathers with children at nine months and 24 months postbirth; United States; Early Childhood Longitudinal Survey (2001, 2003–2004)	Predictors: Unplanned pregnancy Outcomes: Relationship status, union stability, relationship conflict, mental health	“Mothers having an unplanned birth experience significantly less subsequent union formation and greater union dissolution by 2 years after the birth compared to mothers having a planned birth.” “Both mothers and fathers who have an unplanned birth report less happiness and more conflict in their relationship compared to similar women and men who have a planned birth.” “Both mothers and fathers who have an unplanned birth are more likely to experience depressive symptoms compared to similar mothers and fathers who have a planned birth.”
Powell B and Steelman LC (1993)	Longitudinal study of high school sophomores (n=12,000) and seniors (n=14,000); United States; High School and Beyond survey (1980–1986)	Predictors: Number of closely spaced siblings, total number of siblings Outcomes: High school completion, postsecondary education	“Close spacing increases the likelihood of [children’s] dropping out of high school and decreases the odds of [their] attending post-secondary school.” “The direct effect of close spacing on post-secondary school attendance persists net of ability and academic performance; the effect of spacing on dropping out of high school is mixed.” “Close spacing of siblings also constrains the allocation of family resources, which in turn affects educational attainment.”
Powell B and Steelman LC (1995)	Longitudinal study of high school students and parents; United States; High School and Beyond survey (1980–1986) and Parent Survey of High School and Beyond (1980)	Predictors: Number of closely spaced siblings Outcomes: Parental financial assistance, share of parental resources	“Spacing [and] number of children [constrain a family’s] distribution of economic resources.”

Appendix: Individual Studies			
Study	Sample	Variables measured	Key findings (quoted from original sources)
Read S and Grundy E (2011)	Longitudinal study of men and women born between 1923 and 1949 (n=6,374); Great Britain; British Household Panel Survey (1997, 1999, 2001)	Predictors: Number of children, age at first birth, age at last birth Outcomes: Quality of life (control, autonomy, pleasure and self-realization)	<p>“Early entry to parenthood and to some extent high parity were related to poorer quality of life. These associations were mostly mediated by socio-economic, social support and health factors.”</p> <p>“Compared to women with two children, [women with no children] expressed a higher level of autonomy, and both [women with no children] and those with four or more children [expressed] a higher level of self-realization.”</p> <p>“Low parity was related to a lower level of pleasure, especially among men, but this relationship appeared weaker and among women was not significant when background factors were controlled.”</p>
Stange K (2011)	Longitudinal study of women (n=2,955); United States; National Educational Longitudinal Study (1988) and Postsecondary Education Transcript Study (1992, 2000)	Predictors: Age at first birth Outcomes: Postsecondary educational attainment	<p>“Women who enter parenthood earlier have much lower levels of postsecondary educational investment over the eight years following high school.”</p> <p>“Eventual mothers reduce educational investment well before the actual occurrence of parenthood, primarily through nonparticipation rather than lower intensity.”</p>
Taniguchi H (1999)	Longitudinal study of women born in 1944–1954 (n=1,676); United States; National Longitudinal Survey (1968–1988)	Predictors: Age at first birth Outcomes: Hourly wages	<p>“The analysis identified a significant child wage penalty and showed that it varies by birth timing, being concentrated among women who gave birth...between ages 20 and 27.”</p> <p>“Those who first gave birth as teens were not as vulnerable as other early child bearers to the adverse impact of children on wages.”</p> <p>“Education significantly reduced the child wage penalty.”</p>
Trussell J and Abowd J (1980)	Cross-sectional study of women aged 25–44 with at least one child aged 12–30 (n=4,183); United States; National Survey of Family Growth (1973–1974)	Predictors: Age at first birth Outcomes: Hourly wages	<p>“Independent effect of age at first birth on the market wage, once other social and demographic variables are controlled, is negligible; education and experience are the important determinants of the market wage.”</p> <p>“Age at first birth does have an impact on the reservation wage, even when education and other fertility measures are held constant. This impact is significant, large, and positive only for whites; increasing their age at first birth lowers their propensity to work.”</p>
Turley RNL (2003)	Longitudinal study of firstborn cousins (n=1,103) and nonfirstborn children (n=6,050) aged 3–16; United States; National Longitudinal Survey of Youth (1986–1998)	Predictors: Age at first birth, age at subsequent births Outcomes: Child’s cognitive abilities, behavior problems	<p>“The lower test scores and increased behavior problems of children born to younger mothers [compared with those born to older mothers], are not due to her age but to her family background.”</p> <p>“For nonfirstborn children, maternal age at first birth has a significant effect on test scores, whereas maternal age at the child’s birth does not.”</p> <p>“The disadvantage of children born to younger mothers is greatly reduced when maternal family background is controlled through a comparison of children born to sisters.”</p> <p>“Maternal age is not an important predictor of children’s test score rates of improvement over time. This evidence suggests that maternal age is not causal.”</p>

Appendix: Individual Studies

Study	Sample	Variables measured	Key findings (quoted from original sources)
Wilde ET, Batchelder L and Ellwood DT (2010; working paper)	Longitudinal study of women; United States; National Longitudinal Survey of Youth (1979–2006)	Predictors: Motherhood status, age at first birth Outcomes: Wage earnings	“Lifetime costs of childbearing, especially early childbearing, are particularly high for skilled women. These differential costs of childbearing may account for the far greater tendency of high-skill women to delay or avoid childbearing altogether.”
Wu LL and Musick K (2008)	Cross-sectional study of women aged 15–44 (n=4,857); United States; National Survey of Family Growth (1995)	Predictors: Marriage before first birth Outcomes: Union dissolution	“The ordering of cohabitation, marriage, and childbirth is not associated with union stability [suggesting] that many cohabiting couples jointly plan marriage and childbirth.”

Appendix: Prior Literature Reviews and Compilations		
Study	Variables measured	Key findings (quoted from original sources)
Brooks-Gunn J and Furstenberg FF (1986)	Predictors: Teenager at first birth	<p>“Intellectual differences in children born to teenage and older [parents] become more pronounced as children develop. Small differences are seen in studies in the preschool years and larger differences are found by the elementary school years.”</p> <p>“Behavior differences as a function of age of childbearing are more likely to be seen in the early years than intellectual differences. Problems appear in activity levels, hostility, and...control of behavior.”</p> <p>“Boys are more affected by [having a teenage parent] than are girls, at least in the early years.”</p>
Coley RL and Chase-Lansdale PL (1998)	Predictors: Teenager at first birth	<p>“Many negative outcomes previously ascribed to mothers’ age are as much causes or correlates of teenage pregnancy as effects of it, although this claim is less substantiated regarding effects on children of teenage mothers.”</p>
Gipson JD, Koenig MA and Hindin MJ (2008)	Predictors: Unintended pregnancy	<p>“[Limited] evidence suggests a link between unintended childbearing and a significantly increased risk of maternal depression, of anxiety, and of a decline in psychological well-being or psychosocial conditions.”</p> <p>“Because of the scarcity of studies that have assessed child development as associated with pregnancy intention, further research in this area is warranted and would benefit from the inclusion of objective measures of child development and sufficient control of potentially confounding variables in the causal pathway.”</p>
Hoffman S and Maynard RA (2008)	Predictors: Age at first birth, teenager at first birth	<p>“[For children of adolescent parents, there are significant associations for many educational outcomes (including high school completion), the likelihood of abuse or being placed in a foster home, some cognitive and behavioral outcomes in early childhood, and the likelihood that the child will go on to become a teenage parent.]”</p> <p>The lost tax revenues that result from lower earnings of mothers who have children before age 18 total an estimated \$830 million a year; losses associated with lower productivity of the fathers of their children total \$1.54 billion a year.”</p> <p>After controlling for all the other demographic factors...children born to teen mothers are significantly more likely to have an indicated report of child abuse or neglect during their early childhood as those born to nonteen mothers....[There is] a declining likelihood of foster care entry as the age of the mother increases.”</p>
Logan C et al. (2007; white paper)	Predictors: Pregnancy intention	<p>“[Unintended births seem] to be most clearly associated with...a less close mother-child relationship and poorer educational outcomes [for children]. However, findings on the association between unintendedness and child cognitive outcomes have been mixed.”</p>
Waldfogel J (1998)	Predictors: Childbearing	<p>“Despite the narrowing of the gender gap in recent years, the family gap in pay between women with children and women without children is, if anything, growing larger....There is no such family penalty for men.”</p> <p>“American women who had maternity leave coverage that allowed them to take a leave and return to their original employer after their most recent birth have higher pay, all else equal, than other mothers who were working prior to their most recent birth but did not have such coverage.”</p>

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