



Investing in Single Mothers' Higher Education: National and State Estimates of the Costs and Benefits of Single Mothers' Educational Attainment to Individuals, Families, and Society

December 2019

Introduction

Earning a higher education is increasingly necessary for achieving family economic security. For single mothers, who are more likely to live in poverty than other women, earning postsecondary credentials can bring substantial benefits, from increased lifetime earnings and employment rates to better health outcomes and chances of success for their children (Attewell and Lavin 2007; Carnevale, Rose, and Cheah 2011; Hout 2012; IWPR 2019a; Magnuson 2007). Single mother college students, however, often face obstacles that can complicate their ability to complete their educational programs. Just eight percent earn a degree within six years of enrolling, compared with roughly half of women in college who are not mothers (49 percent; IWPR 2019a). Greater investments in helping single mothers persist in college and graduate would benefit their families, their communities, and society as a whole.

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This briefing paper describes findings from a study by the Institute for Women's Policy Research (IWPR) estimating the economic costs and benefits of single mothers' pursuit and attainment of college degrees. The study estimates the economic returns at the individual and societal levels to single mothers' attainment of associate and bachelor's degrees, as well as for single mothers who earn some college education, but no degree, at the national and state levels. It also estimates the returns to strategic

investments in supportive services that would be likely to increase single mothers' college success (an overview of IWPR's study methodology can be found in Appendix A). State-level estimates of the gains to single mothers and their families, and to state economies more broadly, when single mothers go to college are also published separately in fact sheets for all 50 states and the District of Columbia.¹ IWPR's study finds substantial economic gains to families headed by single mothers and to the economy as the result of their college enrollment and graduation. These findings demonstrate the importance of investing in greater access to college for single mothers, including in the supports that can help them be successful once enrolled. The briefing paper concludes with recommendations for how federal and state policymakers and institutions can build on this evidence to create educational environments that promote single mothers' success through improved data collection, greater access to key supportive services, clear campus policies for students with children, and leveraging existing social safety net programs to support parenting college students.

Nearly 10 percent of all U.S. undergraduate students, or 1.7 million students, are single mothers.

Single Mothers Represent an Important Share of Today's College Students

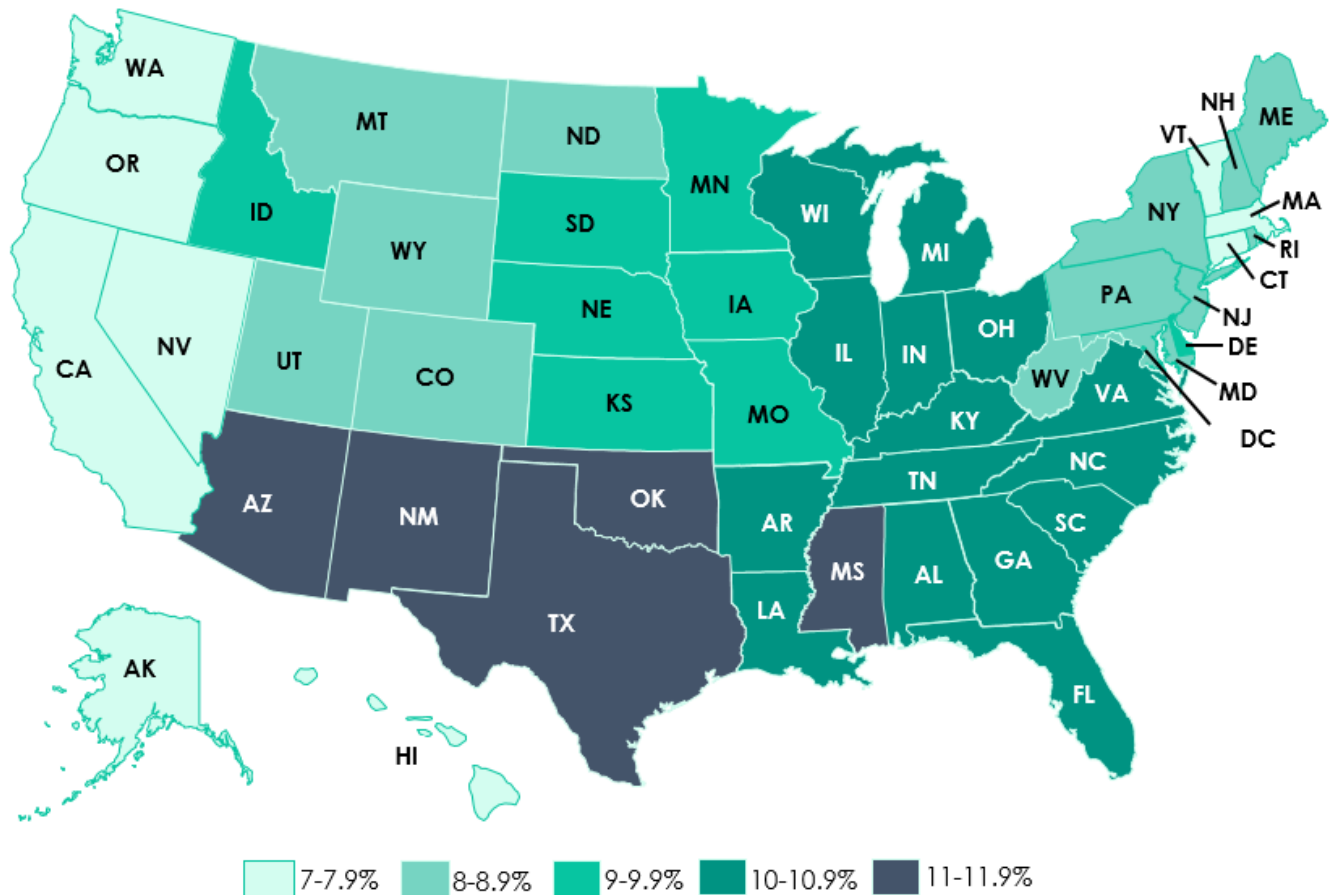
Nearly 10 percent of all U.S. undergraduate students, or roughly 1.7 million students, are single mothers. At the state level, IWPR estimates that single mothers make up between 7 percent and 12 percent of all undergraduate student bodies (Map 1; Appendix B1). Knowing how many college students are single mothers and understanding their experiences in higher education are essential to informing how institutions, states, and the country can serve this student population and promote their ability to complete.

“College is a way to have a brighter future for my family.”
- Single mother student

¹ Fact sheets for each state can be found on IWPR's website: <http://iwpr.org/tools-data/investing-in-single-moms-by-state/>.

Map 1. Single Mother Students are Prevalent on Campuses around the Country

Share of Undergraduate Students Who are Single Mothers by State, 2015-16



Note: Estimates of the share of students who are single mothers are derived from regional shares of single mother students and state-level undergraduate enrollment data.

Source: IWPR analysis of data from the U.S. Department of Education, National Center for Education Statistics, 2015–16 National Postsecondary Student Aid Study (NPSAS:16) and Integrated Postsecondary Education Data System (IPEDS) Spring 2017, Fall Enrollment component.

Since national postsecondary education datasets that report data on students with children are not representative at the state level, and states and institutions largely do not collect these data themselves, IWPR estimated the number of single mother students by state by multiplying the share of students who are single mothers at the regional level from the 2015-16 National Postsecondary Student Aid Survey (NPSAS) by state-level undergraduate enrollment data from the Integrated Postsecondary Education

Data System (IPEDS).² The results of those calculations are summarized in Appendix B1 and in IWPR’s state-by-state fact sheets.

The nearly 2 million single mother college students face a range of obstacles to successful college completion. They are disproportionately likely to live in or near poverty while pursuing college credentials—88 percent have incomes below 200 percent of the federal poverty line (IWPR 2019c). Their financial insecurity is often compounded by significant and competing demands on their time. An analysis of data from the American Time Use Survey found that single mothers in college spend more than a full-time workday (nine hours) caring for their children and their home each day, leaving little additional time for homework, exercise, sleep, or self-care activities (Reichlin Cruse et al. 2018). In addition to caregiving, 62 percent of single mother students work 20 hours or more each week and over half of these students are enrolled in school full-time or a combination of full- and part-time (54 percent; IWPR 2019c).

Single Mothers are Central to Closing Gaps in Higher Education Equity, Access, and Completion

Single mothers sit at the cross-section of inequities in higher education and society more broadly. They are more likely than other women to live in poverty, in part because they are less likely than other women to hold college degrees. Many single mothers enroll in college and have the intention of seeking a credential that can lead to high-quality jobs and family-sustaining wages, but they often face obstacles that can force them to choose between their families and their college ambitions. The diversity of the single mother student population also makes their success central to achieving racial and ethnic equity in educational and economic outcomes. Thinking intentionally about how to promote their ability to attain

Nearly 9 in 10 single mothers pursuing a college degree have incomes at or near the federal poverty line.

² U.S. regions as defined by the NPSAS include: New England (CT, ME, MA, NH, RI, VT), Mid East (DE, DC, MD, NJ, NY, PA), Great Lakes (IL, IN, MI, OH, WI), Plains (IA, KS, MN, MO, NE, ND, SD), Southeast (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV), Southwest (AZ, NM, OK, TX), Rocky Mountains (CO, ID, MT, UT, WY), and Far West (AK, CA, HI, NV, OR, WA). These regions do not perfectly align with the region/division delineations defined by the United States Census Bureau.

higher credentials will, therefore, have benefits that reverberate among families, communities, and the country more broadly.

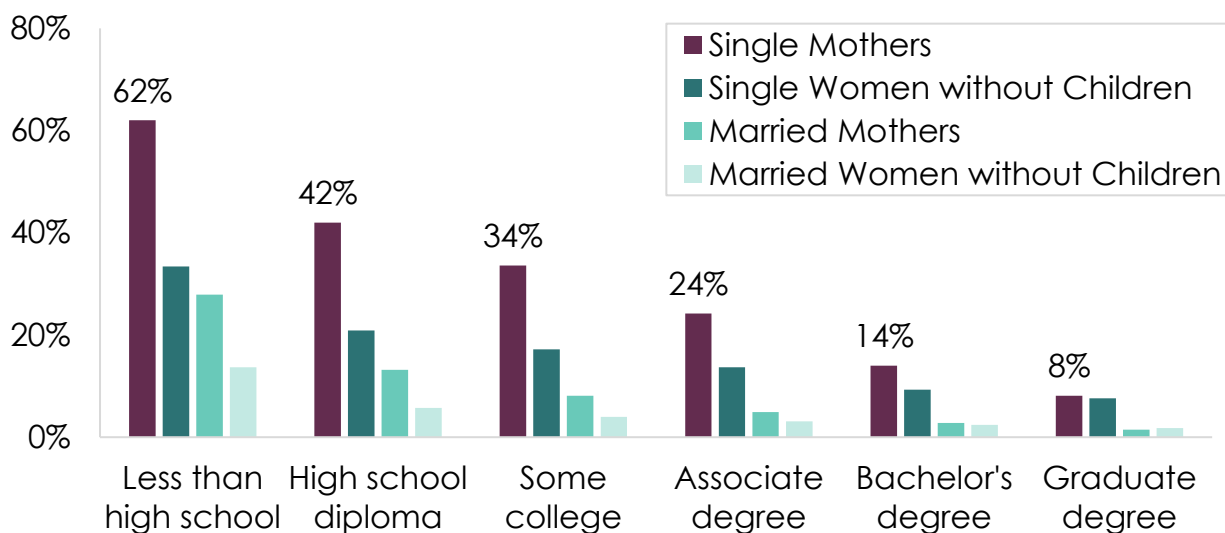
Addressing Poverty

Nationally and in every state, single mothers are more likely to live in poverty than other women. More than a third (35 percent) of all single mothers in the United States aged 25 and older live in poverty, making them nearly twice as likely to live in poverty as single women without children and over four times as likely as married mothers (IWPR 2019a). At the state level, single mother poverty rates range from a low of 23 percent in Hawaii to a high of 45 percent in Mississippi.

Postsecondary education can have an important effect on single mothers' likelihood of living in poverty. Each additional level of education earned by single mothers is associated with lower poverty rates. Single mothers with a high school diploma in the United States are 1.8 times more likely to live in poverty than when they hold an associate degree and three times more likely than when they hold a bachelor's degree (Figure 2).

Figure 2. Higher Educational Attainment Leads to Significant Declines in Single Mothers' Poverty Rates

Share of Women Aged 25 and Older Living in Poverty by Educational Attainment, Marital Status, and Parent Status, 2013-2017

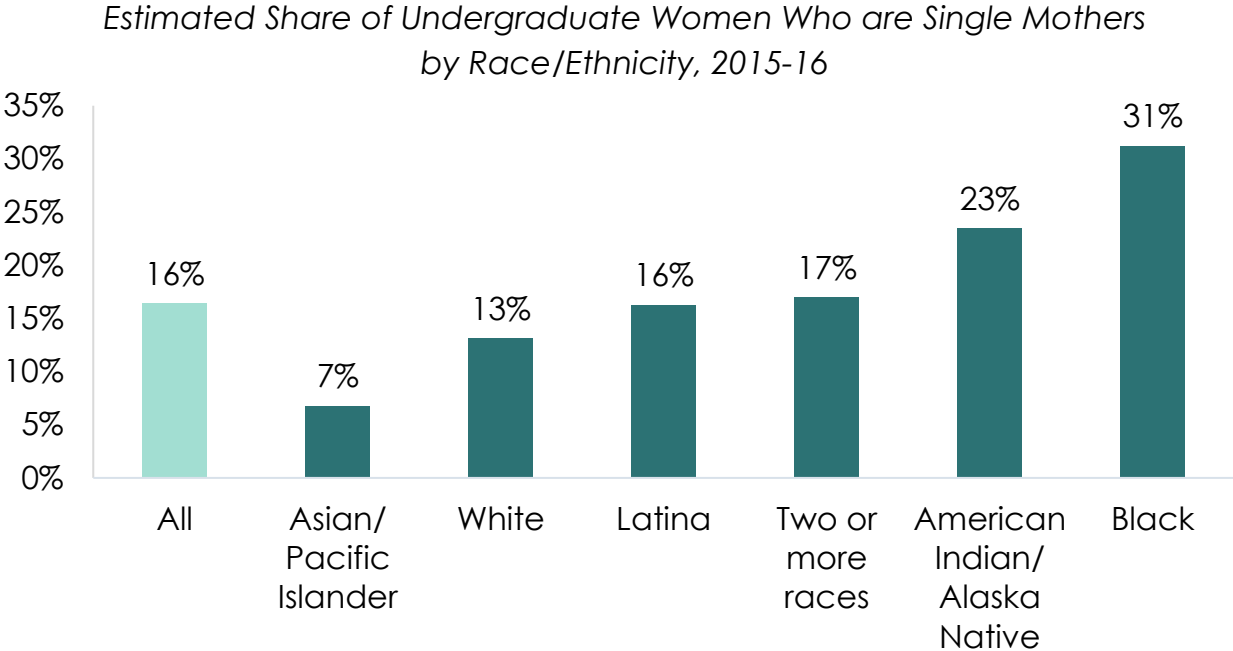


Source: Institute for Women's Policy Research analysis of data from the 2013-2017 American Community Survey, Integrated Public Use Microdata Series (Version 9.0).

Promoting Racial Equity

Ensuring that single mothers are successful in their postsecondary careers has implications for improving racial and ethnic equity in higher education outcomes. Nationally, 31 percent of Black women and 23 percent of American Indian/Alaska Native women in college are single mothers, followed by 17 percent of women of more than one race and 16 percent of Latina students. White, and Asian/Pacific Islander women in college are the least likely to be single mothers while pursuing higher education (Figure 1).³

Figure 1. Black and Native Women in College are More Likely to be Single Mothers than Other Women



Note: Race categories exclude persons of Hispanic ethnicity. Data are for students enrolled in degree-granting institutions, including the share of all students who are single mothers.

Source: IWPR analysis of data from the U.S. Department of Education, National Center for Education Statistics, 2015–16 National Postsecondary Student Aid Study (NPSAS:16) and Integrated Postsecondary Education Data System (IPEDS) Spring 2017, Fall Enrollment component.

Given that higher shares of students of color—particularly Black and Native students—are raising children while pursuing college, any effort to improve graduation rates among the single mother or student parent populations more broadly would help to close persistent racial and ethnic gaps in college completion (Espinosa et al. 2019; Reichlin Cruse et al. 2019). In addition, the substantial economic

³ Racial and ethnic categories included in this briefing paper are primarily derived from data sources analyzed.

returns that stem from postsecondary attainment described later in this briefing paper would be particularly impactful for these single mother student populations to help them pay off often high student debt, establish lasting family economic security, and set their children up for future success (Attewell and Lavin 2007; Baum, Ma, and Payea 2013; Campbell 2017; Reichlin Cruse et al. 2019).

Increasing College Success

Single mothers are less likely to hold postsecondary credentials than other women. Just 30 percent of single mothers in the United States hold an associate degree or higher, compared with over half of married mothers (54 percent; IWPR 2019a). Single mothers are slightly more likely to hold associate degrees than other women, but less likely to hold a bachelor's degree. In addition, 28 percent of single mothers have some college education, but no degree, making them more likely than all other women to have started but not finished a postsecondary degree (IWPR 2019a).⁴

28% of single mothers have some college education, but no degree, making them more likely than all other women to have started but not finished a postsecondary degree.

When looking at single mothers of different races and ethnicities, the likelihood that they started college, but did not finish, is greater for single mothers of more than one race, Black single mothers, Native American single mothers, and White single mothers than it is for Latina and Asian single mothers. Latina single mothers are the most likely group of single mothers to have never entered college at all: 60 percent hold a high school diploma or less as their highest level of educational attainment (Figure 3).

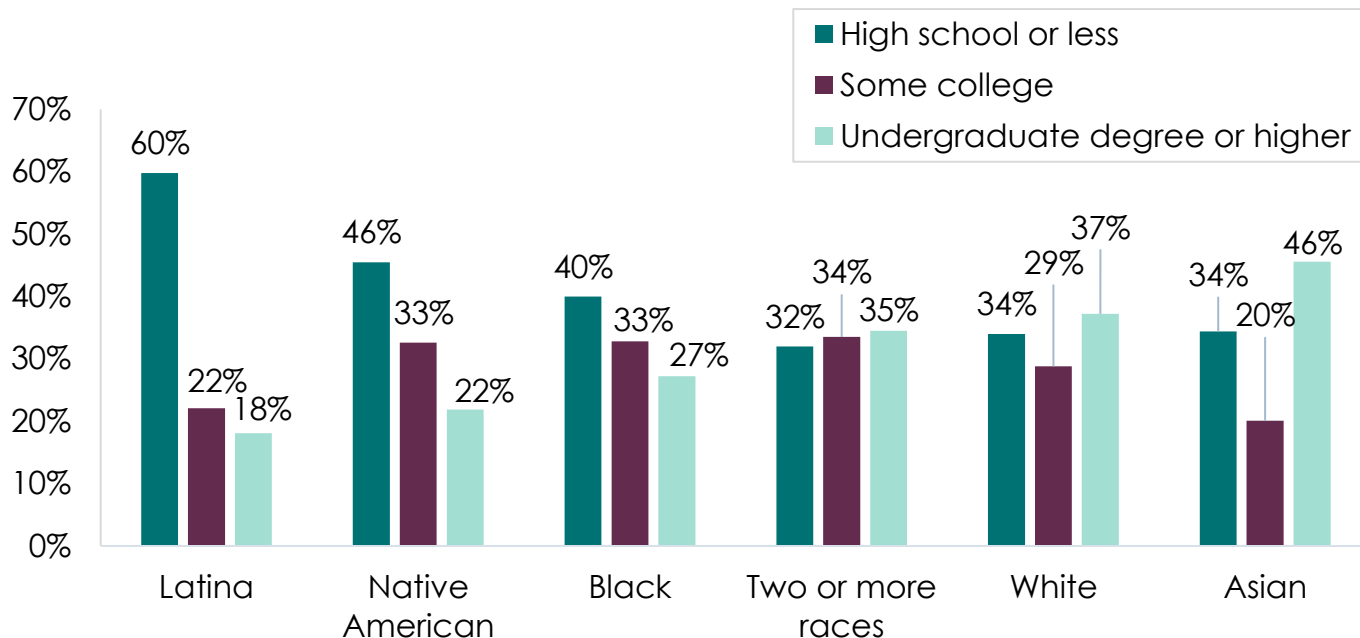
“For me, college is my way out of poverty. It is...freedom. It is how I can be there for my daughter.”

- Single mother student

⁴ The American Community Survey does not differentiate between individuals who earn certificates and those who enroll in college but do not earn any credential at all. While the share of all single mothers who hold certificates is unknown, according to the 2003-09 Beginning Postsecondary Longitudinal Survey, about 20 percent of single mother college students earn certificates.

Figure 3. Latina, Native American, and Black Single Mothers are Least Likely to Hold College Degrees

Share of Single Mothers Aged 25 and Older by Educational Attainment and Race/Ethnicity, 2013-17



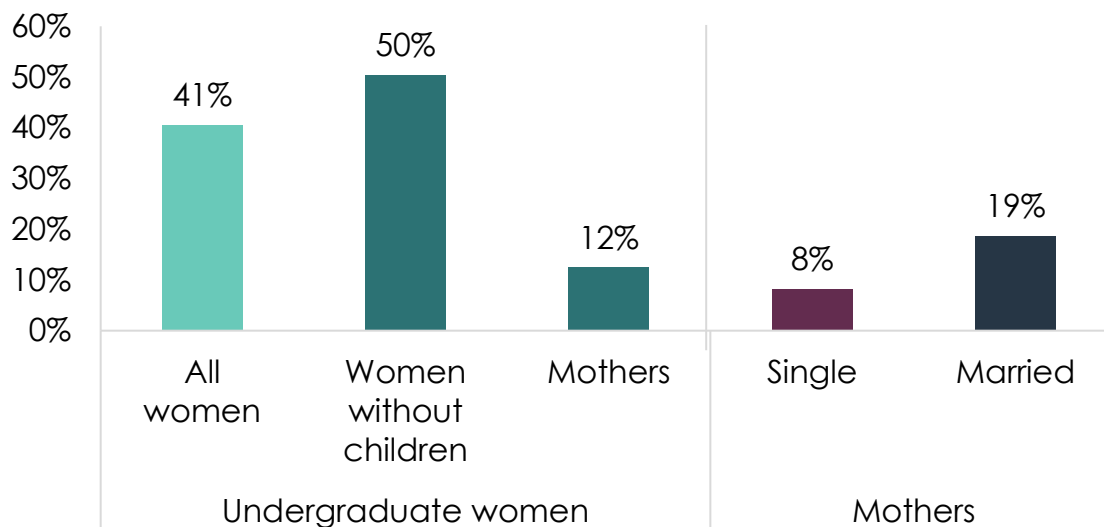
Source: Institute for Women’s Policy Research analysis of data from the 2013-2017 American Community Survey, Integrated Public Use Microdata Series (Version 9.0).

At the state level, Michigan, Wyoming, and Oregon have the highest shares of single mothers who entered college but did not earn a degree (roughly 33 percent in Wyoming and Oregon, and 34 percent in Michigan). Even in states with the smallest shares of single mothers with some college education—New York, Delaware, and Pennsylvania—single mothers still comprise nearly a quarter of the single mother population (22 percent, 24 percent, and 24 percent, respectively; IWPR 2019a).

The pattern of single mothers being more likely than other women to enter college, but not complete a degree, is reflected in college graduation rates. Single mother students are dramatically less likely to earn associate or bachelor’s degrees within six years of enrollment—8 percent, compared with roughly half of women in college who are not mothers (Figure 4). More than half of single mother college students leave school without earning a credential in that time frame (55 percent), and roughly 17 percent are still enrolled (IWPR 2019b).

Figure 4. Single Mothers are More than Six Times Less Likely to Graduate with a Degree than Women in College without Children

Share of Female College Students Who Earn an Associate or Bachelor's Degrees within Six Years of Enrollment, by Marital and Parent Status, 2003-09



Source: IWPR analysis of data from the U.S. Department of Education, National Center for Education Statistics, 2003-04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09).

As the United States strives to meet the demands of a changing economy, closing gaps in college completion is essential to building a skilled and competitive workforce. The fact that so many single mothers enter college, yet so few make it to graduation day, demonstrates the critical need for greater policy and institutional supports that can help them persist.

The Costs and Benefits of Single Mothers' Investments in Higher Education

While descriptive evidence demonstrates the association between educational attainment and improved economic outcomes, IWPR's cost-benefit analysis estimates the individual and societal effects deriving explicitly from single mothers' pursuit of higher education.⁵ This analysis draws on existing literature

⁵ Unlike descriptive analyses examining the relationship between education and outcomes such as earnings, IWPR's analysis controls for different demographic and socioeconomic characteristics that could also influence both single mothers' likelihood of pursuing higher education as well as their earnings potential (and other outcomes of interest). This analysis allows us to estimate the effect of education, net of all other characteristics. This is an important distinction, because it is likely that single mothers who pursue college degrees are probably also more likely to earn more, regardless of if they attend college (economists typically say that they have "higher levels of innate ability"). As a result, descriptive analyses that compare outcomes by educational attainment tend to overestimate the impact of college on economic outcomes.

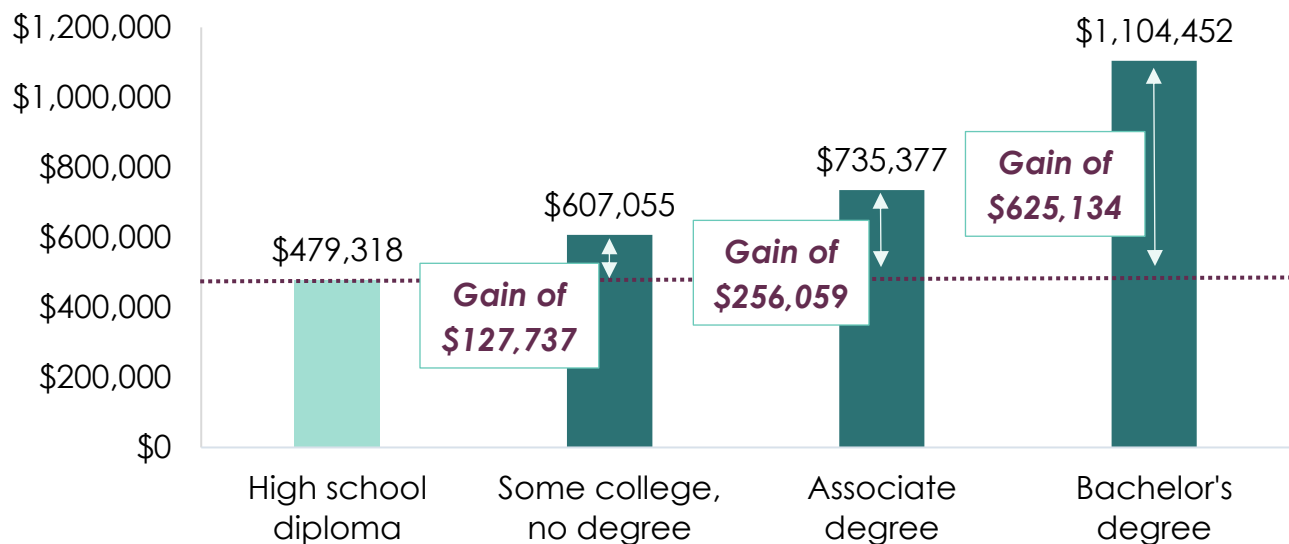
and an array of data sources to estimate the increase in lifetime earnings, decrease in lifetime public assistance receipt, and increase in lifetime tax payments at three levels of educational attainment: bachelor’s degree, associate degree, and some college education, but no degree, compared with the baseline—single mothers with a high school diploma as their highest level of education. The costs of single mothers’ enrollment in college and attainment of degrees is also estimated and used, along with the earnings gain estimates, to illustrate the return on their investment in higher education (for an overview of IWPR’s methodology, see Appendix A).

Going to College Leads to Substantial Increases in Lifetime Earnings for Single Mothers

Single mothers who attend college have higher employment rates and see significant earnings increases above what they would have earned with a high school-level education, particularly if they graduate with a degree (for a full list of state and national lifetime earnings gains, see Appendix Table B2; Hout 2012).

Figure 5. Single Mothers’ Lifetime Earnings Increase Significantly as a Result of Postsecondary Educational Attainment

Individual Single Mothers' Expected Total Lifetime Earnings & Gains as a Result of Educational Attainment, Compared with Earnings for Single Mothers with a High School Diploma



Note: Expected lifetime earnings are calculated over the age range 35 to 64. Expected earnings account for differences in employment rates by age and level of education. Earnings estimates are presented in their undiscounted forms for ease of interpretation. For the return on investment calculations described below, these values are discounted to their present value using a discount rate of 3.5 percent.

Source: IWPR’s cost-benefit analysis.

At the national level (Figure 5):

- Individual single mothers who earn **bachelor's degrees** earn \$1.1 million over their lifetime—over \$625,000 more than the lifetime earnings of single mothers with only a high school diploma.⁶
- Lifetime earnings gains resulting from an **associate degree** attainment are also significant. Single mothers with associate degrees earn roughly \$256,000 more over their lifetimes than what they would have earned with a high school-level education, for a total of over \$735,000 in lifetime earnings.
- Earning **some college** education, even if it does not lead to a degree, still results in increased earnings over what a single mother would have earned with only a high school-level education. Single mothers with some college education earn nearly \$128,000 more over their lifetimes, for a total of \$607,000 in lifetime earnings.

Single mothers with an associate degree earn roughly \$256,000 more over their lifetimes than what they would have earned with a high school education.

At the state level:

- Single mothers with **bachelor's degrees** see lifetime earnings gains ranging from nearly \$500,000 in Wisconsin to nearly \$780,000 in New Jersey.
- Lifetime earnings gains for single mothers with **associate degrees** range from nearly \$200,000 in New York to roughly \$367,000 in New Mexico.
- Single mothers who attain **some college** education, but no degree, still see lifetime earnings gains ranging from \$68,100 in Kentucky to nearly \$216,700 in the District of Columbia.

⁶ To be consistent across data sources, all dollar amounts are adjusted to 2017 dollars, which is the most recent earnings year available for the primary data sources used to calculate the benefits to single mothers' investments in higher education.

Single Mothers See a Substantial Return on Their College Investment

Single mothers make significant investments in going to college. These investments include not just the cost of tuition, fees, and class supplies, but also the cost of child care for the time they spend in class or studying and the loss of wages as a result of not working or reducing their work hours while they are enrolled. On top of these expenses, single mothers must provide for their family's basic needs, such as family housing, food, transportation, and child care for the time they spend working (in addition to the care they need while in school). Altogether, these costs amount to a significant investment of time and money in the pursuit of college credentials.

To calculate single mothers' return on their college investment, IWPR estimated the total costs directly associated with college enrollment (i.e. tuition and fees, books and supplies, child care for time spent in classes or studying, and the opportunity cost of not working or reducing work hours). Taking into account the cost of earning a degree or some college education, and the total lifetime earnings gains of single mothers at each of those education levels, single mothers receive a significant return (state and national costs of and returns on single mothers college investments are included in Appendix Table B3). In addition, because students who are single mothers are likely to receive financial aid, the returns to their college attainment are likely to be even greater than estimated below.

Nationally:

- Single mothers spend, on average, \$56,800 on a **bachelor's degree**, and, as a result of their degree and their associated lifetime earnings gains, they get a 777 percent return on that investment. This means that, for every dollar spent on getting their degree, they get back \$7.77.⁷

⁷ While values reported here are undiscounted, for the purposes of the cost-benefit calculation, lifetime earnings gains and total costs of attendance are discounted to their present value in order to estimate the rate of return. A discount rate of 3.5 percent is used in the analysis. Estimates of the returns to single mothers' investment in college presented here differ from those reported in IWPR's 2018 report, *Investing in Single Mothers' Higher Education: Costs and Benefits to Individuals, Families, and Society*, because IWPR has updated and improved upon its original 2018 methodology. For more detail on the methodology used and how it differs from the 2018 report, see "National and State Estimates of the Costs and Benefits of Single Mothers' Educational Attainment to Individuals, Families, and Society: Methodological Appendix," published separately on IWPR's website, iwpr.org.

- For an **associate degree**, single mothers spend an average of \$14,200 nationally, and they see a return of 1,232 percent—meaning for every dollar spent they get back \$12.32.
- Nationally, single mothers spend \$25,800 on **some college education**, resulting in a return of 331 percent, or \$3.31 for every dollar spent.⁸

At the state level:

- At the state level, single mothers invest between \$25,400 in Wyoming and \$81,000 in Montana on average in a **bachelor’s degree**, and they see returns ranging from nearly 500 percent in Colorado to 1,500 percent in Wyoming—or \$5-\$15 for every dollar spent.
- Earning an **associate degree** costs single mothers between \$9,000 in Nebraska and \$29,000 in Oregon, on average; returns to these investments range from a low of roughly 570 percent, or nearly \$6 for every dollar spent, in New York, to a high of nearly 2,100 percent, or \$21 for every dollar, in New Mexico.
- To earn **some college credit**, single mothers spend between \$13,900 in Wyoming and \$40,300 in Montana and they receive returns ranging from approximately 150 percent, or \$1.50 for every dollar spent, in Kentucky to 670 percent, or \$6.70 for every dollar, in Delaware.

The Economic Benefits of Single Mothers’ Postsecondary Success

National and state economies also gain significantly when single mothers enter and complete college. The increases in earnings of single mothers with postsecondary education mean they pay more in taxes and are less likely to rely on public assistance. IWPR estimated these societal gains from single mothers’ pursuit of college and attainment of degrees at the state and national levels.

“I had one option for a better life—seek a higher education.”

- Single mother student

⁸ The cost of earning some college education, but no degree, is higher, on average, than the cost of an associate degree because single mothers who earn some credit but leave school before earning a credential do so at both two- and four-year institutions, the latter of which are associated with higher costs.

Single Mothers' with College Education Contribute Substantially More in Taxes over Their Lifetimes than Their High School-Educated Counterparts

As a result of their increased earnings over their lifetimes, single mothers with degrees or some college education contribute more in taxes than single mothers with high school diplomas. IWPR estimated the increased federal and state income tax contributions, reductions in Earned Income Tax Credit and Child Tax Credit claims, and increased spending leading to increased sales tax revenue resulting from single mothers' college education (see Appendix B4 for a full list of national and state tax contributions).

Nationally, compared with what they would have paid if they had earned only a high school diploma:

- Single mothers with a **bachelor's degree** pay just over \$220,000 in additional taxes throughout their lifetime.
- Single mothers with **associate degrees** contribute an additional \$71,400.
- Single mothers with **some college** credit, but no degree, pay roughly \$35,000 more.
- To put this in context, the cohort of enrolled single mothers expected to earn a bachelor's degree within six years of enrollment pay altogether approximately \$6.6 billion dollars more in taxes over their lifetimes than what single mothers with a high school education pay; currently enrolled single mothers who are expected to earn associate degrees pay \$7.6 billion more; and currently enrolled single mothers expected to complete some college education but not a degree pay \$52.7 billion more.⁹

Altogether, currently enrolled single mothers expected to earn a bachelor's degree pay roughly \$6.6 billion dollars more in taxes over their lifetimes than single mothers with just high school.

⁹ The cohorts of single mothers with associate degrees and those with some college education, but no degree are expected to pay more in taxes over their lifetimes than the cohort of those expected to earn bachelor's degrees since more single mothers are expected to attain associate degrees and some college education.

At the state level, compared with single mothers who only earn a high school-level education (Appendix B4):

- Single mothers with **bachelor's degrees** pay between roughly \$163,000 in South Dakota and \$305,000 in California in additional taxes over their lifetimes.
- Single mothers with **associate degrees** pay between approximately \$46,000 in Indiana and \$121,300 in Connecticut in additional lifetime taxes.
- Single mothers with **some college** education pay between \$19,000 in Tennessee and nearly \$79,500 in Connecticut in additional lifetime taxes.
- Among the cohort of currently enrolled single mothers who are expected to earn a degree or some college education, additional lifetime taxes paid add up to a total of \$75 million in Wyoming, on the low end, and \$9.2 billion in California, at the high end, when compared with the tax contributions of single mothers with only a high school diploma or equivalent.

Single Mothers with College Education Save Society Billions in Public Benefits Spending over Their Lifetimes

Because single mothers earn more each year as a result of pursuing a college education, their need for public assistance, including such programs as Temporary Assistance for Needy Families (TANF or cash assistance), Supplemental Nutrition Assistance Program (SNAP or food stamps), and Section 8 Housing Assistance, declines progressively. IWPR estimated the lifetime receipt of public assistance from each of these sources among single mothers who earn college degrees, as well as those who earn some college credit, but not a degree, and compared those amounts with the expected lifetime receipt of public assistance among single mothers with a high school-level education. The difference represents national and state savings in public assistance spending as a result of single mothers' access to and success in higher education (a full list of national and state public assistance receipt estimates is included in Appendix B5).

Nationally:

- Single mothers who earn a **bachelor's degree** save over \$40,000 in public assistance spending over their lifetimes compared with the amount of assistance they would receive if they had only a high school diploma or equivalent—a single mother bachelor's degree graduate receives around

\$33,000 in public assistance over their lifetime, compared with the roughly \$76,500 received by a single mother with a high school-level education.

- Single mothers with **associate degrees** save over \$25,600 in lifetime public assistance spending.
- Earning **some college** credits, but not a degree, means a single mother saves roughly \$10,000 in lifetime public assistance spending.
- Among the cohort of currently enrolled single mother students, total savings from public assistance receipt, when compared with the receipt of high school-educated single mothers, amounts to \$1.3 billion for single mothers with bachelor's degrees, \$2.7 billion for single mothers with associate degrees, and \$15.9 billion for single mothers who earn some college credit, but no degree.¹⁰ In total, the cohort of currently enrolled single mothers is expected to save society \$19.9 billion in public assistance spending compared with what they would have received had their highest level of educational attainment been a high school education.

In total, the cohort of currently enrolled single mother students who earn degrees or some college credit is expected to save society *\$19.9 billion* in public assistance spending.

At the state level, savings for the cohort of single mothers enrolled in 2015-16 who are expected to earn an associate or bachelor's degree or some college education range from nearly \$21 million in Alaska to \$1.7 billion in California.¹¹

¹⁰ Total reduction in the receipt of public assistance among 2015-16 cohort of single mothers with some college education is much higher than for single mothers with associate and bachelor's degrees because the number of single mothers earning some college education but no degree is much greater than the number earning degrees (918,000 single mothers are expected to earn some college education versus 137,000 single mothers who are expected to earn degrees based on current attainment rates).

¹¹ Due to sample size limitations in the data used to estimate the effects of college education on single mothers' public assistance receipt, estimated reductions at the individual level are based on region-level baseline data and national-level models. Savings estimates for the cohort of single mothers currently enrolled are based on estimated state-level variation in single mother enrollment.

Investments in Single Mothers' College Success Bring Impressive Returns to the U.S. and State Economies

Evidence suggests that providing targeted supportive services that help single mother students meet their families' basic needs and manage their time demands can make an important difference in their ability to enroll in and graduate from college. More research is needed to isolate the effects of these supports on single mothers' college outcomes, but available evidence indicates that child care, case management (sometimes called coaching), and financial assistance have the potential to improve single mothers' ability to graduate. Based on this literature, IWPR estimated the costs of national and state-level investments in providing these supports to single mothers currently enrolled in college and explored the potential effects on their completion rates. This analysis established that, even when investing in single mothers who do not graduate, these investments are likely to pay off many times over.

Greater Access to Supportive Services Could Improve Single Mothers' Completion Rates

Research has established the importance of access to key supportive services for student parents' ability to stay in college and earn a degree.

Child Care. A range of evidence suggests that access to affordable, reliable, and convenient child care is essential to student parents' college persistence (Chase-Lansdale et al. 2019; DeMario 2017; Hess et al. 2014; Johnson and Rochkind 2009; Sabol et al. 2015). In addition, analysis of eight years (2006-2014) of data from Monroe Community College (MCC) in Rochester, New York, which tracks student parents' outcomes and campus child care usage, and anonymous student-level attainment data from the National Student Clearinghouse, provides insight into the role of child care usage in student parents' ability to earn college credentials. According to these data, for students who were enrolled for at least three terms between 2006 and 2012, those who used the campus child care center were 21 percent more likely to earn a degree at any point through summer 2018 (rather than within the three-year definition of "on time" completion for associate degrees) than their counterparts with children who did not use the center (Miller 2019).

Case Management. Evidence suggests that intensive case management can improve outcomes for students who have comparable backgrounds to student parents (Bettinger and Baker 2014; DVP-PRAXIS 2019; Evans et al. 2017; Scrivener et al. 2015). In one randomized control trial, researchers measured the impact of comprehensive case management (which included coaching, mentoring, and

referrals to services, in addition to limited access to emergency financial assistance) on 1,168 community college students' outcomes at Tarrant County College in Fort Worth, Texas between 2013 and 2016. They found that for women, case management tripled associate degree receipt. For all students, the intervention was associated with a 47 percent increase in degree completion (Evans et al. 2017).

Financial Aid. Financial aid is also associated with improved degree completion, particularly for students with low incomes (Castleman and Long 2013; Franke 2014; Goldrick-Rab et al. 2016). One study evaluated the impact of need-based financial assistance on degree attainment for over 6,500 students from 651 four-year colleges and universities in the United States. The study found that for every \$1,000 dollar increase in aid received through federal grants, students are 1.6-2.8 percent more likely to graduate (Franke 2014).

Investments in Supports for Single Mothers Result in Large Economic Returns

Given the evidence on the effect of child care, case management, and financial aid on student educational attainment, IWPR estimated how much it would cost to invest in each of these supports for all currently enrolled single mothers nationally and by state, including those who are not expected to graduate, using published cost information. From these estimated costs, IWPR calculated the expected return on that investment that would be experienced as a result of increases in single mothers' graduation rates, using the rates established in the literature cited above. It found that investments made in each of the three supports for all currently enrolled single mothers pay off multiple times over, for the country as a whole and for every state (Figure 6).

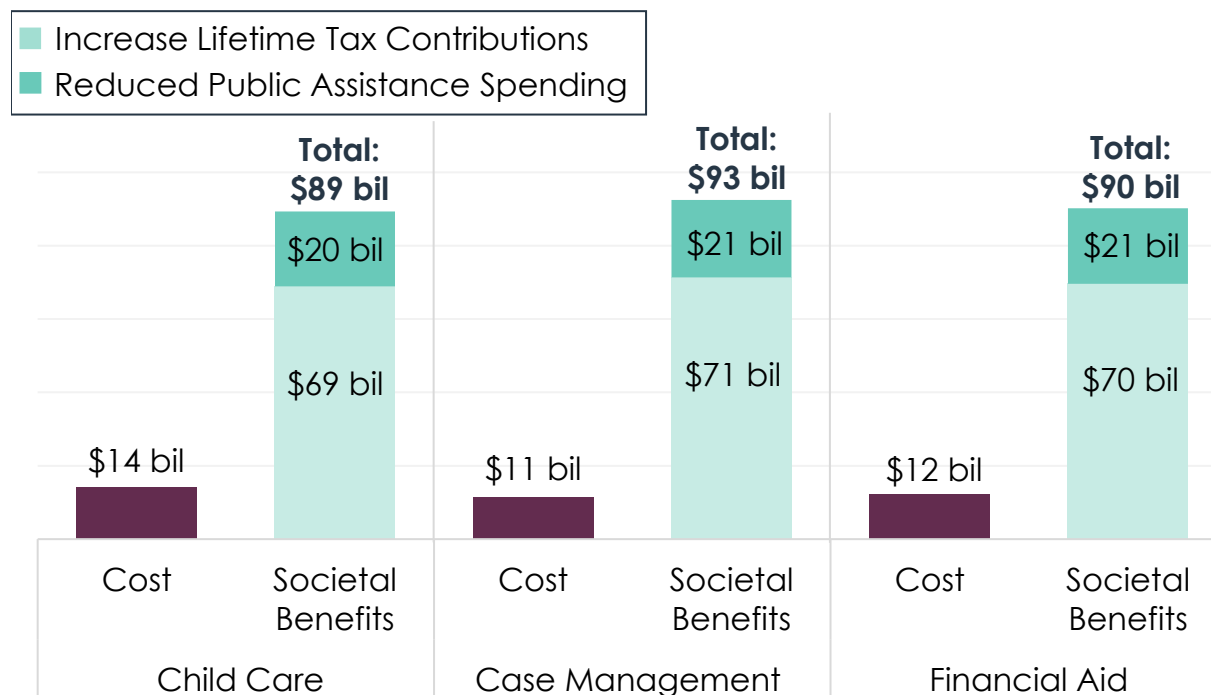
“When I couldn’t afford to pay my tuition, I made the impossible possible. If I had to sell the couch I sat on, I would.”

“Financial aid just wasn’t enough to fix life’s little emergencies.”

- Single mother students

Figure 6. Investments in Supports for Single Mothers' Educational Success Would More than Pay for Themselves

Contributions and Costs to U.S. Society for a Cohort of Single Mother Students



Note: Societal benefits are estimated based on increases in the number of single mothers earning degrees after receiving the supports. Totals may not sum due to rounding.

Source: The costs of support investments and estimates of associated graduation effects are derived from Child Care Aware (2018), Evans et al. (2017), and Franke (2014).

Investments made in child care, case management, and financial aid for all currently enrolled single mothers pay off multiple times over, for the country as a whole and for every state.

- For every dollar spent on child care for single mother students nationally, the United States would get back \$4.30. To provide child care services to all enrolled single mothers as of 2015-16, for the duration of their enrollment to degree or to stop out, the United States would need to invest roughly \$14 billion. This investment would increase the rate of single mothers' attainment of degrees by an estimated 21 percent, and lead to an increase in their tax contributions and reduction in public assistance spending over the course of their lifetime—for an estimated

societal gain of \$89 billion. As a result, the country would see a return of 430 percent on its investment in child care for single mother students (Appendix Table C1). Alabama, Arkansas, and Louisiana would see the greatest returns on investments in child care. Even states with the lowest expected returns on an investment in child care would get their money back at least two times over.

- **A national investment in case management has a return on investment of \$5.48 for every dollar spent.** Investing in case management for all currently enrolled single mothers would cost roughly \$11.4 billion, boost their attainment rate by an estimated 47 percent, and increase the societal benefits of single mothers' educational attainment by approximately \$92.5 billion, resulting in a return on investment of \$5.48 for every dollar spent, or 548 percent (Appendix Table C2). Connecticut, Maryland, and Hawaii would see the greatest return on investment in case management.
- **The country would get a return of \$5.05 for every dollar spent on providing additional financial aid to single mothers.** Providing currently enrolled single mothers with an additional \$2,000 per year for the duration of their enrollment would cost about \$12 billion and result in a total additional benefit to society of \$90.2 billion, with an estimated increase in their graduation rate of 2.8 percent per \$1,000 spent. As a result, the country would get their money back five times over, or a return of 505 percent (Appendix Table C3). As with case management, Connecticut, Maryland, and Hawaii would see the greatest return on investment in additional financial aid.

These returns would hold even if states, or the country more broadly, invested in only a portion of the single mother student population, allowing the size of investments to be proportional to state and federal budgets.

Recommendations for Moving the Needle for Single Mothers' Postsecondary Success

Single mother college graduates contribute significantly to U.S. society. Their economic contributions, in the form of increased tax payments and reduced public assistance receipt, in combination with all the additional and multigenerational benefits of higher education for individuals and families, means that investing in interventions to improve single mothers' college attainment has powerful implications for U.S. society over the long term. To capitalize on the many benefits of single mothers' higher educational

success, institutions, states, and the country more broadly should consider the following recommendations:

Institutions should:

- Invest in supportive services that can help single mothers persist in and complete college, such as affordable, campus-based child care services, holistic case management, and programs that provide targeted support and information to students with children.
- Remove obstacles to single mothers' educational progress in college policies, such as allowing makeups for absences due to child illness, and build campus environments that embrace and acknowledge student families.
- Inform students that child care is an allowable college expense that can be considered in calculating financial aid and assist them in applying for the dependent care allowance.
- Collect and report data on students' parent status and educational outcomes to inform the design and implementation of interventions to increase student parents' completion rates.

State and Federal Policymakers should:

- Invest in making quality child care accessible and affordable for student parents, by providing or increasing funding for child care for college students, removing barriers to students' eligibility for state child care assistance, and incentivizing greater collaboration between the early and higher education systems.
- Require and provide technical assistance to colleges to collect data on students' parent status and educational outcomes.
- Leverage federal programs, such as TANF, SNAP Education & Training, Head Start/Early Head Start, and the Workforce Innovation and Opportunity Act, to support parents with low incomes to pursue higher education.

“When we invest in education today, we invest in future generations as well.”

- Single mother student

Appendix A. Methodology

IWPR's work to quantify the individual and societal costs and benefits of single mothers' attainment of college degrees draws on existing literature and new calculations using an array of data sources. IWPR estimated the lifetime earnings and public assistance receipt at the baseline (single mothers with high school only) and evaluated the effects of three levels of educational attainment (some college education, but no degree; associate degrees; and bachelor's degrees) on these outcomes. These effects were estimated using regressions and linear probability models that control for demographic and socioeconomic characteristics, and which utilized data from the 2015-17 American Community Survey (ACS) and the 2014-18 Current Population Survey (CPS).

The estimated age-earnings profile for each level of college education and the baseline is applied to 2017 federal and state tax rate structures, as well as Earned Income Tax Credit (EITC) and Child Tax Credit benefit levels and take-up rates, to estimate total lifetime tax payments. This assumes the tax system will remain unchanged over an extended period of time, which is unlikely. To the extent that any changes impact single mothers of different levels of education in a similar way, however, the effect on differences in tax contributions may be minimal.

IWPR estimated the cost of college for single mothers for each of the three educational levels using data from the 2015-16 National Postsecondary Student Aid Survey (NPSAS) and the ACS. The total cost estimates include tuition and fees, books and supplies, the opportunity cost of reducing work hours, and child care costs when in college. Costs based on regional data from the NPSAS are adjusted for state-level variation by using differences in average tuition rates and cost of living by state. Aggregate benefits and costs by state are adjusted for estimates of single mother enrollment, six-year graduation rates from the 2003-09 Beginning Postsecondary Students Longitudinal Study (BPS), and estimated individual costs and benefits.

Estimates of the return on investments in supportive services use published cost data from Child Care Aware of America and Evans et al. (2017); the financial aid investment of \$2,000 per academic year was set by IWPR based on the average amount found to increase attainment in the literature. Using evidence on the effect of these specific supports on student attainment from the literature, IWPR estimated the effect of providing them to single mother students on their graduation rates, and subsequent individual-level earnings, public assistance receipt, and tax payments. The estimated rate of return assumes that investments are made in all single mother students, including those who do not graduate. Benefits to single mothers with some college education, but no degree, are included, given the extensive evidence showing the value of some college education relative to a high school diploma.

For a detailed description of the methodology used in this work, see "National and State Estimates of the Costs and Benefits of Single Mothers' Educational Attainment to Individuals, Families, and Society: Methodological Appendix," published separately on IWPR's website, iwpr.org.

Appendix B. State Data Tables

Appendix Table B1. Number and Share of Students Who are Parents and Single Mothers, and Numbers of Single Mothers Expected to Attain Degrees or Some College Education, by State, 2015-16

State	Student Parents		Single Mothers		Number of Single Mothers Expected to Complete at Current Attainment Rates		
	Number	Regional Share	Number	Share of All Students	Some College Education	A.A. Degree	B.A. Degree
Alabama	60,482	23.3%	26,410	10.2%	24,239	1,698	474
Alaska	5,521	19.8%	2,161	7.8%	1,983	139	39
Arizona	144,759	26.2%	65,405	11.8%	60,026	4,204	1,174
Arkansas	35,278	23.3%	15,881	10.5%	14,575	1,021	285
California	486,454	19.8%	181,182	7.4%	166,283	11,646	3,253
Colorado	76,017	27.0%	24,028	8.5%	22,052	1,544	431
Connecticut	31,705	18.3%	13,749	7.9%	12,619	884	247
Delaware	8,912	18.1%	4,674	9.5%	4,290	300	84
District of Columbia	9,181	18.1%	4,802	9.5%	4,407	309	86
Florida	234,409	23.3%	103,871	10.3%	95,329	6,677	1,865
Georgia	108,200	23.3%	49,830	10.7%	45,733	3,203	895
Hawaii	12,236	19.8%	4,836	7.8%	4,438	311	87
Idaho	30,942	27.0%	10,440	9.1%	9,581	671	187
Illinois	145,882	22.1%	70,747	10.7%	64,929	4,547	1,270
Indiana	82,288	22.1%	39,394	10.6%	36,154	2,532	707
Iowa	55,937	23.5%	23,206	9.7%	21,298	1,492	417
Kansas	45,285	23.5%	17,933	9.3%	16,458	1,153	322
Kentucky	51,961	23.3%	23,054	10.4%	21,159	1,482	414
Louisiana	52,148	23.3%	24,133	10.8%	22,149	1,551	433
Maine	11,647	18.3%	5,163	8.1%	4,739	332	93
Maryland	54,908	18.1%	25,955	8.5%	23,821	1,668	466
Massachusetts	70,050	18.3%	30,375	7.9%	27,877	1,952	545
Michigan	116,781	22.1%	55,814	10.6%	51,225	3,588	1,002
Minnesota	72,978	23.5%	30,626	9.8%	28,108	1,969	550
Mississippi	36,231	23.3%	17,060	11.0%	15,657	1,097	306
Missouri	78,446	23.5%	32,960	9.9%	30,249	2,119	592
Montana	12,540	27.0%	3,965	8.5%	3,638	255	71
Nebraska	26,083	23.5%	10,534	9.5%	9,668	677	189
Nevada	21,461	19.8%	8,360	7.7%	7,672	537	150
New Hampshire	17,655	18.3%	8,123	8.4%	7,455	522	146
New Jersey	68,142	18.1%	31,786	8.4%	29,172	2,043	571
New Mexico	33,048	26.2%	14,451	11.5%	13,263	929	259
New York	194,429	18.1%	92,884	8.6%	85,246	5,970	1,668
North Carolina	115,569	23.3%	52,479	10.6%	48,163	3,373	942
North Dakota	11,019	23.5%	4,059	8.6%	3,725	261	73
Ohio	130,509	22.1%	62,541	10.6%	57,398	4,020	1,123
Oklahoma	53,659	26.2%	22,563	11.0%	20,707	1,450	405
Oregon	41,614	19.8%	15,433	7.4%	14,163	992	277
Pennsylvania	114,027	18.1%	53,581	8.5%	49,175	3,444	962
Rhode Island	13,490	18.3%	5,923	8.0%	5,435	381	106
South Carolina	52,821	23.3%	24,071	10.6%	22,091	1,547	432
South Dakota	11,017	23.5%	4,475	9.5%	4,107	288	80

State	Student Parents		Single Mothers		Number of Single Mothers Expected to Complete at Current Attainment Rates		
	Number	Regional Share	Number	Share of All Students	Some College Education	A.A. Degree	B.A. Degree
Tennessee	68,494	23.3%	30,093	10.3%	27,619	1,934	540
Texas	372,255	26.2%	158,936	11.2%	145,866	10,216	2,854
Utah	73,618	27.0%	23,167	8.5%	21,262	1,489	416
Vermont	6,820	18.3%	2,757	7.4%	2,530	177	50
Virginia	111,263	23.3%	48,631	10.2%	44,632	3,126	873
Washington	66,060	19.8%	24,723	7.4%	22,690	1,589	444
West Virginia	30,368	23.3%	11,496	8.8%	10,551	739	206
Wisconsin	68,779	22.1%	32,798	10.5%	30,100	2,108	589
Wyoming	8,536	27.0%	2,677	8.5%	2,457	172	48
United States	3,839,961	22.0%	1,662,878	9.5%	1,526,133	106,886	29,859

Note: Because no state-level data are available on student parents, the number and share of undergraduate students who are parents and single mothers were estimated by multiplying state-level enrollment data by the regional data on students who are parents and single mothers. The number of single mothers expected to earn each level of education is calculated by multiplying the estimated number of single mothers enrolled in college by the national six-year attainment rate for bachelor's degrees (1.8 percent), associate degrees (6.4 percent), and some college education, no degree (which includes single mothers who dropped out with no degree, are still enrolled without a degree, and who earned certificates; 91.8 percent) from the 2003-09 Beginning Postsecondary Student survey. Attainment rates by region are not available due to small sample sizes. Source: IWPR analysis of data from the U.S. Department of Education, National Center for Education Statistics, 2015-16 National Postsecondary Student Aid Study (NPSAS:16), 2015 data from the Integrated Postsecondary Education Data System, and the 2003-04 Beginning Postsecondary Students Longitudinal Study, Second Follow Up (BPS:04/09).

Appendix Table B2. Single Mothers' Total Lifetime Earnings and Gains above High School-Level Earnings, by Educational Attainment and State

State	High School	Some College Education		Associate Degree		Bachelor's Degree	
	Baseline Lifetime Earnings	Total Lifetime Earnings	Lifetime Earnings Gains	Total Lifetime Earnings	Lifetime Earnings Gains	Total Lifetime Earnings	Lifetime Earnings Gains
Alabama	\$394,632	\$528,702	\$134,070	\$695,851	\$301,219	\$982,410	\$587,778
Alaska	\$503,898	\$646,346	\$142,448	\$779,244	\$275,346	\$1,222,800	\$718,902
Arizona	\$513,750	\$658,151	\$144,401	\$750,192	\$236,442	\$1,121,450	\$607,699
Arkansas	\$447,798	\$585,930	\$138,131	\$738,883	\$291,085	\$1,105,895	\$658,097
California	\$503,898	\$649,152	\$145,254	\$795,921	\$292,023	\$1,263,966	\$760,068
Colorado	\$513,750	\$616,507	\$102,756	\$730,066	\$216,315	\$1,053,572	\$539,822
Connecticut	\$548,720	\$756,695	\$207,975	\$902,446	\$353,726	\$1,276,950	\$728,230
Delaware	\$457,417	\$627,295	\$169,878	\$696,647	\$239,230	\$1,018,369	\$560,952
District of Columbia	\$457,417	\$674,090	\$216,673	\$706,340	\$248,923	\$1,100,169	\$642,752
Florida	\$457,417	\$601,699	\$144,282	\$678,583	\$221,166	\$1,029,169	\$571,752
Georgia	\$457,417	\$592,002	\$134,585	\$674,222	\$216,805	\$1,064,896	\$607,479
Hawaii	\$503,898	\$646,346	\$142,448	\$779,244	\$275,346	\$1,222,800	\$718,902
Idaho	\$513,750	\$644,311	\$130,561	\$729,547	\$215,797	\$1,105,939	\$592,189
Illinois	\$474,385	\$580,594	\$106,209	\$696,414	\$222,030	\$1,057,410	\$583,025
Indiana	\$474,385	\$592,815	\$118,431	\$699,295	\$224,910	\$1,069,413	\$595,029
Iowa	\$519,515	\$616,177	\$96,663	\$758,595	\$239,080	\$1,068,598	\$549,083
Kansas	\$519,515	\$625,861	\$106,347	\$786,286	\$266,771	\$1,082,059	\$562,545
Kentucky	\$394,632	\$462,732	\$68,100	\$616,546	\$221,914	\$932,996	\$538,365
Louisiana	\$447,798	\$571,000	\$123,201	\$730,559	\$282,760	\$1,075,752	\$627,954
Maine	\$548,720	\$685,564	\$136,844	\$833,061	\$284,340	\$1,171,071	\$622,350
Maryland	\$457,417	\$639,014	\$181,597	\$706,962	\$249,545	\$1,111,643	\$654,226
Massachusetts	\$548,720	\$702,909	\$154,188	\$837,500	\$288,779	\$1,190,161	\$641,441
Michigan	\$474,385	\$622,285	\$147,901	\$751,589	\$277,205	\$1,062,239	\$587,854
Minnesota	\$519,515	\$625,908	\$106,393	\$815,037	\$295,522	\$1,091,386	\$571,871
Mississippi	\$394,632	\$523,786	\$129,154	\$666,546	\$271,915	\$1,001,692	\$607,061
Missouri	\$519,515	\$633,104	\$113,589	\$736,477	\$216,962	\$1,130,694	\$611,179
Montana	\$513,750	\$626,678	\$112,928	\$728,714	\$214,964	\$1,061,025	\$547,275
Nebraska	\$519,515	\$625,861	\$106,347	\$786,286	\$266,771	\$1,082,059	\$562,545
Nevada	\$513,750	\$626,678	\$112,928	\$728,714	\$214,964	\$1,061,025	\$547,275
New Hampshire	\$548,720	\$685,564	\$136,844	\$833,061	\$284,340	\$1,171,071	\$622,350
New Jersey	\$518,071	\$654,846	\$136,775	\$724,595	\$206,524	\$1,296,699	\$778,628
New Mexico	\$513,750	\$647,292	\$133,542	\$880,364	\$366,614	\$1,120,834	\$607,084
New York	\$518,071	\$626,689	\$108,618	\$712,308	\$194,236	\$1,207,571	\$689,499
North Carolina	\$457,417	\$601,220	\$143,803	\$742,245	\$284,828	\$1,054,464	\$597,047
North Dakota	\$519,515	\$625,861	\$106,347	\$786,286	\$266,771	\$1,082,059	\$562,545
Ohio	\$474,385	\$589,573	\$115,189	\$761,253	\$286,868	\$1,029,547	\$555,162
Oklahoma	\$447,798	\$570,213	\$122,414	\$746,518	\$298,720	\$1,051,152	\$603,353
Oregon	\$503,898	\$655,791	\$151,893	\$787,914	\$284,016	\$1,237,342	\$733,444
Pennsylvania	\$518,071	\$622,925	\$104,854	\$785,417	\$267,346	\$1,126,638	\$608,566
Rhode Island	\$548,720	\$685,564	\$136,844	\$833,061	\$284,340	\$1,171,071	\$622,350
South Carolina	\$457,417	\$566,436	\$109,019	\$682,125	\$224,708	\$968,554	\$511,137
South Dakota	\$519,515	\$650,724	\$131,209	\$813,903	\$294,389	\$1,074,639	\$555,125
Tennessee	\$394,632	\$483,325	\$88,693	\$667,080	\$272,449	\$892,919	\$498,288
Texas	\$447,798	\$590,760	\$142,962	\$762,120	\$314,322	\$1,110,894	\$663,096
Utah	\$513,750	\$626,678	\$112,928	\$728,714	\$214,964	\$1,061,025	\$547,275
Vermont	\$548,720	\$685,564	\$136,844	\$833,061	\$284,340	\$1,171,071	\$622,350
Virginia	\$457,417	\$605,592	\$148,175	\$722,589	\$265,172	\$1,139,849	\$682,432
Washington	\$503,898	\$636,982	\$133,084	\$758,190	\$254,292	\$1,133,777	\$629,879
West Virginia	\$457,417	\$589,160	\$131,743	\$682,114	\$224,697	\$1,044,545	\$587,128
Wisconsin	\$474,385	\$564,935	\$90,551	\$686,625	\$212,240	\$970,436	\$496,052
Wyoming	\$513,750	\$626,678	\$112,928	\$728,714	\$214,964	\$1,061,025	\$547,275
United States	\$479,318	\$607,055	\$127,737	\$735,377	\$256,059	\$1,104,452	\$625,134

Note: Expected lifetime earnings are calculated over the age range 35 to 64. Expected earnings account for differences in employment rates by age and level of education. Earnings estimates are presented in their undiscounted forms for ease of interpretation. For the return on investment calculations described below, these values are discounted to their present value using a discount rate of 3.5 percent.

Source: IWPR cost-benefit analysis.

Appendix Table B3. Single Mothers' Investment in College and the Return on their Investment, by Educational Attainment and State

State	Total Cost of College			Return on College Investment		
	Some College Education	Associate Degree	Bachelor's Degree	Return for Some College	Return to an A.A.	Return to a B.A.
Alabama	\$28,613	\$14,761	\$50,236	\$3.66	\$12.17	\$9.95
Alaska	\$23,644	\$11,996	\$42,587	\$4.88	\$13.00	\$11.21
Arizona	\$34,254	\$21,277	\$45,142	\$3.42	\$10.97	\$8.50
Arkansas	\$28,729	\$13,404	\$52,443	\$3.48	\$13.08	\$9.46
California	\$24,834	\$16,954	\$41,678	\$4.33	\$15.07	\$8.81
Colorado	\$21,760	\$12,392	\$38,905	\$1.70	\$8.01	\$4.69
Connecticut	\$29,364	\$16,002	\$53,137	\$5.53	\$19.41	\$8.53
Delaware	\$29,981	\$15,860	\$54,714	\$6.69	\$8.14	\$11.60
District of Columbia	\$26,568	\$15,146	\$49,027	\$5.81	\$12.09	\$7.48
Florida	\$35,830	\$18,361	\$67,634	\$4.20	\$12.21	\$9.18
Georgia	\$23,265	\$12,405	\$44,067	\$3.30	\$10.90	\$8.16
Hawaii	\$27,458	\$13,601	\$52,515	\$3.46	\$7.72	\$9.41
Idaho	\$29,244	\$12,283	\$58,045	\$4.60	\$8.91	\$12.14
Illinois	\$33,977	\$19,769	\$61,881	\$2.71	\$9.52	\$5.89
Indiana	\$34,175	\$22,216	\$60,081	\$3.29	\$9.00	\$7.03
Iowa	\$22,185	\$18,037	\$36,010	\$2.56	\$12.56	\$7.65
Kansas	\$40,261	\$18,536	\$80,918	\$3.57	\$19.33	\$9.62
Kentucky	\$18,801	\$16,625	\$34,194	\$1.53	\$9.57	\$6.94
Louisiana	\$40,282	\$18,551	\$80,983	\$2.32	\$10.52	\$6.55
Maine	\$20,823	\$18,887	\$37,533	\$3.99	\$18.27	\$7.97
Maryland	\$13,896	\$15,947	\$25,405	\$4.46	\$9.28	\$7.30
Massachusetts	\$25,360	\$13,014	\$50,509	\$3.68	\$13.52	\$6.81
Michigan	\$19,959	\$9,404	\$41,118	\$4.35	\$13.19	\$6.88
Minnesota	\$29,330	\$14,278	\$59,530	\$2.43	\$14.08	\$6.77
Mississippi	\$21,354	\$9,116	\$45,320	\$3.94	\$14.94	\$10.97
Missouri	\$20,771	\$9,038	\$43,875	\$3.56	\$16.17	\$9.47
Montana	\$18,263	\$12,643	\$31,819	\$1.86	\$7.95	\$4.75
Nebraska	\$24,880	\$15,751	\$45,253	\$3.43	\$20.12	\$9.02
Nevada	\$25,312	\$12,391	\$61,184	\$3.34	\$7.75	\$9.38
New Hampshire	\$22,972	\$10,555	\$55,883	\$3.92	\$8.76	\$8.74
New Jersey	\$27,989	\$14,483	\$67,360	\$3.31	\$7.03	\$8.72
New Mexico	\$23,412	\$22,015	\$50,983	\$3.86	\$20.89	\$10.01
New York	\$25,495	\$13,251	\$61,332	\$2.69	\$5.73	\$8.18
North Carolina	\$28,134	\$19,085	\$65,489	\$3.31	\$15.82	\$7.26
North Dakota	\$16,798	\$20,098	\$34,221	\$3.90	\$14.38	\$12.44
Ohio	\$24,606	\$14,063	\$60,599	\$3.33	\$12.99	\$6.49
Oklahoma	\$27,056	\$18,476	\$63,513	\$2.43	\$9.61	\$9.40
Oregon	\$27,217	\$19,949	\$62,838	\$2.81	\$6.69	\$7.31
Pennsylvania	\$26,490	\$22,868	\$59,228	\$2.36	\$8.36	\$6.42
Rhode Island	\$29,228	\$21,709	\$66,500	\$3.60	\$14.55	\$7.26
South Carolina	\$25,949	\$15,908	\$69,537	\$2.16	\$7.77	\$5.82
South Dakota	\$23,760	\$16,983	\$59,343	\$3.51	\$12.71	\$8.63
Tennessee	\$22,638	\$14,327	\$59,966	\$2.02	\$11.59	\$6.62
Texas	\$23,027	\$15,063	\$60,112	\$3.39	\$16.12	\$8.93
Utah	\$24,026	\$17,482	\$59,561	\$3.60	\$7.81	\$10.24
Vermont	\$19,485	\$14,495	\$45,147	\$3.26	\$10.10	\$6.80
Virginia	\$22,347	\$13,277	\$60,762	\$2.92	\$8.14	\$8.02
Washington	\$27,466	\$24,419	\$53,797	\$2.88	\$6.69	\$7.70
West Virginia	\$35,991	\$29,027	\$70,571	\$4.00	\$8.51	\$11.52
Wisconsin	\$30,838	\$25,876	\$57,545	\$2.52	\$8.32	\$5.88
Wyoming	\$22,444	\$18,919	\$40,902	\$5.40	\$9.25	\$15.13
United States	\$25,820	\$14,186	\$56,780	\$3.31	\$12.32	\$7.77

Note: Cost of college values include only new costs directly related to college enrollment, and do not include costs that single mothers would have otherwise, such as housing, transportation, and other personal/family expenses. Cost estimates are presented in their undiscounted forms for ease of interpretation. For the return on investment calculations described below, these values are discounted to their present value using a discount rate of 3.5 percent.

Source: IWPR cost-benefit analysis.

Appendix Table B4. Single Mothers' Total Lifetime Tax Payments, by Educational Attainment and State, Compared with Single Mothers with Only a High School Education

State	High School	Some College Education		Associate Degree		Bachelor's Degree	
	Baseline Lifetime Tax Payments	Total Lifetime Tax Payments	Additional Lifetime Tax Payments	Total Lifetime Tax Payments	Additional Lifetime Tax Payments	Total Lifetime Tax Payments	Additional Lifetime Tax Payments
Alabama	\$61,105	\$108,492	\$47,387	\$155,081	\$93,976	\$255,765	\$194,660
Alaska	\$55,262	\$89,783	\$34,522	\$127,286	\$72,024	\$275,149	\$219,888
Arizona	\$73,427	\$106,503	\$33,076	\$145,282	\$71,855	\$278,330	\$204,903
Arkansas	\$64,677	\$100,675	\$35,998	\$141,775	\$77,098	\$292,534	\$227,857
California	\$82,034	\$124,437	\$42,403	\$181,899	\$99,865	\$386,537	\$304,503
Colorado	\$93,715	\$121,695	\$27,980	\$157,301	\$63,587	\$286,801	\$193,086
Connecticut	\$92,097	\$171,591	\$79,494	\$213,353	\$121,256	\$361,567	\$269,470
Delaware	\$52,819	\$88,404	\$35,585	\$110,658	\$57,839	\$254,347	\$201,528
District of Columbia	\$73,018	\$111,223	\$38,205	\$134,969	\$61,951	\$287,596	\$214,578
Florida	\$44,085	\$88,924	\$44,839	\$101,499	\$57,414	\$228,885	\$184,800
Georgia	\$68,947	\$107,704	\$38,758	\$131,793	\$62,847	\$286,307	\$217,360
Hawaii	\$93,271	\$138,375	\$45,104	\$186,920	\$93,650	\$382,073	\$288,802
Idaho	\$72,264	\$102,124	\$29,860	\$140,231	\$67,968	\$279,064	\$206,800
Illinois	\$87,311	\$110,932	\$23,621	\$146,968	\$59,657	\$292,126	\$204,815
Indiana	\$80,744	\$100,449	\$19,705	\$126,266	\$45,523	\$251,707	\$170,964
Iowa	\$76,676	\$105,900	\$29,224	\$155,585	\$78,909	\$271,184	\$194,508
Kansas	\$70,522	\$99,287	\$28,765	\$148,575	\$78,052	\$262,835	\$192,313
Kentucky	\$59,879	\$79,355	\$19,475	\$127,238	\$67,359	\$237,735	\$177,855
Louisiana	\$52,582	\$91,319	\$38,737	\$133,810	\$81,228	\$263,263	\$210,680
Maine	\$91,140	\$137,974	\$46,834	\$184,132	\$92,992	\$330,076	\$238,935
Maryland	\$64,110	\$116,371	\$52,261	\$144,668	\$80,558	\$308,587	\$244,477
Massachusetts	\$109,768	\$149,729	\$39,961	\$198,463	\$88,694	\$349,615	\$239,847
Michigan	\$72,560	\$109,156	\$36,596	\$140,351	\$67,791	\$263,902	\$191,342
Minnesota	\$69,774	\$100,163	\$30,390	\$151,832	\$82,059	\$287,349	\$217,576
Mississippi	\$52,793	\$73,574	\$20,781	\$120,302	\$67,509	\$228,088	\$175,295
Missouri	\$71,623	\$102,419	\$30,796	\$128,907	\$57,284	\$270,386	\$198,763
Montana	\$58,406	\$85,371	\$26,965	\$119,976	\$61,570	\$245,894	\$187,489
Nebraska	\$69,223	\$97,802	\$28,578	\$146,681	\$77,458	\$264,219	\$194,995
Nevada	\$59,177	\$83,465	\$24,288	\$114,396	\$55,219	\$227,432	\$168,255
New Hampshire	\$58,134	\$93,723	\$35,589	\$128,764	\$70,630	\$238,269	\$180,135
New Jersey	\$74,837	\$110,299	\$35,462	\$127,985	\$53,148	\$353,828	\$278,991
New Mexico	\$69,005	\$112,843	\$43,839	\$174,143	\$105,138	\$271,689	\$202,685
New York	\$93,951	\$123,622	\$29,672	\$140,489	\$46,539	\$354,237	\$260,286
North Carolina	\$73,002	\$110,549	\$37,548	\$146,273	\$73,271	\$285,391	\$212,389
North Dakota	\$54,078	\$79,655	\$25,577	\$123,077	\$68,999	\$224,143	\$170,065
Ohio	\$63,686	\$90,354	\$26,668	\$134,320	\$70,634	\$249,878	\$186,192
Oklahoma	\$54,464	\$89,107	\$34,643	\$142,389	\$87,925	\$252,731	\$198,267
Oregon	\$106,380	\$147,672	\$41,292	\$194,799	\$88,419	\$380,772	\$274,392
Pennsylvania	\$87,434	\$115,135	\$27,702	\$157,337	\$69,903	\$286,026	\$198,592
Rhode Island	\$90,741	\$129,968	\$39,227	\$176,308	\$85,567	\$308,353	\$217,612
South Carolina	\$55,324	\$84,873	\$29,549	\$120,070	\$64,746	\$224,768	\$169,444
South Dakota	\$48,910	\$73,391	\$24,481	\$114,888	\$65,978	\$211,685	\$162,775
Tennessee	\$63,425	\$82,461	\$19,036	\$129,295	\$65,871	\$237,436	\$174,012
Texas	\$35,444	\$70,354	\$34,910	\$125,245	\$89,801	\$245,079	\$209,636
Utah	\$87,159	\$115,261	\$28,102	\$151,022	\$63,863	\$281,065	\$193,906
Vermont	\$92,331	\$130,782	\$38,451	\$176,614	\$84,282	\$307,941	\$215,610
Virginia	\$63,793	\$107,125	\$43,332	\$130,324	\$66,532	\$308,866	\$245,074
Washington	\$69,810	\$106,653	\$36,842	\$127,841	\$58,031	\$272,720	\$202,909
West Virginia	\$68,291	\$104,492	\$36,201	\$127,080	\$58,789	\$273,825	\$205,534
Wisconsin	\$66,877	\$95,602	\$28,725	\$134,930	\$68,053	\$266,507	\$199,630
Wyoming	\$53,218	\$76,869	\$23,651	\$106,993	\$53,775	\$217,189	\$163,971
United States	\$68,948	\$103,496	\$34,548	\$140,350	\$71,402	\$289,072	\$220,124

Note: Estimated lifetime tax payments are presented in their undiscounted forms for ease of interpretation. For the return on investment calculations described below, these values are discounted to their present value using a discount rate of 3.5 percent.

Source: IWPR cost-benefit analysis.

Appendix Table B5. Single Mothers' Total Lifetime Public Assistance Receipt and Savings Compared with Single Mothers with Only a High School Education, by Educational Attainment and State

State	High School	Some College Education		Associate Degree		Bachelor's Degree	
	Baseline Lifetime Receipt	Total Expected Lifetime Receipt	Lifetime Savings	Total Expected Lifetime Receipt	Lifetime Savings	Total Expected Lifetime Receipt	Lifetime Savings
Alabama	\$86,716	\$76,089	\$10,628	\$60,968	\$25,748	\$43,156	\$43,560
Alaska	\$85,318	\$73,026	\$12,292	\$56,458	\$28,859	\$37,924	\$47,393
Arizona	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
Arkansas	\$68,111	\$58,431	\$9,680	\$43,614	\$24,497	\$26,116	\$41,995
California	\$85,318	\$73,026	\$12,292	\$56,458	\$28,859	\$37,924	\$47,393
Colorado	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
Connecticut	\$95,018	\$84,756	\$10,262	\$68,164	\$26,854	\$49,008	\$46,010
Delaware	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
District of Columbia	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
Florida	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
Georgia	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
Hawaii	\$85,318	\$73,026	\$12,292	\$56,458	\$28,859	\$37,924	\$47,393
Idaho	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
Illinois	\$67,815	\$58,358	\$9,457	\$45,405	\$22,410	\$30,247	\$37,569
Indiana	\$67,815	\$58,358	\$9,457	\$45,405	\$22,410	\$30,247	\$37,569
Iowa	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Kansas	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Kentucky	\$86,716	\$76,089	\$10,628	\$60,968	\$25,748	\$43,156	\$43,560
Louisiana	\$68,111	\$58,431	\$9,680	\$43,614	\$24,497	\$26,116	\$41,995
Maine	\$95,018	\$84,756	\$10,262	\$68,164	\$26,854	\$49,008	\$46,010
Maryland	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
Massachusetts	\$95,018	\$84,756	\$10,262	\$68,164	\$26,854	\$49,008	\$46,010
Michigan	\$67,815	\$58,358	\$9,457	\$45,405	\$22,410	\$30,247	\$37,569
Minnesota	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Mississippi	\$86,716	\$76,089	\$10,628	\$60,968	\$25,748	\$43,156	\$43,560
Missouri	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Montana	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
Nebraska	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Nevada	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
New Hampshire	\$95,018	\$84,756	\$10,262	\$68,164	\$26,854	\$49,008	\$46,010
New Jersey	\$93,196	\$82,731	\$10,465	\$66,093	\$27,103	\$46,653	\$46,544
New Mexico	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
New York	\$93,196	\$82,731	\$10,465	\$66,093	\$27,103	\$46,653	\$46,544
North Carolina	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
North Dakota	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Ohio	\$67,815	\$58,358	\$9,457	\$45,405	\$22,410	\$30,247	\$37,569
Oklahoma	\$68,111	\$58,431	\$9,680	\$43,614	\$24,497	\$26,116	\$41,995
Oregon	\$85,318	\$73,026	\$12,292	\$56,458	\$28,859	\$37,924	\$47,393
Pennsylvania	\$93,196	\$82,731	\$10,465	\$66,093	\$27,103	\$46,653	\$46,544
Rhode Island	\$95,018	\$84,756	\$10,262	\$68,164	\$26,854	\$49,008	\$46,010
South Carolina	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
South Dakota	\$59,941	\$50,964	\$8,977	\$38,084	\$21,857	\$23,896	\$36,045
Tennessee	\$86,716	\$76,089	\$10,628	\$60,968	\$25,748	\$43,156	\$43,560
Texas	\$68,111	\$58,431	\$9,680	\$43,614	\$24,497	\$26,116	\$41,995
Utah	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
Vermont	\$95,018	\$84,756	\$10,262	\$68,164	\$26,854	\$49,008	\$46,010
Virginia	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
Washington	\$85,318	\$73,026	\$12,292	\$56,458	\$28,859	\$37,924	\$47,393
West Virginia	\$74,281	\$64,160	\$10,121	\$49,310	\$24,971	\$32,824	\$41,456
Wisconsin	\$67,815	\$58,358	\$9,457	\$45,405	\$22,410	\$30,247	\$37,569
Wyoming	\$63,522	\$52,854	\$10,668	\$36,680	\$26,842	\$19,811	\$43,711
United States	\$76,476	\$66,091	\$10,385	\$50,861	\$25,615	\$32,656	\$43,820

Note: Estimated lifetime public assistance receipt is presented in its undiscounted form for ease of interpretation. For the return on investment calculations described below, these values are discounted to their present value using a discount rate of 3.5 percent.

Source: IWPR cost-benefit analysis.

Appendix C. Costs and Benefits of Investing in Single Mothers' Higher Education, Data Tables

Appendix Table C1. Total Cost of and Returns on an Investment in Child Care for All Currently Enrolled Single Mother Students in the United States

Child Care			
Expected Graduation Effect			21.0%
Median Annual Cost of Care for Children 0-4			\$9,811
Share of Single Mothers with Children Under 6 Needing Full-Time Care			72.6%
Share of Single Mothers with Children Under 6 Needing Part-Time Care			27.4%
Prorated Annual Cost of Care for Single Mother Students			\$8,465
Estimated Child Care Investment	Some College Education	A.A.	B.A.
Total Number of Single Mothers by Educational Attainment after Receiving the Service	1,497,887	128,773	36,217
Average Years Enrolled to Degree/Stop Out	3.5	4.6	6.1
Share of Hours that Care is Needed for Time Spent in School	27.7%	26.1%	27.6%
Per Student Investment for Time to Degree/Stop Out	\$8,175	\$10,069	\$14,364
<i>Total Cost of Investment in Child Care</i>	<i>\$14.0 billion</i>		
Societal Gains by Educational Attainment	Some College Education	A.A.	B.A.
Increase in Tax Contributions	\$52 billion	\$9.2 billion	\$8.0 billion
Reduction in Public Assistance Receipt	\$16 billion	\$3.3 billion	\$1.6 billion
<i>National Return on Investment</i>	<i>430%</i>		

Source: IWPR cost-benefit analysis. Expected graduation effect is from Miller (2019). Median cost of child care calculated using data from Child Care Aware (2018). Child care need estimated using analysis of data from NPSAS:16 and IPEDS; the 2015-17 ACS; and Fosnacht et al. (2018).

Appendix Table C2. Total Cost of and Returns on an Investment in Case Management for All Currently Single Mother Students in the United States

Case Management			
Expected Graduation Effect			47.1%
Annual Cost of Case Management			\$1,880
Estimated Case Management Investment	Some College Education	A.A.	B.A.
Total Number of Single Mothers by Educational Attainment after Receiving the Service	1,462,298	156,550	44,030
Average Years Enrolled to Degree/Stop Out	3.5	4.6	6.1
Per Student Investment for Time to Degree/Stop Out	\$6,555	\$8,557	\$11,557
<i>Total Cost of Investment in Case Management</i>	<i>\$11.4 billion</i>		
Societal Gains by Educational Attainment	Some College Education	A.A.	B.A.
Increase in Tax Contributions	\$51 billion	\$11 billion	\$9.7 billion
Reduction in Public Assistance Receipt	\$15 billion	\$4.0 billion	\$1.9 billion
<i>National Return on Investment</i>	<i>548%</i>		

Source: IWPR cost-benefit analysis. Average cost of case management and expected graduation effect are from Evans et al. (2017).

Appendix Table C3. Total Cost of and Returns on an Investment in Financial Assistance for All Currently Single Mother Students in the United States

Financial Assistance			
Expected Graduation Effect			2.8%
Annual Cost of Additional Financial Assistance			\$2,000
Estimated Financial Aid Investment	Some College Education	A.A.	B.A.
Total Number of Single Mothers by Educational Attainment after Receiving the Service	1,491,555	131,947	39,377
Average Years Enrolled to Degree/Stop Out	3.5	4.6	6.1
Per Student Investment for Time to Degree/Stop Out	\$6,973	\$9,104	\$12,294
Total Cost of Investment in Financial Aid		\$12.1 billion	
Societal Gains by Educational Attainment	Some College Education	A.A.	B.A.
Increase in Tax Contributions	\$52 billion	\$9.4 billion	\$8.7 billion
Reduction in Public Assistance Receipt	\$16 billion	\$3.4 billion	\$1.7 billion
National Return on Investment		505%	

Note: Annual cost of additional financial assistance amount determined by IWPR based on the amount needed to have an effect on completion outcomes in the literature.

Source: IWPR cost-benefit analysis. Expected graduation effect from Franke (2014).

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