



Research Note

What We Learned from PIAAC: Relationships Between Parental Education and Adult Socioeconomic Outcomes (2012–2017)

Jaleh Soroui and Liam Sullivan

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Introduction

What benefits are associated with having more highly educated parents? How do these benefits vary from country to country? Promoting equal opportunity for individuals in the face of a wide array of life situations has a strong moral, economic, and societal grounding. Understanding the lasting effects of parental education on adults offers critical insights into the state of intergenerational social mobility today.

Children with more highly educated parents are less likely to grow up in poverty, and young adults with more highly educated parents are more likely to be enrolled in postsecondary education.^{1,2} Data from Cycle I of the Program for the International Assessment of Adult Competencies, conducted between 2012 and 2017, allow researchers to investigate relationships between parental education and their children's social and economic outcomes into late adulthood. In this cycle, PIAAC collected data from 39 participating countries on parental education, often categorized into three levels: **neither parent completed high school**, **at least one parent completed high school**, and **at least one parent completed college or higher**. These data provide an indicator of adult socioeconomic origins that has helped researchers study the impact of parental education on numerous outcome measures for their adult children, including educational attainment; literacy, numeracy, and problem-solving skills development; income; and employment.*

This brief highlights the **main findings** from 24 reports and research papers, including both national and international sources that draw on PIAAC data. The brief begins with an international perspective, then delves into the effects of parental education in the United States. The discussion concludes by examining the implications of these findings and identifying areas requiring further research.

How do the effects of parental education vary from country to country?

Across all countries participating in PIAAC, higher parental education is associated with higher adult educational attainment and skills.³⁻¹¹

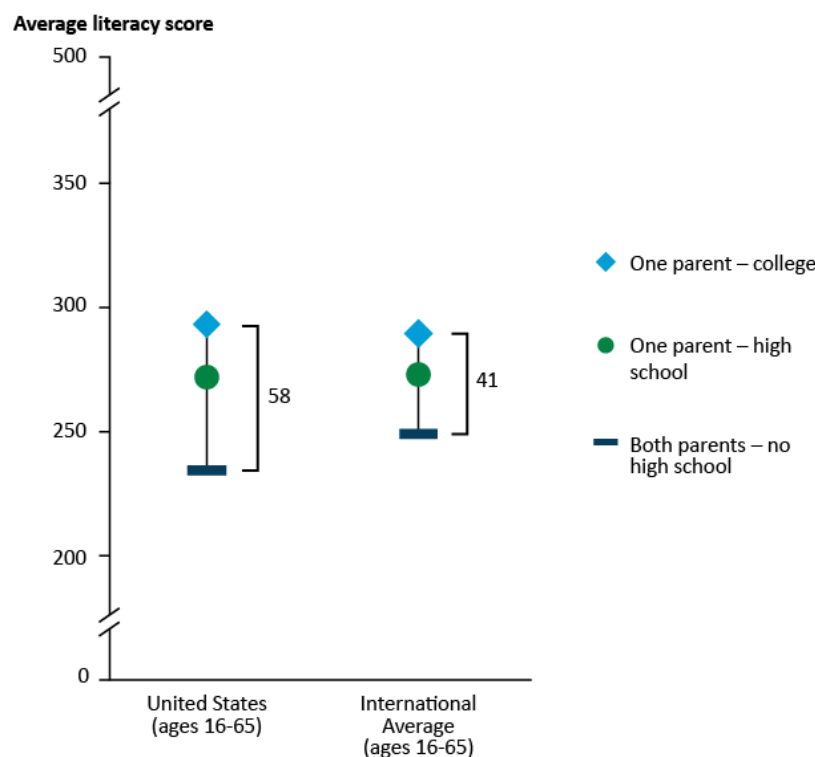
The magnitude of parental education's impact on adult skills and educational attainment varies considerably between nations. On one end of the spectrum, Sweden, Denmark, Finland, the Netherlands, and Korea exhibit relatively small skill and educational attainment gaps between adults with at least one parent who completed college and adults with neither parent having

* An additional family background indicator assessed by PIAAC is the number of books in the household when the respondent was 16.

completed college. In contrast, the United States, Germany, Italy, the Czech Republic, Slovakia, and Poland show significantly larger gaps.^{4,11}

Figure 1 compares the U.S. literacy skill gap to the international average, reported on a 500-point scale. The gaps shown here are the average score differences in literacy between respondents in each parental education category. The 58-point literacy skill gap within the United States between one parent with a college degree and both parents with no high school degree is 17 points greater than the international average, indicating that parental education has a greater impact on the literacy skills of adults in the United States than it does internationally. Similarly, the 60-point numeracy skill gap, not shown here, is 16 points greater than the international average gap.¹²

Figure 1. U.S. Literacy Skill Gap Compared With the International Average, by Parental Education



NOTE: PIAAC assesses literacy on a 500-point scale. The U.S. score gap between “One parent – college” and “Both parents – no high school” is significantly larger than the international average. The international average includes all countries that participated in PIAAC, except Russia and Australia, using U.S. 2012/2014 data.

SOURCE: American Institutes for Research. (2019). Impact of Parents’ Education [PowerPoint slides].

<https://www.piaacgateway.com/s/Impact-of-Parental-Education- Final-091319.pptx>.

The association between parental education and adult educational attainment is also particularly strong in the United States. Researchers frequently identify the United States as an outlier in terms of the magnitude of parental education’s effect on adult educational attainment and skills development.^{10,11,13–15}

Children with college-educated parents are more likely to obtain a college education themselves and to develop literacy and numeracy skills through this education. There is a high correlation between an individual's level of education and their literacy and numeracy skills. Even when controlling for educational attainment, PIAAC data show that the positive relationship between parental education and adult skills persists, though to a lesser extent.^{7,13,14}

The United States has some of the highest rates of economic and education inequality among the participating countries, and research has demonstrated that parental education effects are greater in nations with higher economic and education inequalities.³ This suggests that economic resources and educational opportunities are fundamental to the intergenerational transmission of advantage. In nations with high rates of inequality and low rates of upward mobility, the advantages conferred by highly educated parents carry even greater significance.^{3,16}

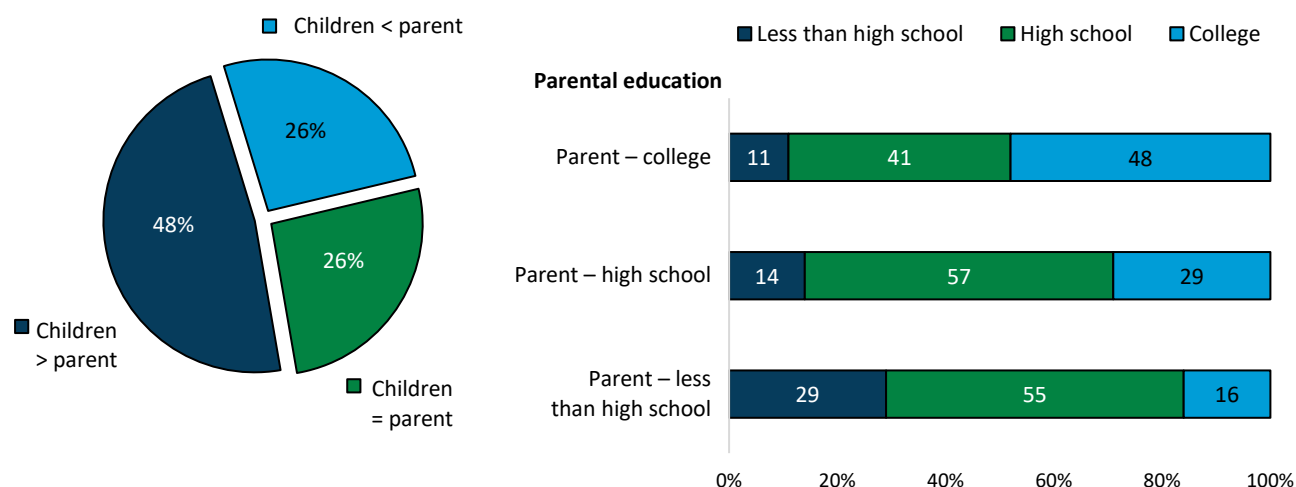
Outcomes Related to Parental Education in the United States

How often do adults have the same level of education as their parents?

In the United States, a parent's highest education level is strongly associated with their adult children's educational attainment.^{3,4,17}

As shown in the left portion of figure 2, 48 percent of adults obtain an education level similar to that of their parents, while 26 percent obtain a higher level and 26 percent obtain a lower level.¹⁸ The right portion of figure 2 shows that the percentage of adults with a college degree is 19 percent higher among those with at least one college-educated parent compared to those with high school-educated parents, and 32 percent higher compared to those with less-than-high-school-educated parents.¹⁸

Figure 2. Highest Level of Education Attained by Adults Ages 16–65, by Parental Education



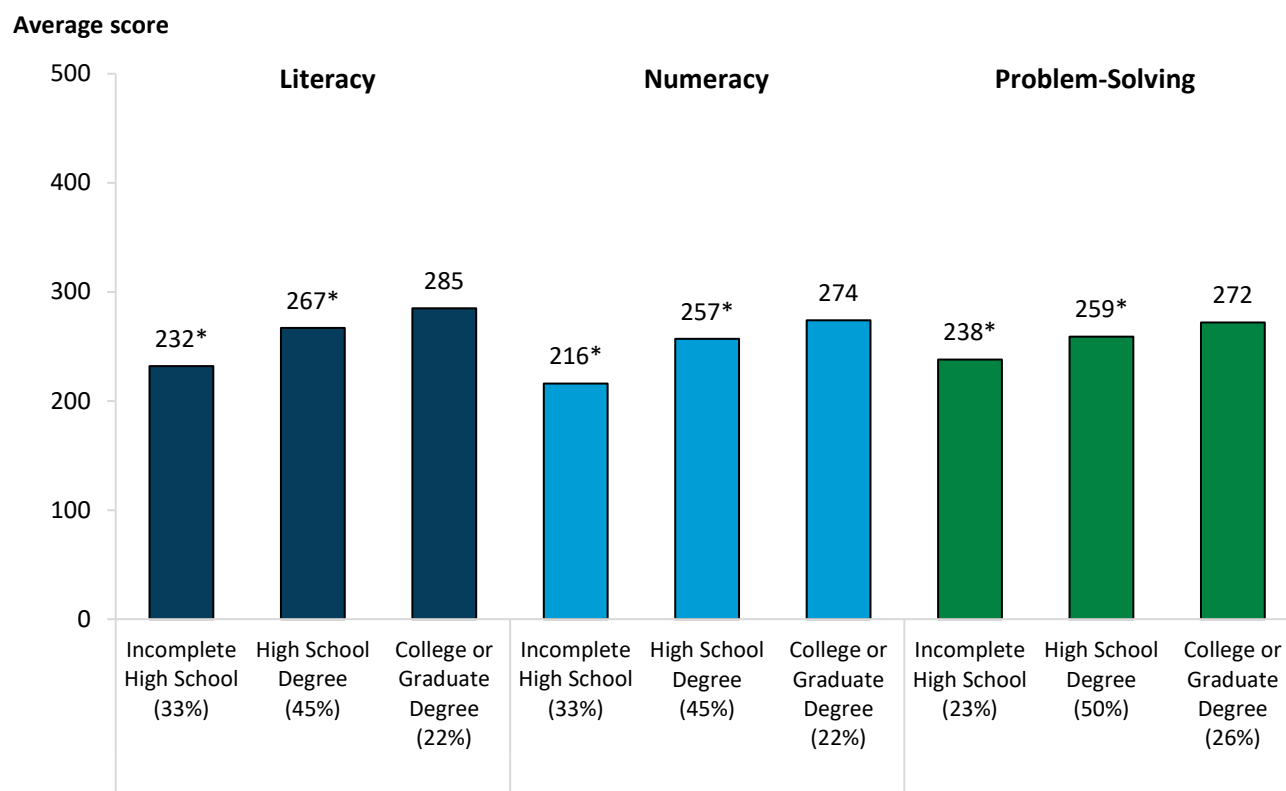
SOURCE: Oloomi, S. (2020). *Parental Education and Skill Indicators of Children: An Intergenerational Mobility Study*. Retrieved November 15, 2023, from PIAAC Gateway website: <https://c3cre350.caspio.com/dp/596e400078c73affe37549588f51/files/5234874>

Does parental education significantly impact adult skills across age groups?

PIAAC data show that U.S. adults who have at least one parent with a college or graduate degree demonstrate significantly higher literacy, numeracy, and digital problem-solving skills.^{20–22}

Although the magnitude varies, this relationship holds true regardless of race/ethnicity, gender, age, or nativity status.^{20,21} Figure 3 shows that even among older adults (ages 55–74), there are significant literacy, numeracy, and digital problem-solving skill gaps between adults with and without college-educated parents.^{19,22} For example, the average numeracy score of adults (ages 55–74) with a parent with a college degree is significantly higher than that of adults with a parent with a high school education (274 vs. 257). The impact of parents' education levels on their children's skills, then, is prevalent even into older adulthood.

Figure 3. Average Literacy, Numeracy, and Problem-Solving Scores of Adults Ages 55–74, by Highest Level of Education Attained by a Parent or Guardian



* Significantly different ($p < .05$) from the comparison category (College or Graduate Degree).

SOURCE: American Institutes for Research. (2019). Impact of Parents' Education [PowerPoint slides].

<https://www.piaacgateway.com/s/Impact-of-Parental-Education-Final-091319.pptx>.

The U.S. population aged 16–34 exhibits a pattern similar to that of 55- to 74-year-olds. Among 16- to 34-year-olds, the numeracy gap between those with at least one parent who completed college and those with neither parent having a high school degree is 61 points, compared to the 58-point difference among older adults.³

Despite the high rate at which young adults in the United States report having college-educated parents compared to their international peers, their average numeracy score is among the lowest of the PIAAC-participating nations.³ This finding adds evidence to the claim that parental education impacts the educational attainment and skills of adult children differently across countries.

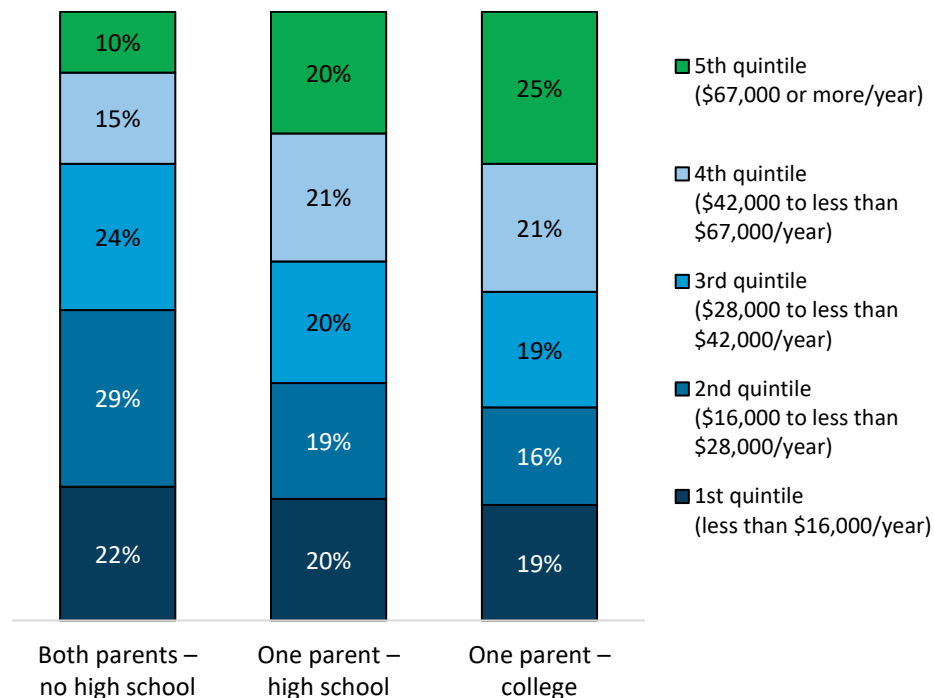
When controlling for race, age, gender, and immigration status, first-generation college students without college-educated parents graduate, on average, with significantly lower numeracy skills than their peers with college-educated parents, and research further suggests that these differences persist into adulthood.²¹

Are adults with highly educated parents more likely to earn high incomes?

Figure 4 shows that U.S. adults with parents who did not complete high school are less likely to earn high incomes, while those with more highly educated parents are more likely to have higher incomes.^{19,20,22}

When considering only college graduates, first-generation college-educated adults in the United States without college-educated parents still earn an average of \$600 less per month than their peers with college-educated parents.²² The average income benefit of having college-educated parents is higher in the United States than in any other PIAAC-participating country.^{9,14}

Figure 4. Percent Distribution of Average Income of Adults Ages 16–65, by Parental Education



NOTE: The combined 1st and 2nd quintiles are significantly different between “Both parents – no high school” and “One parent – high school” and between “Both parents – no high school” and “One parent – college” ($p < .05$).

SOURCE: American Institutes for Research. (2019). Impact of Parents’ Education [PowerPoint slides].

<https://www.piaacgateway.com/s/Impact-of-Parental-Education-Final-091319.pptx>.

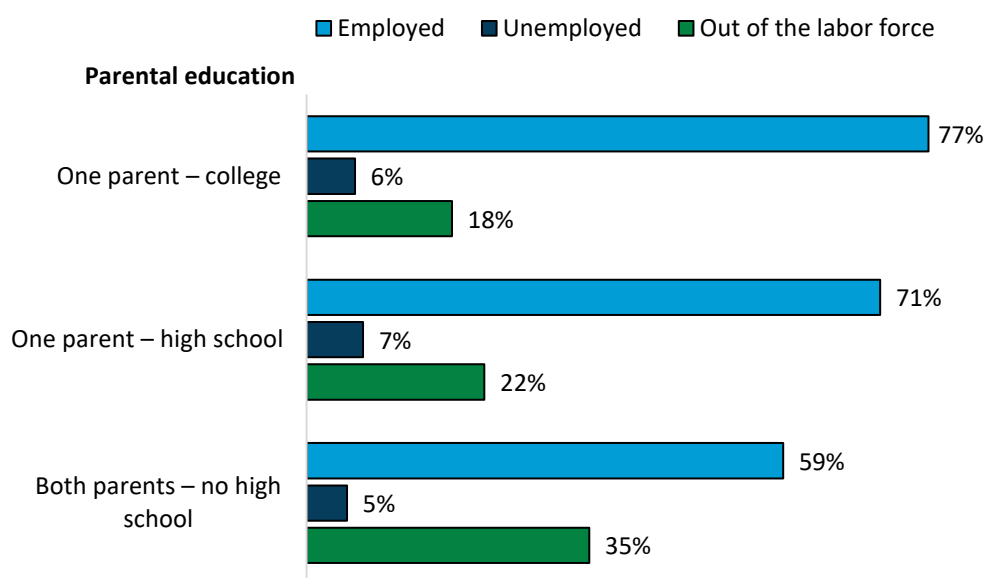
Do employment rates vary by parental education?

Adults in the United States with college-educated parents are significantly more likely than adults without college-educated parents to be employed.^{19,20,22}

Figure 5 shows that a higher percentage of adults with at least one college-educated parent are employed, compared to adults with high school-educated parents and those with parents who did not finish high school.

Considering only college graduates as in the income section above, first-generation and multi-generation college-educated adults in the United States hold similar chances of being employed and pursue similar fields of study.^{22,23} This suggests that, at least in terms of employment, receiving a college education mitigates differences tied to parental education.

Figure 5. Employment Rates of Adults Ages 16–65, by Parental Educational Attainment



NOTE: In the “Employed” category, “One parent – college” is significantly different from “One parent – high school” and “Both parents – no high school” ($p < .05$).

SOURCE: American Institutes for Research (2019). Impact of Parents’ Education [PowerPoint slides].

<https://www.piaacgateway.com/s/Impact-of-Parental-Education-Final-091319.pptx>.

Policy Implications

U.S. PIAAC results from the last decade have clearly shown that higher parental education has a positive impact on educational attainment, skills, income, and employment. The intergenerational transmission of cultural and social capital affords considerable advantages to those born into favorable circumstances, and consequently, the effects of parental education are often most pronounced in nations with high levels of inequality.^{15,20,24}

Reducing inequality and mitigating its effects on educational opportunities are the primary goals of policies designed to address the disproportionate impact of parental education in the United States. Examples of these policies include the following:

- Providing affordable paths to higher education by implementing initiatives such as affirmative action and financial aid funding that aim to make postsecondary education accessible and affordable.
- Supporting parents without college degrees through multifaceted approaches, including policies targeting financial barriers.
- Offering targeted financial aid programs, scholarships, and grants tailored to parents without college degrees.
- Establishing tuition assistance programs through employers or government initiatives to make higher education more affordable.

Furthermore, providing comprehensive support services is crucial. This can involve offering child care services; flexible class schedules, including evening and weekend courses; and online education options to accommodate parents' child care or work commitments. Addressing transportation needs and ensuring access to family-friendly housing can also contribute to the success of parent learners and facilitate degree completion.

When discussing successful programs, two federal policies stand out: the 1944 G.I. Bill and the Pell Grant program. The 1944 G.I. Bill helped millions of veterans pursue higher education or vocational training following World War II, contributing to a significant increase in educational attainment levels within the population. This, in turn, laid the foundation for a more educated workforce; facilitated social mobility by allowing individuals from diverse backgrounds, including many first-generation college students, to obtain higher education degrees; and played a significant role in the development of a generation of educated children, with lasting effects on individual lives and society as a whole. Today, the federal Pell Grant program offers financial support to millions of low-income undergraduate students to achieve their educational and career goals while promoting economic opportunity and social mobility.

Lack of accessibility to postsecondary education is a significant barrier to improving social mobility, but it is not the only one. Research has demonstrated that while young adults whose parents did not attend college perform well once they are in college, they are less likely to

complete high school in the first place.⁶ Policies geared toward promoting educational equality through classroom and staff funding can ensure that children from disadvantaged backgrounds are given a level footing on which to succeed.²⁰ Relatedly, implementing early intervention strategies that target K–12 youth at risk of dropping out can help steer more youth toward postsecondary education.

Additional Research

Variability by country in terms of the effects of parental education has been examined since the release of the PIAAC Cycle I data, yet this remains an area in need of additional research. Of particular concern to the United States are the mechanisms through which income and educational disparities within a nation influence the impact of parental education. High levels of inequality in the United States pose significant obstacles to the advancement of individuals born into less privileged circumstances. Examining the interaction between parental education and various factors like race, ethnicity, and gender—especially focusing on the impact of mothers’ versus fathers’ education, as well as the effects of being raised in a single-parent household on adult outcomes—could provide researchers with valuable insights into disparities and aid in the development of more targeted interventions.

In addition to parental education, the PIAAC Cycle II background questionnaire includes questions on parents’ employment, job title, and occupation; the number of books in the home (also in Cycle I); mothers’ and fathers’ presence in the home; place of residence (urban vs. rural); and household composition. These variables may provide added insight into the potential impact of socioeconomic variables on adult skills and overall well-being.

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