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Mother's Education and Children's Outcomes:

How Dual-Generation Programs Offer Increased Opportunities for America's Families

Disparities Among America's Children

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Mother's Education and Children's Outcomes:

How Dual-Generation Programs Offer Increased Opportunities for America's Families

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Executive Summary

Policies and programs aimed at increasing educational and economic opportunities typically target either low-income children or their mothers, but not both, which limits their impact in fostering intergenerational mobility. This insight undergirds the development and implementation of dual-generation strategies, which focus simultaneously on both children and mothers to foster long-term learning and economic success for low-income families. The results in this report highlight the need for dual-generation strategies, based on the first-ever analysis of 13 economic, education, and health indicators for children whose mothers have not graduated from high school, compared to children whose mothers have higher levels of education.

The enormous disparities in well-being identified here point toward the value and need for comprehensive dual-generation strategies that offer high-quality PreK-3rd education for children, effective job training for parents that leads directly to well-paid work, and additional public services—such as health, nutrition, food, and housing—which enable low-income families to overcome barriers to success. There already exist a wide range of policies and programs that could be coordinated and integrated to create dual-generation strategies. But a major step forward will require more flexible, integrated, and supportive federal, state, and local policy structures.

One in every eight children in the U.S. (12 percent) lives with a mother who has not graduated from high school. These children experience especially large disparities compared to children whose mothers have a bachelor degree. Key findings include the following:

Family Economic Resources

Disparities separating children whose

(1) mothers had not graduated from high school, compared to those whose

(2) mothers had a bachelor degree were, respectively:

- 53 vs. 4 percent for the official federal poverty rate
- 84 vs. 13 percent for the low-income rate (that is, family income below twice the official federal poverty threshold)
- $25,000 vs. $106,500 for median family income
- 48 vs. 11 percent for the rate of not having a securely employed parent in the home (that is, not having a parent who works full-time year-around)

Reading and Mathematics Proficiency

Disparities separating children whose

(1) parents had not graduated from high school, compared to those whose

(2) parents had a bachelor degree were, respectively:

- 16 vs. 49 percent for reading proficiently (at grade level) in Eighth Grade
- 16 vs. 52 percent for proficiency in mathematics (at grade level) in Eighth Grade

School Enrollment and Completion

Disparities separating children whose

(1) mothers had not graduated from high school, compared to those whose

(2) mothers had a bachelor degree were, respectively:

- 63 vs. 36 percent for not being enrolled in PreKindergarten at ages 3-4
- 40 vs. 2 percent for not graduating from high school on time (by age 19)

Health

Disparities separating children whose

(1) mothers had not graduated from high school, compared to those whose

(2) mothers had a bachelor degree were, respectively:

- 9.0 vs. 6.8 percent for low birthweight
- 8.2 vs. 3.9 deaths to children under age 1 per 1,000 live births
- 27 vs. 13 percent for obesity
- 29 vs. 8 percent for not in excellent or very good health
- 16 vs. 4 percent for not covered by health insurance

Following the presentation of detailed statistics for the nation and for individual states, the report identifies opportunities for federal, state, and local governments to take the lead or to collaborate with others to develop and implement dual-generation strategies for low-education, low-income families that could lead to improved academic and life outcomes for children, greater employment opportunities for mothers, and higher incomes for families who currently have the fewest resources and greatest needs.

Mother's Education and Children's Outcomes:

How Dual-Generation Programs Offer Increased Opportunities for America's Families

Introduction

Children living in poor families with mothers who have low educational attainments experience less success, both in school and later as adults in the workforce, than children living in more advantaged circumstances. Reflecting the limited opportunities for intergenerational mobility in the U.S. compared to many other countries, mothers with low education and low income often, themselves, grew up in poor families when they were children.[i] Because policies and programs aimed at increasing educational or economic opportunities typically target children or mothers separately, their impact on the family is limited. This insight undergirds the development and implementation of new dual-generation strategies that focus simultaneously on children, to foster improved academic success and life outcomes, and their mothers, to foster job-skills development and improved employment, earning, and family income. This report documents the need for dual-generation strategies to provide high-quality early educational experiences spanning the PreK-3rd years for poor, low-education families, to assure strong educational outcomes and upward economic mobility—necessary to fulfill the promise that all Americans who work hard and play by the rules have the right to a decent life for themselves and their children.

Why Mothers?

Mother's education is used as an indicator of parental education in this report because, among children with a parent in the home, the vast majority lives in mother-only or two-parent families; only four percent live in father-only families with no mother present. This approach provides a consistent measure of parental education for most children who live with at least one parent, that is, for the 96 percent of these children who have a mother in the home. Because mothers and fathers tend to have similar educational attainments, whenever possible this report uses mother's education as a proxy for parental education.

The report begins by briefly describing an innovative, comprehensive dual-generation strategy with three tightly linked components: (1) high-quality early childhood (PreK-3rd) education, (2) sectoral job training leading to a certificate, credential, or degree for high-wage/high-demand jobs, and (3) wrap-around family and peer support services.[ii]

Then the report presents results from the first-ever analysis of 13 economic, education, and health indicators, which highlight the urgent need for comprehensive dual-generation strategies by focusing on the enormous disparities in well-being experienced by children with four different levels of mother's education: (1) mother has not graduated from high school, (2) mother is a high school graduate, (3) mother has completed some college, or (4) mother has completed a bachelor degree.

Turning to policy structures to support dual-generation strategies, the report summarizes the national economic, education, and health picture for children with mothers who have not graduated from high school and presents four key indicators for these children for each of the 50 states and the District of Columbia: the rates of (1) secure parental employment, (2) child poverty, (3) reading proficiency, and (4) mathematics proficiency. Finally, this report presents changes in federal and state policies that could foster the development and implementation of effective dual-generation strategies throughout the nation.

Dual-Generation Strategies

The goal of a dual-generation strategy is to break the intergenerational cycle of poverty by providing low-education, low-income families with education, workforce training, and related support services that move these families toward economic security and stability.[iii] This strategy can involve the intentional and thoughtful linking of three components: (1) high-quality early childhood education, (2) job training that leads to a credential for high-wage/high-demand jobs, and (3) wrap-around family and peer support services.[iv]

Research has documented that each of these program components can have substantial impacts for improving children's educational outcomes, increasing the earnings of adult workers, and/or providing resources that enable low-income families to overcome barriers to educational and economic success.[v] These components already exist in many communities. But the lack of an intentional coordination of funding streams and service provision for low-income families leads to a fragmented approach which does not simultaneously impact children and parents, and which, therefore, limits the programs' value in breaking the intergenerational cycle of poverty.[vi]

The Dual-Generation Program in Tulsa, Oklahoma

Career*Advance*® is one of the first fully operational dual-generation programs with sector-based workforce development for low-income families. The program was initiated in 2009 in Tulsa, Oklahoma and links Head Start/Early Head Start programs for children operated by the Community Action Project of Tulsa County (CAP) with education and training in the healthcare sector for parents. The nursing track in Career*Advance*® offers a structured career pathway that leads initially to Certified Nurse Assistant (CNA) and ultimately to Registered Nurse (RN). Each level of the sequenced training courses leads to an industry-recognized credential that provides participants with higher wages and advancement opportunities. Since 2011, career training pathways have been added in Health Information Technology, Medical Assistant, and Pharmacy Technician.

Key elements of the program include: peer mentoring and support through weekly meetings of participants facilitated by career coaches; payments for tuition and other education/training expenses; cash/in-kind incentives for good performance; contextualized adult basic education and tutoring services; and wrap-around services including before and after child care; and transportation assistance. Community partners include Tulsa Community College, Tulsa Technology Center, Child and Family Services, and Union Public Schools.

One model for the first component, high-quality early and elementary school education, is the PreK-3rd approach. This national initiative focuses on connecting and aligning educational standards, curricula, assessment, instruction, and professional development for teachers across high-quality PreKindergarten, Kindergarten, First, Second, and Third Grades.[vii]

One model for the job-training component, as described by King, Smith, and Glover (2011), is sector-based workforce development. This approach targets specific industries (sectors)

where there are well-paid occupations with substantial current and projected future demand in the local economy, and with well-defined pathways for educational advancement and improved income. Mothers engage in educational and training experiences that lead to college credit and credentials for jobs that pay well and provide financial security.

Sectoral job training includes postsecondary education programs such as apprenticeships, occupational skills training, associate or bachelor degree programs, and special tutoring. It also includes workforce intermediaries who connect training providers with employers to ensure that the skills participants receive meet the hiring needs of employers.[viii]

As for the third component, wrap-around family and peer-support services, as discussed by King, Smith, and Glover (2011), include adult education and English as a Second Language programs, which low-income parents may need prior to obtaining occupational skills training or college enrollment. They also include career coaching, peer community-building through weekly group meetings of participants, cash transfers that help parents cover the cost of participation (which have been shown to have an immediate impact on child outcomes), subsidies for transportation that parents need to participate in the program, and additional programs that help family to build savings for education or home expenses and to establish a more secure financial foundation for their future. Finally, this component also includes an array of other public services—such as health, nutrition, food, and housing—which enable low-income families to overcome barriers to success.[ix]

The Dual-Generation Program in Los Angeles, California

The Dual-Generation and Training for Green Jobs Program is being implemented through the Los Angeles Alliance for a New Economy (LAANE), whose mission is to promote strong jobs, successful communities, and a healthy environment. The workforce development component is the Utility Pre-Craft Trainee Program (UPCT), which provides entry-level training for jobs in the utility sector. To facilitate their participation, trainees are paid $16 an hour and receive a health benefits stipend.

The dual-generation program involves a partnership between the UPCT, a high-quality, mixed-income early childhood education center, and a childcare resources and referral network to place younger children of UPCT trainees who live in geographically dispersed neighborhoods in high-quality centers. The program will simultaneously recruit cohorts of children and parents for early education and workforce training. The program will include support services such as peer cohorts, career coaches, and parenting education workshops. Fifty parents and children were recruited to the pilot program which began in 2013.

Partners include the Department of Water and Power, the Los Angeles Trade Technical College, the Mayor's Office, the International Brotherhood of Electrical Workers, and the Southeast Los Angeles County WorkSource Center.

Economic, Education, and Health Indicators for Children

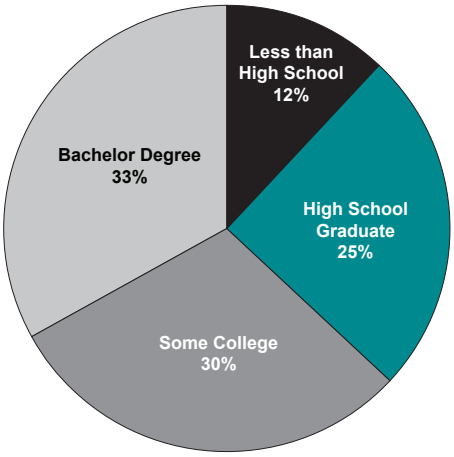
There is an urgent need for comprehensive dual-generation strategies for children in poor families with low mother's education, as shown by the enormous disparities on indicators of economic, education, and health experienced by children whose mothers have low educational attainments compared to children whose mothers have higher educational attainments.

The four economic indicators are: (1) the poverty rate, (2) the low-income rate, (3) the rate of not having a parent in the home who is securely employed, and (4) the dollar value of median family income. The four education indicators are: (1) the

reading proficiency rate in Eighth Grade, (2) the mathematics proficiency rate in Eighth Grade, (3) the rate of not being enrolled in PreKindergarten, and (4) the rate of not graduating from high school by age 19. The five health indicators are the rates of: (1) low birthweight, (2) infant mortality, (3) obesity, (4) not having excellent or very good health, and (5) not being covered by health insurance.

Mother's Educational Attainments

Figure 1. Children by Mother's Education



Source: U.S. Census Bureau, Current Population Survey, March 2013. Calculated by the authors from data file prepared by King, et al (2010).

Mother's educational attainments have important consequences for children, as those whose mothers have limited education tend to experience lower levels of cognitive functioning, lower levels of socioemotional functioning, and lower levels of academic achievement than children with higher levels of mother's education.[x]

Children experience enormous disparities in the educational attainments of their mothers. As of 2013, one in eight children (12 percent) lived with mothers who were not high school graduates, and an additional one in four (25 percent) lived with mothers who had completed no more than a high school degree. Nearly one-third (30 percent) had mothers completing some college, and another third (32 percent) had mothers with a bachelor degree **(Figure 1)**.

Mother's education disparities are also associated with various economic, education, and health circumstances that have additional negative consequences for children. Results that follow for 13 indicators highlight how children with disparate levels of mother's education also differ enormously in their economic circumstances, their educational success, and their health, all of which have consequences for the later economic success as adults. Detailed results for each indicator are presented for the most recent year with available data, which for most indicators is 2012.

Family Economic Resources

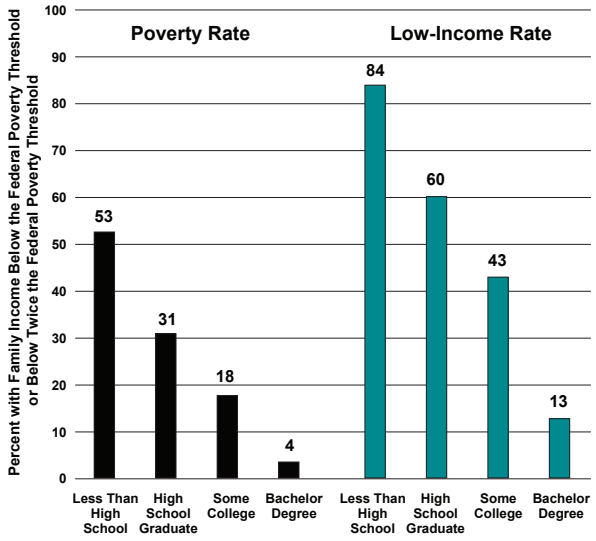
Four indicators of children's family economic resources are discussed here: (1) the poverty rate, (2) the low-income rate, (3) median family income, and (4) the rate of not having a securely employed parent.

Poverty Rate

Children in low-income families tend to experience negative developmental outcomes, including less success in school, lower educational achievements, and lower incomes during adulthood.[xi] The official federal poverty rate is an extreme indicator of low income. Thus, children in poor families are particularly at risk of experiencing these negative outcomes.

The poverty threshold in 2012 was set at $18,494 for a family with one parent and two children, and at $23,283 for a family with two parents and two children.[xii] Children experience enormous poverty rate disparities **(Figure 2)**. The poverty rate was 53 percent in 2012 for children whose mothers had not graduated from high school, compared to only 4 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 13 times more likely to be poor than children whose mothers had a

Figure 2. Poverty Rate and Low-Income Rate for Children, by Mother's Education, 2012



Source: U.S. Census Bureau, Current Population Survey, March 2013. Calculated by the authors from data file prepared by King, et al (2010).

bachelor degree. Overall, more than half of children lived in poverty if their mothers had not graduated from high school, while almost no children whose mothers had a bachelor degree were poor.

The poverty gap separating children whose mothers were high school graduates (31 percent) from those whose mothers had a bachelor degree (4 percent) was also very large. Even among children whose mothers completed some college, 18 percent were poor, compared to only 4 percent of children whose mothers had a bachelor degree.

Low-Income Rate

The overall low-income rate is the percentage of children whose family incomes are less than two times the federal poverty threshold. This measure is often used as an alternative to the official federal poverty rate in public policy discussions.[xiii]

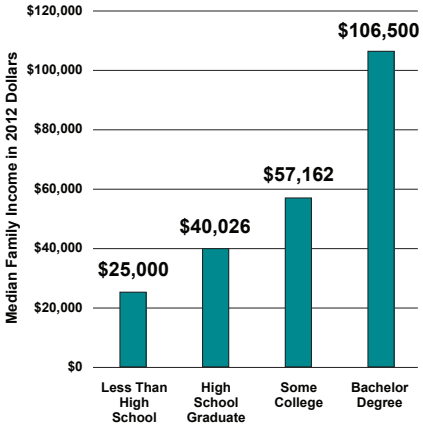
The low-income threshold in 2012 was $36,988 for a family with one parent and two children and $46,566 for a family with two parents and two children. These income levels are above the eligibility cutoffs for many federal programs including the Free and Reduced Price Lunch Program; the Women, Infants, and Children (WIC) Program; and, in some states, Medicaid. This means that many near-poor children do not receive help from these programs.

Children experience enormous disparities in their rates of low income. Among children with mothers who had not graduated from high school, an extremely large number—84 percent—lived in low-income families in 2012, compared to 13 percent of children whose mothers had a bachelor degree **(Figure 2)**. Thus, children whose mothers had graduated from high school were 6.5 times more likely to live in a low-income family than children whose mothers had a bachelor degree. Overall, the overwhelming majority of children lived in low-income families if their mother had not graduated from high school, while very few of children lived in low-income families if their mothers had a bachelor degree.

The low-income rate gap separating children whose mothers were high school graduates from children whose mothers had a bachelor degree was also very large, at 60 percent versus 13 percent. Even among children with mothers completing some college, 43 percent were low-income, compared to 13 percent for children whose mothers had a bachelor degree.

Median Family Income

Figure 3. Median Family Income for Children, by Mother's Education 2012



Source: U.S. Census Bureau, Current Population Survey, March 2013. Calculated by the authors from data file prepared by King, et al (2010).

Family income provides essential resources to pay for food, housing, clothing, and other necessities, as well as for educational materials for children and recreational activities.

Children experience enormous disparities in median family income **(Figure 3)**. Median family income in 2012 for children whose mothers had not graduated from high school was only $25,000, compared to $106,500 for children with mothers who had completed a bachelor degree—a difference of $81,500. In other words, the median family income of children whose mothers had completed a bachelor degree was more than 4 times the size of the median family income of children whose mothers had not graduated from high school.

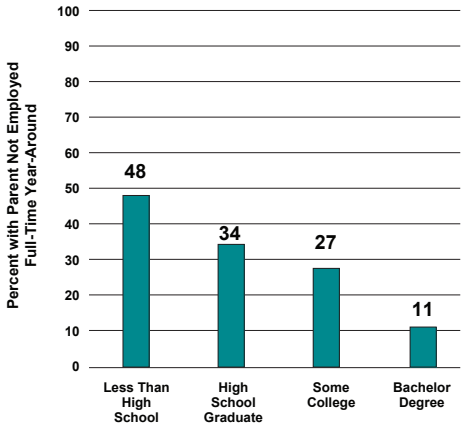
The median family income gap separating children whose mothers were high school graduates from children whose mothers had a bachelor degree was also very large, at $40,026 vs. $106,500—a difference of $66,474. Even among children with mothers who had completed some college, the gap was very large compared to children whose mothers had completed a bachelor degree, at $57,162 vs. $106,500—a difference of $49,338.

Parent Not Securely Employed

Children are classified as not having a securely employed parent if they do not have a parent in the home who works full-time year-around. This measure is important because parental employment is the primary source of income in most families.

Children experience enormous disparities in secure parental employment **(Figure 4)**. The rate of not having a securely employed parent in the home for children whose mothers were not high school graduates was 48 percent in 2012, compared to only 11 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 4.4 times more likely than children whose mothers had a bachelor degree to not have a securely employed parent in the home. Overall, nearly half of children did not have a securely employed parent if their mother was not a high school graduate, while only about one in ten did not have a securely employed parent if their mother had a bachelor degree.

Figure 4. Parent Not Securely Employed for Children, by Mother's Education, 2012



Source: U.S. Census Bureau, Current Population Survey, March 2013. Calculated by the authors from data file prepared by King, et al (2010).

The gap separating children whose mothers where high school graduates from those whose mothers had a bachelor degree was also very large, at 34 percent vs. 11 percent. Even between children whose mothers had completed some college and those whose mothers had a bachelor degree, the gap was very large, at 27 percent vs. 11 percent.

Educational Attainments

Four indicators of educational attainments are discussed here. The first two indicators are reading and mathematics proficiency in Eighth Grade, when most children are ages 13-14. The remaining indicators focus on children who are not enrolled in PreKindergarten at ages 3-4 and who do not graduate from high school on-time (that is, by age 19).

Measuring Proficiency

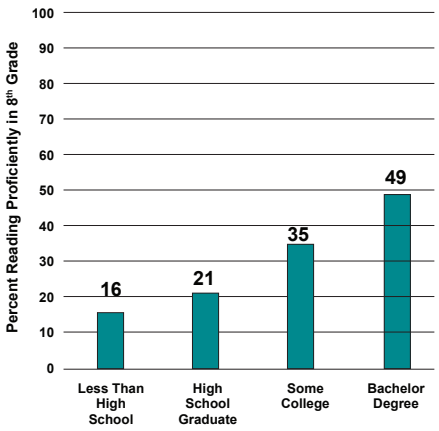
Reading and mathematics proficiency rates in Eighth Grade are obtained from the National Assessment of Educational Progress (NAEP), also known as "The Nation's Report Card." The NAEP was "developed by the National Assessment Governing Board to specify what students should know and be able to do in each content area at a given grade level".[xiv] The reading and mathematics proficiency indicators are measured as the percentage of children at or above the proficient level, and thus performing at grade level, in reading and in mathematics. NAEP results distinguished by the level of mother's education are not available, but results are available distinguished by the highest level of parental education; these results are reported below. Eighth Grade results are presented here because this is the earliest grade with data distinguishing children by parental education level.

Reading Proficiency in Eighth Grade

Reading proficiency is important because children who do not read proficiently in the early grades are less likely to succeed during the later years of school and much less likely to graduate from high school.[xv]

Children experience enormous disparities in reading proficiency **(Figure 5)**. Only 16 percent of children in 2013 with parents who had not graduated from high school were reading proficiently in Eighth Grade, compared to 49 percent for children with parents who had a bachelor degree. Thus, children with parents who had not graduated from high school were only one-third as likely as children whose parents had a bachelor degree to be reading proficiently. Overall, few children were reading proficiently if their parents had not graduated from high school, while about half of children were reading proficiently if their parents had a bachelor degree.

Figure 5. Children's Reading Proficiently, by Parental Education, 2013



Source: National Assessment of Educational Progress. Downloaded by the authors from "Custom Data Tables" from National Center for Education Statistics (2013a). Results are by "parental education" which is the highest level of education reported for either parent (National Center for Education Statistics (2013b).

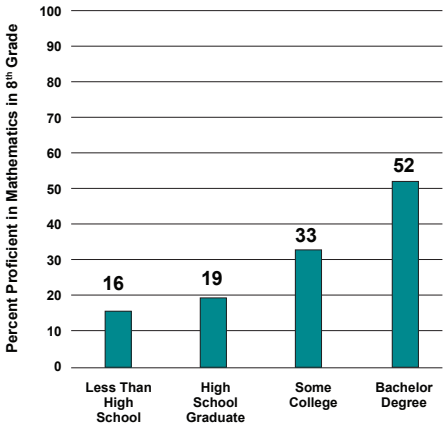
The reading proficiency rate was also extremely low for children whose parents had graduated from high school, at 21 percent, compared to 49 percent for children whose parents had a bachelor degree. Even among children whose parents had completed some college, only 35 percent were reading proficiently in Eighth Grade, compared to 49 percent for children whose parents had a bachelor degree.

Mathematics Proficiency in Eighth Grade

Mathematics proficiency in Eighth Grade is at least as predictive as reading proficiency of future success in school. Children who are not proficient in mathematics in the early grades are less likely to succeed during the later years of school.

Results for mathematics proficiency are very similar to results for reading proficiency. Children experience enormous disparities in mathematics proficiency **(Figure 6)**. Only 16 percent of children in 2013 whose parents had not graduated from high school were proficient in mathematics in Eighth Grade, compared to 52 percent for children whose parents had a bachelor degree. Thus, children whose parents had not graduated from high school were only one-third as likely as children whose parents had a bachelor degree to be proficient in

Figure 6. Children's Mathematics Proficiency, by Parental Education, 2013



Source: National Assessment of Educational Progress. Downloaded by the authors from "Custom Data Tables" from National Center for Education Statistics (2013a). Results are by "parental education" which is the highest level of education reported for either parent (National Center for Education Statistics (2013b).

mathematics. Overall, only a few children whose parents had not graduated from high school were proficient in mathematics, compared to about half of children whose parents had a bachelor degree.

The mathematics proficiency rate was also extremely low for children whose parents had graduated from high school, at 19 percent, compared to 52 percent for children whose parents had a bachelor degree. Even among children whose parents had completed some college, only 33 percent were proficient in mathematics in Eighth Grade, compared to 52 percent for children whose parents had a bachelor degree.

School Enrollment and Completion

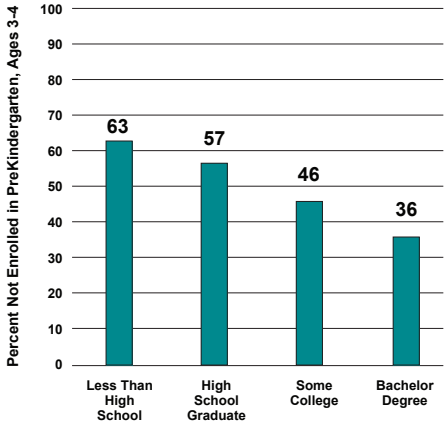
The PreKindergarten enrollment indicator used here is the percentage of children ages 3-4 who are not enrolled in a PreKindergarten program. The indicator of school completion is the rate of not graduating from high school on-time (by age 19).

PreKindergarten Enrollment

High-quality PreKindergarten programs are a very cost-effective investment for improving later success in school, and therefore, for fostering the economic productivity and life prospects of children when they reach adulthood.[xvi] It is important to note, however, that both long-standing and recent research has found that most PreKindergarten programs are not of high quality; only a minority of programs provide excellent quality, while a similar proportion provide poor quality, and other programs are in a middling range of quality.[xvii]

Children experience enormous disparities in PreKindergarten enrollment **(Figure 7)**. Among young children ages 3-4 whose mothers had not graduated from high school, 63 percent were not enrolled in PreKindergarten in 2012, compared to 36 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 1.75 times more likely than children whose mothers had a bachelor degree not to be enrolled in PreKindergarten. Overall, nearly two-thirds of young children whose mothers had not graduated from high school were not enrolled in PreKindergarten, while little more than one-third whose mothers had a bachelor degree were not enrolled.

Figure 7. Children Not Enrolled in PreKindergarten, by Mother's Education, 2012



Source: U.S. Census Bureau, Current Population Survey, October 2012. Calculated by the authors from data file prepared by CPS Utilities, Unicon Research Corporation.

Children with mothers who had graduated from high school were only slightly less likely than those whose mothers had not graduated—57 percent vs. 63 percent, respectively—not to be enrolled in

PreKindergarten. Even children whose mothers had some college were substantially more likely not to be enrolled in PreKindergarten than children whose mothers had a bachelor degree, at 46 vs. 36 percent.

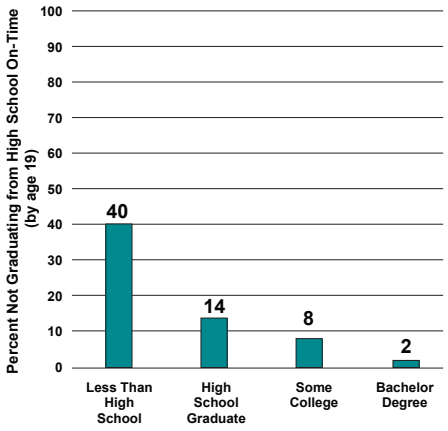
High School Graduation

The high school graduation indicator is the percentage of youth not graduating from high school on time (by age 19), for youth who reached age 19 on average in 2003. High school graduation is important because persons who do not graduate from high school are much less likely to be employed, and when they do work they have much lower earnings.

For example, our analysis of data from the 2012 American Community Survey indicates that only 59 percent of working-age adults (21-64 years old) who had not graduated from high school were employed during the past year, compared to 73 percent for high school graduates, 83 percent for those with some college, and 89 percent for those with a bachelor degree. Not only were persons with a limited education less likely to work during the past year, those who did work had much lower earnings. Among workers in 2012, those not completing high school had a median annual income of only $18,000, compared to $25,000 for those with a high school degree, $35,800 for those with some college, and $65,000 for those with a bachelor degree.

Youth experience enormous disparities in on-time high school graduation **(Figure 8)**. For youth who reached age 19 on average in 2003, 40 percent of those whose mothers had not graduated from high school did not themselves graduate on time, compared to just 2 percent of those whose mothers had a bachelor degree. Thus, youth with mothers who had not graduated from high school were 20 times more likely than youth whose mothers had a bachelor degree to not graduate from high school on-time. Overall, four out of ten youth did not graduate from high school by age 19 if their mothers were not high school graduates, while nearly all youth graduated from high school if their mothers had a bachelor degree.

Figure 8. Youth Not Graduating from High School On-Time, by Mother's Education, 1993-2008



Source: National Longitudinal Survey of Youth 1979 (NLSY79). Calculated by the authors from National Longitudinal Surveys (2011).

The disparities also were substantial for youth whose mothers had graduated from high school compared to youth whose mothers had a bachelor degree, at 14 percent vs. 2 percent. Even youth whose mothers had completed some college experienced substantial disparities compared to youth whose mothers had a bachelor degree, at 8 percent vs. 2 percent.

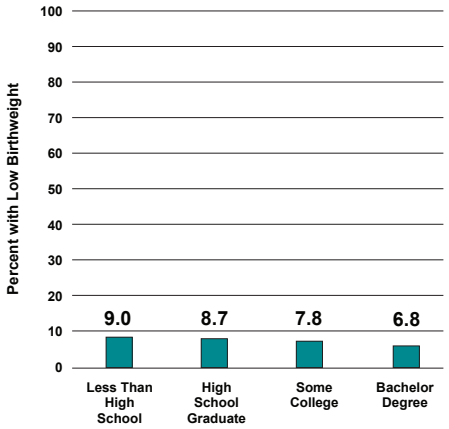
Health

Five child health indicators are discussed here: (1) low birthweight, (2) infant mortality, (3) obesity, (4) very good or excellent health, and (5) health insurance coverage.

Low Birthweight

The low birthweight rate is calculated as the percentage of babies born with a weight less than 2,500 grams, or approximately 5.5 pounds. Low birthweight is important because it contributes substantially to infant mortality and to a range of problems such as neurodevelopmental disabilities and respiratory disorders.[xviii]

Figure 9. Children with Low Birthweight, by Mother's Education, 2012



Source: Vital Statistics. Calculated by the authors from CDC (2014). Computer programs for accessing data files were modified from National Bureau of Economic Research (2013).

Children experience substantial disparities in low birthweight **(Figure 9)**. The low birthweight rate in 2012 was 9.0 percent for children whose mothers had not graduated from high school, compared to 6.8 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 1.3 times more likely to have low birthweight than children whose mothers had a bachelor degree.

The gap in low birthweight separating children whose mothers were high school graduates from children whose mothers had a bachelor degree was also substantial, at 8.7 percent vs. 6.8 percent, and for children whose mothers had completed some college compared to children whose mothers had a bachelor degree, at 7.8 percent vs. 6.8 percent.

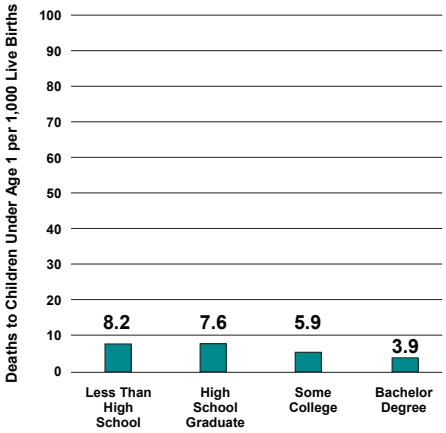
Infant Mortality

The infant mortality rate is calculated as the number of deaths to children under age one per 1,000 live births. The infant mortality rate reflects the health and living conditions of very young children, and the extent to which the lives of very young children are cut short.

Children experience substantial disparities in infant mortality **(Figure 10)**. The infant mortality rate in 2008 was 8.2 deaths per 1,000 live births for children whose mothers had not graduated from high school, compared to only 3.9 for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 2.1 times more likely than children whose mothers had a bachelor degree to die before their first birthday.

The gap in infant mortality separating children whose mothers were high school graduates from children whose mothers had a bachelor degree was also large, at 7.6 vs. 3.9 deaths per 1,000 live births. Even children whose mothers had completed some college were substantially more likely to die during the first year of life than those whose mothers had a bachelor degree, at 5.9 vs. 3.9 deaths per 1,000 live births.

Figure 10. Infant Mortality, by Mother's Education, 2012

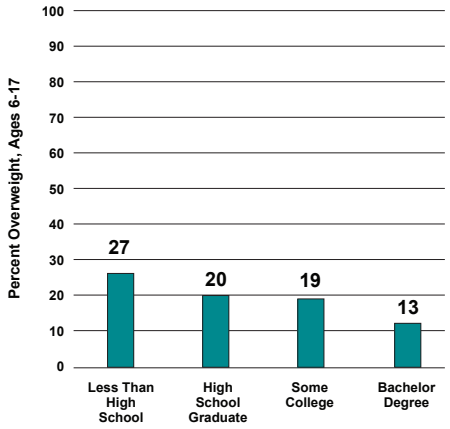


Source: Vital Statistics. Calculated by the authors from CDC (2014). Computer programs for accessing data files were modified from National Bureau of Economic Research (2014).

Obesity

Childhood obesity has both short- and long-term effects.[xix] In the short term, obese children are at greater risk of having bone and joint problems, and of having high cholesterol and high blood pressure, which are two risk factors for cardiovascular disease. In the long term, obese children are more likely to be obese as adults, which increases their risk of health problems in adulthood, including type 2 diabetes, heart disease, stroke, osteoarthritis, and many types of cancer.

Figure 11. Children's Obesity, by Mother's Education, 2009-2012



Source: National Health Interview Survey. Calculated by the authors from CDC (2013b).

Children experience substantial disparities in obesity **(Figure 11)**. The obesity rate for children whose mothers had not graduated from high school was 27 percent, compared to 13 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 2.1 times more likely to be obese than children whose mothers had a bachelor degree.

The gap in obesity separating children whose mothers were high school graduates from those whose mothers had a bachelor degree was also large at 20 percent vs. 13 percent, and nearly as large even for children with mothers completing some college, compared to those with a bachelor degree, at 19 percent vs. 13 percent.

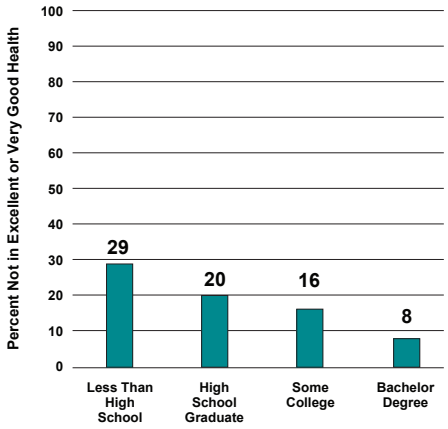
Not in Excellent or Very Good Health

The excellent or very good health indicator is the percentage of children reported by parents not to be in excellent or very good health. Good health is important to children for success in school and later in life.

Children experience enormous disparities in overall health **(Figure 12)**. The rate of not being in excellent or very good health was 29 percent in 2012 for children whose mothers had not graduated from high school compared to 8 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were 3.6 times more likely not to be in excellent or very good health compared to children whose mothers had a bachelor degree.

The gap separating children whose mothers were high school graduates from those whose mothers had a bachelor degree in terms of not being in excellent or very good health was also very large, at 20 percent vs. 8 percent. Even among children with mothers completing some college, 16 percent were not in excellent or very good health, compared to 8 percent for children whose mothers had a bachelor degree.

Figure 12. Children Not in Excellent or Very Good Health, by Mother's Education, 2012

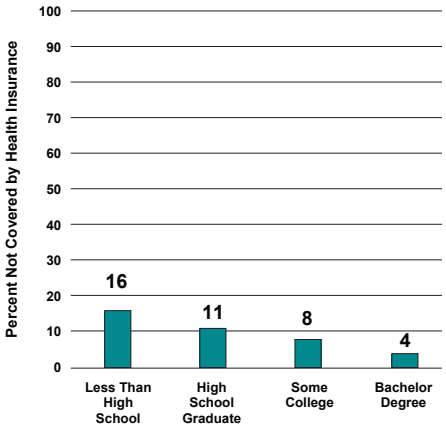


Source: National Health Interview Survey. Calculated by the authors from CDC (2013b).

Health Insurance

The health insurance indicator is the percentage of children who were not covered by health insurance during the year. All children require access to health insurance and services to ensure that preventive services are provided as recommended, acute and chronic conditions are diagnosed and treated in a timely manner, and health and development are adequately monitored to prevent minor health problems from escalating into serious and costly medical emergencies.[xx]

Figure 13. Children Not Covered by Health Insurance, by Mother's Education, 2012



Source: U.S. Census Bureau, Current Population Survey, March 2013. Calculated by the authors from data file prepared by King, et al (2010).

Children experience enormous disparities in health insurance coverage **(Figure 13)**. The rate of not being covered by health insurance in 2012 was 16 percent for children whose mothers had not graduated from high school, compared to only 4 percent for children whose mothers had a bachelor degree. Thus, children whose mothers had not graduated from high school were four times more likely not to be covered by health insurance than children whose mothers had a bachelor degree.

The gap in health insurance coverage separating children whose mothers were high school graduates from children whose mothers had a bachelor degree was also very large, at 11 percent vs. 4 percent. Even among children with mothers completing some college, eight percent were not covered by health insurance, compared to only 4 percent of children whose mothers had a bachelor degree.

Policy Structures to Support Dual-Generation Strategies

The economic, education, and health indicators for children presented here all point toward the urgent need for dual-generation strategies targeting low-income families that simultaneously provide all three of the key components discussed previously: (1) high-quality early education for children, (2) job training leading to well-paid employment for mothers, and (3) wrap-around family and peer support services that reduce barriers which undermine the capacity of children and mothers to fully realize the benefits of early education and job training.

The National Economic, Education, and Health Picture

Twelve percent of all children in the U.S.—or one in every eight—have mothers who have not graduated from high school. For these children, the most recent data show that median family income is only $25,000, more than half live in poverty (53 percent), and 84 percent have low incomes (less than twice the federal poverty threshold). These very-low incomes reflect not only the limited education of the mothers, but also the fact that nearly one-half of these children (48 percent) do not have a securely employed parent working full-time year-around. These economic facts point to the need for mothers to obtain new educational credentials and job training to improve their employment prospects and income.

Turning to education indicators for children with mothers who have not graduated from high school, nearly two-thirds (63 percent) of these children ages 3-4 are not enrolled in PreKindergarten, 84 percent are below grade level in their reading and mathematics proficiency by Eighth Grade, and 40 percent do not graduate from high school by age 19. These education facts point to the need for children to have access to high-quality early education programs, particularly since recent research has found that such programs have the greatest impact for children living in or near poverty.[xxi]

However, the very low incomes of these families mean that even with access to high-quality early education and job training opportunities, they often confront serious challenges in seeking stable

housing, adequate and nutritious food, affordable and timely transportation, and access to preventive and curative health care. The health indicators presented here show, for example, that children with mothers who have not graduated from high school are 30 percent more likely than children whose mothers have a bachelor degree to have low birthweight, 2.1 times more likely to die before their first birthday, 2.1 times more likely at ages 6-17 to be obese, 3.6 times more likely to be reported as not having excellent or very good health, and four times more likely not to be covered by health insurance.

Without good health and health care, adequate and nutritious food, stable housing, and affordable and timely transportation, children and mothers in low-income families will find it difficult or impossible to achieve the maximum benefit from early education and job training programs. Thus, it is critical that dual-generation strategies offer not only education and training, but also access to wrap-around family and peer support services that remove major barriers to success as children and mothers pursue their education and training.

Access to programs providing all three of these components also is important because programs for children and mothers can act in a mutually reinforcing or synergistic fashion that does not occur in programs focused only on children or only on mothers. Mothers whose children are enrolled in high-quality early education programs will be less distracted by concerns about the safety and care of their children, and can, therefore, direct more of their time and attention to successfully pursuing and completing their education and training. Children in high-quality early education programs whose mothers are, simultaneously, pursuing their own education will have mothers who serve as powerful role models to work hard and succeed in school.

The Economic and Education Picture in the States

This report has presented national statistics, but children in families with mothers who have not graduated from high school live in every state across the nation. Among children in specific states, the proportions in 2010-2012 whose mothers have not graduated from high school ranged from 4 percent in New Hampshire to 23 percent in California **(Appendix B)**.

Substantial numbers of children and mothers in each state face the challenges portrayed in the national statistics. For example, economic challenges for families are frequent in every state. The rate of not having a securely employed parent in 2010-2012 among children whose mothers had not graduated from high school ranged from 33 percent in Nebraska and Wyoming to 64 percent in West Virginia, and the child poverty rate ranged from 32 percent in Wyoming to 62 percent in Kentucky and South Carolina **(Appendix B)**. Thus, even in states where the economic circumstances were best for children whose mothers had not graduated from high school, 33 percent did not have a securely employed parent in the home, and 32 percent were poor.

Regarding reading and mathematics proficiency, among children in 2013 whose parent had not graduated from high school, the reading proficiency rates in Eighth Grade ranged from 10 percent in Minnesota to 25 percent in Montana, and the corresponding mathematics proficiency rates ranged from 5 percent in Alabama to 24 percent in Hawaii **(Appendix B)**. Thus, 75 percent or more children were below grade level in reading or mathematics proficiency in every U.S. state.

Supportive Federal, State, and Local Policy Structures for Dual-Generation Strategies

These results point toward the potential value in states across the nation of dual-generation

strategies that provide low-education, low-income families with high-quality early education, workforce training, and family support services. Although increased public spending for such programs and services may not be available in the near future, there already exist many pieces that could be coordinated and integrated to create dual-generation strategies. But a major step forward will require more flexible, integrated, and supportive federal, state, and local policy structures.[xxii]

Federal programs with funding components that could be linked in a dual-generation strategy include those mandated through Head Start/Early Head Start; the Child Care Development Fund (CCDF); the Workforce Investment Act (WIA); the Higher Education Act; the Temporary Assistance for Needy Families (TANF) program; the Supplemental Nutrition Assistance Program (SNAP); and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Programs for child savings accounts and for financial education and asset building for parents also are important; especially relevant is the ASSET (Assets, Savings, Support, Education and Training) initiative of the Administration for Children and Families (ACF).[xxiii] These funding streams could be blended with state and local funding currently allocated to PreKindergarten, child care, and workforce development programs.

The federal government could, as relevant legislation is reauthorized, incorporate provisions that would provide incentives and support for dual-generation strategies, either in pilot programs or in ongoing programs. For policies which currently offer flexibility to states, the federal government could encourage states to pursue dual-generation strategies.

A growing number of states have policy structures, at either the state or local level, which encompass a range of early education, child care, or workforce development programs, and which could serve as mechanisms to create blended or braided funding streams to systematically develop comprehensive, integrated dual-generation strategies. These states include Florida, Michigan, Texas, Utah, and Washington. Other states also could adopt such policy structures. In addition, 40 states fund PreKindergarten programs, and many are seeking to improve quality along a variety of dimensions.[xxiv] These states could support and foster the integration of early education programs with job training programs for low-income families.

Finally, many school districts operate publicly-funded PreKindergarten programs. Insofar as young children in low-income families in these programs could be more successful in school if their mothers were receiving high-quality job training and if both children and mothers were receiving additional wrap-around services, the school districts would benefit their students by initiating, coordinating, or otherwise participating in dual-generation strategies.

Thus, governments at all levels have the opportunity to take the lead or to collaborate with others to develop and implement dual-generation strategies for low-education, low-income families to improve their educational and training opportunities in the short term and their educational and economic success in the long term. The need for dual-generation strategies is great in states across the nation, and the potential for improving the lives of children in families with mothers who have low education and low income is enormous. Federal, state, and local governments could explore the opportunities that exist for blending various funding streams and using these funds to design, develop, and implement dual-generation strategies.

Acknowledgements

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Appendix A. Data Sources

Appendix A identifies below the data sources for each of figure in the report and for Appendix B.

U.S. Census Bureau, Current Population Survey, March 2013.
Calculated by the authors from data file prepared by King, et al (2010).

Figure 1. Mother's Education

Figure 2. Poverty

Figure 2. Low-Income

Figure 3. Median Family Income

Figure 4. Parent Not Securely Employed

Figure 13. Not Covered by Health Insurance

U.S. Census Bureau, Current Population Survey, October 2012.
Calculated by the authors from data file prepared by CPS Utilities, Unicon Research Corporation.

Figure 7. Not Enrolled in PreKindergarten

National Assessment of Educational Progress. Downloaded by the authors from "Custom Data Tables" from National Center for Education Statistics (2013a). Results are by "parental education" which is the highest level of education reported for either parent (National Center for Education Statistics (2013b).

Figure 5. Reading Proficiency

Figure 6. Mathematics Proficiency

Appendix B. Reading and Mathematics Proficiency. Results not available for Alaska.

National Longitudinal Survey of Youth 1979 (NLSY79). Calculated by the authors from National Longitudinal Surveys (2011).

Figure 8. Not Graduating from High School On-Time

Vital Statistics. Calculated by the authors from CDC (2014). Computer programs for accessing data files were modified from National Bureau of Economic Research (2013, 2014).

Figure 9. Low Birthweight

Figure 10. Infant Mortality

National Health and Nutrition Examination Survey. Calculated by the authors from CDC (2012).

Figure 11. Obesity

National Health Interview Survey. Calculated by the authors from CDC (2013b).

Figure 12. Not in Excellent or Very Good health

U.S. Census Bureau, American Community Survey 2010-2012, except for North Dakota and Vermont which are 2008-2012 Calculated by the authors from data file prepared by King, et al (2010)

Appendix B. Percent with Mother not High School Graduate

Appendix B. Poverty Rate

Appendix B. Percent with Parent Not Securely Employed

Appendix B. Percent of Children with Mothers Who Have Not Graduated from High School, and Four Indicators for Children of Family Economic Resources and Academic Proficiency, by State: 2010-2012

State	Percent with mother not high school graduate	Mother not high school graduate		Parent not high school graduate	
		Poverty rate	Percent with parent not securely employed	Percent reading proficiently	Percent proficient in mathematics
Alabama	13	57	57	13	5
Alaska	8	35	49	**	**
Arizona	18	55	47	12	15
Arkansas	13	50	44	17	13
California	23	46	44	15	12
Colorado	13	45	43	19	17
Connecticut	8	52	58	22	14
Delaware	13	49	50	19	18
District Of Columbia	14	52	53	11	15
Florida	12	55	49	19	14
Georgia	14	55	48	18	16
Hawaii	6	40	44	16	24
Idaho	11	49	41	15	14
Illinois	13	45	44	16	15
Indiana	13	53	51	16	20
Iowa	8	44	43	16	12
Kansas	11	42	37	14	15
Kentucky	11	62	59	17	11
Louisiana	14	58	55	16	17
Maine	6	48	53	19	16
Maryland	10	39	46	17	17
Massachusetts	8	50	57	19	22
Michigan	10	61	61	13	13
Minnesota	8	50	46	10	17
Mississippi	12	61	55	13	12
Missouri	11	53	50	18	10
Montana	7	47	56	25	13
Nebraska	11	46	33	17	17
Nevada	22	43	45	18	14
New Hampshire	4	39	51	20	22
New Jersey	9	46	47	21	23

Appendix B. Percent of Children with Mothers Who Have Not Graduated from High School, and Four Indicators for Children of Family Economic Resources and Academic Proficiency, by State: 2010-2012

		Mother Not High School Graduate		Parent Not High School Graduate	
State	*Percent with Mother Not High School Graduate*	*Poverty Rate*	*Percent with Parent Not Securely Employed*	*Percent Reading Proficiently*	*Percent Proficient in Mathematics*
New Mexico	18	57	50	12	13
New York	14	53	48	16	13
North Carolina	13	60	52	14	22
North Dakota	5	42	42	16	19
Ohio	10	61	58	17	17
Oklahoma	13	50	45	15	13
Oregon	13	48	41	16	14
Pennsylvania	9	51	53	16	19
Rhode Island	13	46	50	17	16
South Carolina	12	62	60	17	14
South Dakota	7	53	50	18	13
Tennessee	11	60	57	15	10
Texas	22	52	40	16	23
Utah	9	44	39	17	11
Vermont	5	41	49	14	13
Virginia	9	42	43	14	16
Washington	12	47	48	17	18
West Virginia	10	61	64	11	9
Wisconsin	9	53	44	16	13
Wyoming	7	32	33	18	21

"Sources:
(1) American Community Survey. Calculated by the authors for children ages 0-17 from data file prepared by King, et al (2010). Children with mother not graduating from high school as a percent of all children in the state. Among children with mother not graduating from high school, percent in poverty and percent with parent not securely employed (not employed full-time year-around). To assure the sample size for each state is at least 100 and to provide for consistency across states, results for most states and the District of Columbia calculated by the authors with data for 2010, 2011, and 2012. Because of the small sample size, results for North Dakota and Vermont are calculated for 2008, 2009, 2010, 2011, and 2012. (2) National Assessment of Educational Progress. Reading and mathematics proficiency are for children in Eighth Grade. Downloaded by the authors from "Custom Data Tables" from National Center for Education Statistics (2013a). Results are by "parental education" which is the highest level of education reported for either parent (National Center for Education Statistics (2013b). Reading and Mathematics Proficiency results are not available for Alaska.

Notes

[i] See Corak (2006, 2013) for results focused on the intergenerational mobility rates for the U.S. compared to other countries.

[ii] King, Smith, and Glover (2011), King, Glover, and Smith (2012).

[iii] King, Coffey, and Smith (2013).

[iv] King, Smith, and Glover (2011), King, Glover, and Smith (2012).

[v] For a discussion of this research in the context of dual-generation strategies see King, Smith, and Glover (2011) and Chase-Lansdale and Brooks-Gunn (2014).

[vi] The Foundation for Child Development, as well as the Annie E. Casey Foundation, the W.K. Kellogg Foundation, and other foundations, both independently and through Ascend at the Aspen Institute, are working to develop and implement dual-generation or two-generation programs. For the Foundation for Child Development see, http://fcd-us.org/our-work/prek-3rd-education/dual-generation-strategy; for The Annie E. Casey Foundation, see http://www.aecf.org/MajorInitiatives/CivicSites/Atlanta/TwoGenerationSuccess.aspx; for the W.K. Kellogg Foundation, see http://www.wkkf.org/what-we-do/overview; for Ascend at the Aspen Institute, see http://ascend.aspeninstitute.org/pages/philanthropic-partners. A wide variety of programs are referred to as "two-generation" programs. The Foundation for Child Development refers to its activities as a "dual-generation initiative" fostering the development of dual-generation programs. The specific approach pursued by the Foundation for Children Development and reflected in a grant to the Christopher King and the University of Texas at Austin is described in the text.

[vii] http://fcd-us.org/our-work/prek-3rd-education

[viii] See King, Smith, and Glover (2011) for a more detailed discussion.

[ix] See King, Smith, and Glover (2011) for a more detailed discussion.

[x] McLoyd, 1998.

[xi] Duncan and Brooks-Gunn (1997), McLoyd (1998), Sewell and Hauser (1975).

[xii] U.S. Census Bureau (2014).

[xiii] Annie E. Casey Foundation (2009), Child Trends (2009), Kneebone and Garr (2010), Nilsen (2007), Mathews (2013).

[xiv] National Center for Education Statistics (2013).

[xv] Hernandez (2011a).

[xvi] Heckman and Masterov (2007), Reynolds, et al (2011).

[xvii] Mashburn, et al (2009), Moiduddin, et al (2012), Yoshikawa, et al (2013).

[xviii] CDC (2009).

[xix] CDC (2013a).

[xx] Brown, et al (1999).

[xxi] Yoshikawa, et al (2013).

[xxii] See King, Smith, and Glover (2011), and King, Coffey, and Smith (2013) for a detailed discussion. This section of this report draws mainly from these sources.

[xxiii] See Ascend, the Aspen Institute "Gateways to Two Generations: The Potential for Early Childhood Programs and Partnerships to Support Children and Parents Together" Retrieved May 30, 2014 from http://b.3cdn.net/ascend/d3336cff8a154af047_07m6bttk2.pdf

[xxiv] Barnett, et al (2012).

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