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# Incarcerated Adults with Dependent Children

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## Introduction

Data from the Bureau of Justice Statistics indicate that 95 percent of prison inmates will complete their sentences and return home (Hughes & Wilson, 2004). In addition, a growing body of evidence suggests that access to education can improve the labor market, social, and health outcomes for previously incarcerated adults. A recent meta-analysis found that participation in correctional education, which includes adult basic and secondary education, career-focused training, and postsecondary education, is associated with a 43 percent reduction in recidivism (Davis et al., 2013).

Despite this promising evidence on the effectiveness of correctional education, the 2008 Great Recession led to a decline in state-level investments in these programs. Between fiscal years 2008 and 2012, states' correctional education budgets decreased by an average of six percent, with medium- and large-size states experiencing larger impacts, 20 percent and ten percent decreases respectively. Budgetary cuts have led to decreased capacity to provide educational programming to prison inmates. A recent survey of state correctional education directors found that 20 states reduced course offerings during those years, and the number of students served through adult correctional education declined (Davis et al., 2014). Given the limited budgetary resources available for correctional education, it is imperative that program investments are well-aligned with the needs of justice-involved adults and the communities to which they return.

A large percentage of prison inmates returning to their communities are parents. More than 2.7 million children have an incarcerated parent (The Pew Charitable Trusts, 2010), and parents represent approximately 53 percent of the prison population (Bureau of Justice Statistics, 2010). Empirical research indicates that parental incarceration is associated with poor outcomes for their children, including decreased family incomes and an increased risk of child homelessness, aggressive behavior, depression, and poor academic achievement (Foster & Hagan, 2015; Johnson & Easterling, 2012; Travis et al., 2014). Children with parents in prison are six times more likely to be incarcerated themselves than the overall population (Langemann, 2015). When parents return to their communities and are unable to find employment to support and sustain their families, diminished parental support may confound these effects (Geller et al., 2011; Turney & Wilderman, 2013; Wakefield & Wilderman, 2013). Thus, improving the education and labor market outcomes of previously-incarcerated parents through correctional education and training could be critical to mitigating the intergenerational effects of incarceration.

Correctional education may be an especially important tool for increasing the success of previously incarcerated adults and their children because prison inmates have lower levels of education than the U.S. population as a whole (Ewert & Wildhagen, 2011). However, in some vocational contexts, a particular education level may matter less for its own sake than as a signal of cognitive or non-cognitive skills. While the measurement of non-cognitive skills is a matter of some debate, the Program for the International Assessment of Adult Competencies (PIAAC) lets

us study the association between education levels and literacy and numeracy skills. Low literacy levels are correlated with lower employment rates, wages, and health outcomes (Dewalt et al, 2004; Wood, 2010). This correlation extends to the justice system – incarcerated adults tend to have lower literacy skills than the population as a whole (Greenberg, Dunleavy, and Kutner, 2007). In addition, socioeconomic backgrounds have a strong correlation with literacy skills in the United States. Those with low incomes and Black and Hispanic adults are overrepresented in both the general low-skilled population (OECD, 2013) and prison population (Blumstein, 2015).

The recent Program for the International Assessment of Adult Competencies (PIAAC) provides insights into the skill levels of incarcerated adults ages 18-74 for the first time in more than a decade. Initial analyses of PIAAC data indicated that 31 percent of incarcerated adults with dependent children under 18 have low literacy skill levels compared with 20 percent of the total U.S. population. These incarcerated adults are unable to “identify, interpret, or evaluate one or more pieces of information” and make appropriate inferences. They may not be able to complete tasks that “require the respondent to construct meaning across larger chunks of text or perform multi-step operations in order to identify and formulate responses.” (OECD, 2013). In addition, 52 percent of incarcerated adults have extremely low numeracy skills (in level one or below), meaning that they cannot complete tasks requiring “the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs” (OECD, 2012; OECD, 2013), compared with 30 percent of non-incarcerated U.S. adults.

The purpose of this paper is to construct a profile of incarcerated parents of dependent children, as dependent children may be likelier than grown children to experience positive spillover effects from parental education. Improving the skills of parents with dependent children may therefore have intergenerational effects in addition to any first-order effects, and may therefore be of particular interest to policymakers. It provides an overview of the skills of incarcerated parents and the correctional educational programs in which they participate and serves as a foundation for further research. The detailed background questionnaire included in the PIAAC study provides researchers with the opportunity to learn more about incarcerated parents’ (1) pre-incarceration education levels and employment, (2) current skill levels and, in light of dwindling state-level capacity to support correctional education, (3) the factors that influence enrollment in and access to educational programming in prison. We analyze PIAAC data to answer the following research questions and sub-questions:

1. What are the educational attainment levels of incarcerated parents with dependent children (i.e., any children under age 18), how do these differ by literacy and numeracy skill level, and is there an intergenerational correlation between their skill levels and their parents’ education?
  - A. Does the highest level of education for incarcerated parents with dependent children vary by literacy and numeracy skill levels (level 2 and below, level 3, and level 4/5)?

- B. To what extent are literacy and numeracy skills of incarcerated parents with dependent children associated with the educational attainment of their parents?
2. Does PIAAC show clear factors facilitating or impeding incarcerated adults' educational progress, and does this vary by whether these adults have dependent children?
- A. What percentage of incarcerated parents with dependent children have expressed an interest in pursuing education and training while in prison? How does this compare with incarcerated individuals without dependent children?
  - B. Are incarcerated parents with dependent children more likely than incarcerated individuals without dependent children to participate in education and training while in prison? What are the motivating factors?
  - C. In which programs (e.g., those offering a high school diploma or GED versus a certificate from a college or trade school) do incarcerated parents with dependent children enroll?
  - D. Do incarcerated parents with dependent children face barriers to pursuing educational programs due to program capacity constraints?
  - E. Does access to education and training vary by time to release from prison for incarcerated parents with dependent children?

The intent of this research is to strengthen educators' and policymakers' understanding of the education, literacy and numeracy skills, and job readiness of incarcerated parents who are highly likely to return to their communities. State policymakers can use the information to inform investment in education, training, reentry, and supplemental support programs for justice-involved populations during and after incarceration. The study could also inform the reauthorization of the federal Carl D. Perkins Career and Technical Education Act and the Second Chance Act, both of which provide resources to fund educational programs in prison settings.

## Literature Review

### *The Literacy, Numeracy, and Educational Participation of Incarcerated Individuals*

As with the preliminary PIAAC data analysis described above, surveys of adults' literacy and numeracy skills have consistently found that prison inmates have lower average literacy and numeracy skill levels than the non-incarcerated U.S. population. The first assessment of U.S. adult skill levels, the National Adult Literacy Survey (NALS), was a task-based assessment of adult literacy administered to both incarcerated and non-incarcerated individuals in 1992. The NALS defined literacy as the ability to use print and written information to function in society,

achieve goals, and develop knowledge (Haigler et al., 1994). This was separated into prose literacy, or the knowledge and skills needed to understand and use information from texts that include editorials, news stories, poems, and fiction; and document literacy, defined as the knowledge and skills required to locate and use information contained in materials that include job applications, payroll forms, transportation schedules, maps, tables, and graphs. The NALS also measured quantitative literacy, or the knowledge and skills necessary to identify and perform computations using numbers embedded in print material.

Based on a sample of 1,150 prison inmates representing nearly 1.4 million incarcerated adults, the NALS found that approximately 70 percent of prison inmates had basic and below basic skills in prose, document, and quantitative literacy. Prose literacy refers to the ability to understand information contained in text, while document literacy is the ability to process information from documents such as forms or maps. Quantitative literacy is the ability to apply numerical concepts in everyday life. Incarcerated adults' skill levels were substantially lower than the U.S. population overall. Incarcerated adults also tended to have lower levels of educational attainment, which was highly correlated with literacy skill levels (Haigler et al., 1994).

Like the NALS, the 2003 National Assessment of Adult Literacy (NAAL) assessed the English literacy skills of incarcerated adults through a series of tasks. Based on a sample of 1,200 incarcerated adults representing 1.4 million prison inmates, the NAAL found that the average prose and quantitative literacy skills of the prison population was higher in 2003 than 1992. Again, prison inmates' average prose and quantitative literacy levels were highly correlated with educational level. Approximately 43 percent of adults had earned a high school diploma or GED as their highest level of education prior to their incarceration, and an additional 19 percent earned a high school diploma or GED while incarcerated (Greenberg, Dunleavy, & Kutner 2007).

The NAAL included additional items on prison inmates' participation in correctional education. Five percent of respondents were enrolled in coursework that might lead to a high school equivalency certificate. In addition, 29 percent of study participants had participated in some form of vocational training while in prison. In 2003, 10 percent of prison inmates were currently enrolled in vocational training, while 14 percent reported being on a waiting list for vocational programs (Greenberg, Dunleavy, & Kutner 2007). The results indicate that the need for correctional training often exceeded facilities' capacity to offer programming. This paper builds on earlier descriptive work using data from NCES adult household surveys focused on the incarcerated population. Specifically, this paper provides PIAAC data on incarcerated with adult children and correctional education activities in which they participate.

### *The Effectiveness and Benefits of Correctional Education*

Correctional education is effective at reducing recidivism and improving prison inmates' employment and socio-economic outcomes after reentry. A 2013 RAND meta-analysis of previous literature found that correctional education reduces recidivism rates for participants by

43 percent, compared to prison inmates who did not participate, which translates into a 14 percentage point reduction in recidivism risk. The analysis found that those who had completed a GED in prison were 30 percent less likely to recidivate than non-participants without a high school credential. Prison inmates who participated in correctional education were 13 percent more likely to get a job after release than those who did not participate in such programs. However, the findings for employment are not as robust, since only one study focusing on employment outcomes had a strong research design (Davis et al., 2013).

The RAND meta-analysis also found that correctional education is highly cost effective, finding that the cost of re-incarceration is higher than the cost of educational programming in prison. Every dollar spent on correctional education saves approximately five dollars in direct costs of re-incarceration. The cost savings are likely even greater, since the calculations do not take into account the indirect social and economic benefits of correctional education, such as higher wages or the indirect costs of re-incarceration (Davis et al., 2013).

The RAND meta-analysis indicates that correctional education reduces recidivism. Therefore, it is likely that correctional education can positively impact the lives of previously-incarcerated individuals and their children. Yet, there is limited, national-level descriptive literature that focuses on nationwide access to correctional education and the educational services that incarcerated parents participate in while in prison, let alone the underlying skill development necessary for such education to be useful. Furthermore, there is a need for additional research on the mechanisms through which education while in prison affects employment or other measures of societal reintegration. For example, there needs to be additional research on the employment histories of incarcerated adults (e.g., how many years they have worked and the intensity of their work), which may affect their skill levels upon entering prison. Currently, there is limited research on the types of education or training in which inmates are most interested and for which they are most qualified, and how correctional education impacts their ability to reintegrate into society. While the PIAAC dataset does not allow us to view the complete employment histories of incarcerated adults, we are able to use data provided to create a unit-neutral variable that measures the percent of potential working years (i.e. those not in school) for which an individual has been employed—this allows a fair comparison across individuals of different ages and is in line with the economic literature on other topics. Similarly, there is little descriptive research on the numeracy and literacy skills of incarcerated parents specifically. While it is beyond the scope of this paper to examine the impacts of correctional education on skill development or post-incarceration outcomes, it provides initial information on the availability of correctional education to a nationally-representative sample of inmates and why prison inmates choose to access such programming.

### *Intergenerational Gains from Education*

In order for our inquiry to be valid, parents' education should influence their children's education beyond the impact of factors such as genetics or income. Two papers provide some

evidence that these other factors may not be sufficient on their own. Sacerdote (2002) finds that adopted parents' education and income have a modest impact on test scores but a large impact on college attendance; therefore, genetics alone cannot predict children's education levels.

Chevalier and Lanot (2010) find that while students from poorer families are less likely to invest in education, financial transfers would not increase their investment; as a result, family characteristics may dominate financial constraints in determining optimal education levels.

While parents' education may therefore influence children's education, the precise mechanism remains unclear. In one of the first major findings on this subject, Sewell and Shah (1968) found that fathers' education levels generally had larger effects on children's education levels, though mothers' education levels had larger effects on their daughters' education than on their sons'. More recently, Chevalier (2004) found that children were more influenced by the parent of the same sex, and Marks (2008) found that mothers' education levels had a larger effect than fathers' did. Marks (2008) also found evidence that the relative importance of each parent's education may have shifted over time. However, there is still disagreement over whether mothers or fathers have greater influence on their children's education—Behrman and Rosenzweig (2002), for example find that women's education has no effect (or possibly even a negative effect) on their children's education, *ceteris paribus*, while Black, Devereux, and Salvanes (2005) find that neither parent's education directly affects their children's education. We therefore examine whether incarcerated individuals' skill levels are correlated with each parents' education independently, as well as with the higher of their parents' education levels.

## Methods

Our study has been performed in STATA using the commands *piaacdes* and *piaacreg*, which account for sample weights and plausible values. It is purely descriptive, as we are measuring cross-sectional differences between groups of individuals at a single point in time rather than the impact of a specific policy. For example, if we were to observe that incarcerated individuals with dependent children (those with at least one child under age 18) were more likely to be employed immediately prior to incarceration than those without, we would not be able to say that this is caused by having children. In some cases, this could be true (e.g., if some individuals were motivated to seek employment to cover costs of raising a child); however, causality could run in the opposite direction (e.g., if individuals tried to avoid having children during periods of financial hardship), or both may be affected by some outside factor (e.g., if the 2008 recession both caused individuals to lose their jobs and rethink their family planning). Furthermore, these influences may vary based on the age of the child in question. A descriptive analysis will therefore advance our understanding of how incarcerated individuals fit into and can contribute to society.

Much of our analysis consists of sample mean comparison and equivalence testing. When measuring a characteristic (e.g., the percent of individuals interested in academic coursework)

across two groups (e.g., incarcerated individuals with children and those without), we run a two-sample t-test of sample mean equivalence, modified to account for sample weights.<sup>1</sup> Relative to a traditional t-test, this statistic lowers the type I error rate at the expense of increasing the type II error rate. In some cases, we compare individuals with dependent children against 1) individuals without children, 2) individuals whose children are all age 18 or older, and/or 3) both groups combined. In other cases, we compare outcomes across low and medium literacy and numeracy values (levels sub-1, 1, and 2 versus level 3; as fewer than 30 incarcerated parents of dependent children had numeracy or literacy levels 4 or 5 we do not show results for high literacy and numeracy).

For categorical variables (such as highest degree attained), we convert each response option into an indicator variable prior to conducting t-tests. This is because even when categories can be rank-ordered their ordering does not necessarily reflect *how much* better or worse any one outcome is than any other—for example, an integer-based coding system cannot reflect the lifetime gains from a high school, associate’s, or bachelor’s degree.<sup>2</sup> A full list of analysis variables may be found in Appendix A.

## Results

Based on the sample weights provided by PIAAC, 49.9 percent of incarcerated individuals have at least one child under age 18 (our definition of “dependent children”).<sup>3</sup> Another 29.3 percent have no children, while the remaining 20.7 percent have children who are all 18 or older.

Summary statistics for these populations are shown in Table 1. Incarcerated parents of dependent children are generally less likely to be White and more likely to be Hispanic than those with no children or those with grown children. Adults with dependent children and those with no children are also an average of 16 years younger than those with grown children. Individuals from all three groups have between 11.0 and 11.5 years of schooling.

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<sup>1</sup> Specifically, the denominator is  $\sqrt{s_1^2 \bar{x}_1 + s_2^2 \bar{x}_2}$ , where  $s_i$  is the jackknife standard error from distribution  $i$ , rather than  $\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$ .

<sup>2</sup> For example, consider a coding system that assigns “no high school degree” a value of 0, “high school degree” a value of 1, and “some college, no degree” a value of 2. “Some college, no degree” is certainly not twice as good an outcome as “high school degree,” and having 50 percent of respondents each in “no high school degree” and “some college, no degree” would not have the same real-world impact as 100 percent of respondents in “high school degree.” Using the original variable without any recoding would imply these two highly inaccurate conclusions.

<sup>3</sup> For brevity, we do not reference sample weighting for each individual result; sample weights should be assumed.



**Table 1. Summary statistics of incarcerated individuals**

	Dependent children	No children	Grown children	All
Female	0.078	0.051	0.061	0.067
White	0.275	0.381	0.451	0.342
Black	0.373	0.371	0.342	0.366
Hispanic	0.275	0.187	0.131	0.220
Other race/ethnicity	0.077	0.061	0.076	0.072
Imputed age	33.9	34.0	50.6	37.4
Imputed years schooling	11.0	11.3	11.5	11.2

Imputed age computed as the midpoint of each age interval using the variable AGEG5LFSEXT (topcoding at 72.5). Imputed years of schooling are taken directly from the variable YRSQUAL.

### *Educational attainment*

We begin by examining three sets of associations. We stop shy of asserting causality, which in some cases could plausibly run in multiple directions, and which in all cases may be influenced by outside factors—e.g., while additional education may improve one’s numeracy, a more numerate individual may have an easier time pursuing additional education, and non-cognitive skills (such as an ability to work well in a classroom environment) may be associated with both higher education levels and higher numeracy. First, we establish a clear link between education levels and literacy and numeracy skills, which is important for establishing the face validity of improving incarcerated individuals’ skills through adult education. We then focus on the distinct education levels of different groups of incarcerated individuals, which provides an appropriate starting point for further education. Finally, we show that these individuals’ literacy and numeracy skills are associated with their parents’ education levels, which provides further grounds for an intergenerational aspect to education among incarcerated individuals.

Literacy and numeracy levels are positively correlated with educational attainment among incarcerated individuals with dependent children. Table 2 shows the percentage of individuals at each educational level within each skill tier. For each skill type (literacy or numeracy), the first two columns indicate low or middle skill and the third column shows the t-statistic between the two; each row represents an educational level. Results for the high literacy and high numeracy groups were suppressed, as sample sizes were less than 30. The most common education level for all literacy and numeracy levels is an upper secondary education (including a high school diploma or GED). Among individuals with low literacy or numeracy skills (at or below level 2), the second most common education level was a lower secondary education (including high school non-completers); fewer than 10 percent of the low literacy or low numeracy group had an education level other than lower secondary or upper secondary. Among individuals with middle literacy or numeracy skills (level 3), the second most likely education level was postsecondary but non-tertiary, which might include post-high school skills training or similar courses. Individuals with middle literacy and middle numeracy were statistically significantly more likely to have education levels in the upper secondary,

postsecondary non-tertiary, or tertiary levels than those in the low literacy and numeracy categories, respectively. They were also significantly less likely to have primary or lower or lower secondary educations.

**Table 2. Highest degree attainment by literacy level for incarcerated parents with dependent children**

	Literacy			Numeracy		
	Low	Middle	t-statistic	Low	Middle	t-statistic
Primary or Lower	5.4% (0.9%)	0.0% (0.0%)	-24.48	4.5% (0.8%)	0.0% (0.0%)	-26.76
Lower secondary	36.0% (2.2%)	8.1% (2.3%)	-19.15	32.9% (2.0%)	0.0% (0.0%)	-29.39
Upper secondary	49.7% (2.2%)	68.8% (3.8%)	5.38	51.9% (2.1%)	67.0% (5.8%)	3.04
Postsecondary, non-tertiary	5.8% (1.0%)	13.5% (2.9%)	7.08	7.1% (1.0%)	15.4% (4.6%)	4.53
Tertiary	3.1% (0.8%)	9.6% (2.4%)	7.95	3.5% (0.8%)	17.6% (4.4%)	4.89
N	495	148		592	66	

All values shown are for incarcerated parents with at least one child under age 18. Low literacy and numeracy are defined as being at or below level 2, and middle literacy and numeracy are defined as level 3 (high literacy and numeracy levels, defined as levels 4 and 5, are suppressed due to low sample size). T-statistics are for the difference between low literacy or numeracy and middle literacy or numeracy. The “Tertiary” education category combines the response categories “Tertiary – professional,” “Tertiary – bachelor,” “Tertiary – master,” and “Tertiary – research.”

Table 3 shows how education levels vary based on whether or not incarcerated individuals had dependent children. For all three groups of incarcerated individuals – those with at least one child under the age of 18, those with no children, and those whose children were all 18 or older – the most common education level was an upper secondary education, while the next most common was a lower secondary education. Starred results for incarcerated individuals with no children or grown children reflect statistically significant differences from incarcerated individuals with dependent children. Individuals with no children were less likely to have a primary or lower education and more likely to have a tertiary education than those with dependent children. Individuals with grown children were less likely to have a lower secondary education and more likely to have a postsecondary, non-tertiary or tertiary education than those with dependent children.

**Table 3. Percentages of incarcerated individuals by education level**

Education Level	Dependent children	No children	Grown children
Primary or lower	4.0% (0.7%)	1.6%*** (0.6%)	4.3% (1.2%)
Lower secondary	29.0% (1.8%)	27.4% (2.3%)	20.2%*** (2.5%)
Upper secondary	54.3% (1.9%)	54.8% (2.6%)	55.2% (3.0%)
Postsecondary, non-tertiary	7.8% (1.0%)	8.3% (1.4%)	11.1%*** (2.0%)
Tertiary	4.9% (0.8%)	6.3%*** (1.3%)	9.3%*** (1.8%)
Unknown	0.0% (0.0%)	1.5%*** (0.6%)	0.0% (0.0%)
N	668	377	274

Columns sum to 100 percent. Stars denote statistically significant difference from incarcerated individuals with dependent children. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Literacy and numeracy levels are also correlated with parental education levels. Table 4 shows the percentage of individuals whose parents' education reached a particular level. Parental education levels are reported in the U.S. PIAAC background questionnaire as "less than a high school diploma," "high school diploma or some college," and "postsecondary degree." These categories are not reported to the same level of detail as those for the incarcerated individuals themselves in Table 2, but allow for broad comparison across education level.<sup>4</sup> The table is split into three panels: one for the education level of the incarcerated individual's mother, one for the incarcerated individual's father, and one for the higher of the two. We provide separate analyses for each parent, as individuals may be differently influenced by their mother's and father's education levels. Columns and rows are organized within each panel similarly to those in Table 2. At each literacy or numeracy level, parents were most likely to have completed a high school degree but not a postsecondary degree. In all three panels, individuals with middle literacy or numeracy were less likely to come from families where either parent had less than a high school diploma than were individuals with low literacy or numeracy. Individuals with middle literacy or numeracy were more likely to have mothers with a high school diploma or some college than those with low literacy, but this result does not hold for fathers or for the highest level of parental education. Individuals with middle literacy or numeracy were also more likely to have mothers

<sup>4</sup> These categories were translated into International Standard Classification of Education (ISCED) levels in the codebook. We translated these categories back to their equivalents; however, this process may mischaracterize a small number of individuals.

with postsecondary degree than those with low literacy or numeracy; for the bottom two panels, this result holds only for numeracy.

**Table 4. Differences in parental education by literacy level**

<i>Mother's education</i>	Literacy			Numeracy		
	Low	Middle	t-statistic	Low	Middle	t-statistic
Less than high school	34.4% (2.2%)	21.4% (3.5%)	-6.29	33.1% (2.0%)	14.5% (4.4%)	-9.14
High school diploma or some college	45.3% (2.4%)	53.4% (4.2%)	2.35	45.9% (2.2%)	58.7% (6.3%)	2.54
Postsecondary degree	20.3% (1.9%)	25.2% (3.6%)	2.43	20.9% (1.8%)	26.7% (5.8%)	1.86
N	445	139		537	61	

<i>Father's education</i>	Literacy			Numeracy		
	Low	Middle	t-statistic	Low	Middle	t-statistic
Less than high school	33.8% (2.4%)	28.8% (4.0%)	-1.98	33.9% (2.2%)	18.4% (5.3%)	-5.90
High school diploma or some college	49.7% (2.5%)	52.4% (4.5%)	0.75	50.8% (2.3%)	47.3% (6.9%)	-0.71
Postsecondary degree	16.5% (1.9%)	18.8% (3.5%)	1.36	15.3% (1.7%)	34.3% (6.5%)	4.91
N	390	126		475	54	

<i>Highest parent's education</i>	Literacy			Numeracy		
	Low	Middle	t-statistic	Low	Middle	t-statistic
Less than high school	21.7% (2.0%)	14.0% (3.1%)	-5.18	21.4% (1.9%)	6.7% (3.1%)	-12.35
High school diploma or some college	51.0% (2.6%)	55.0% (4.5%)	1.04	51.4% (2.3%)	49.0% (6.9%)	-0.48
Postsecondary degree	27.3% (2.3%)	31.0% (4.2%)	1.42	27.1% (2.1%)	44.3% (6.8%)	3.68
N	382	124		464	54	

No values within any row are statistically significantly different from one another. Low literacy and numeracy are defined as being at or below level 2, and middle literacy and numeracy are defined as level 3 (high literacy and numeracy levels, defined as levels 4 and 5, are suppressed due to low sample size). T-statistics are for the difference between low literacy or numeracy and middle literacy or numeracy.

Taken together, these results show that incarcerated individuals' education levels can serve as a rough proxy for their literacy and numeracy skills, that their education levels vary by parenthood, and that their literacy and numeracy vary by parental education. While we cannot assert causality, these connections provide some evidence of intergenerational transmission of skills via education among incarcerated individuals. While we are unaware of data that let us directly examine the intergenerational effects of education obtained in prison, it is conceivable that positive spillovers from educating incarcerated parents of dependent children may reduce harms to these children from their parents' incarceration.

### *Access to education*

Even if we assumed that the above results were causal, it would be unclear whether (or how) they were actionable. For example, if all interested individuals were already enrolled in academic or vocational coursework, expanding capacity or course offerings would be unproductive. We therefore establish that incarcerated individuals are highly interested in education (and enroll voluntarily), and that those with dependent children are substantially more likely than those with grown children to be interested in it. We then examine the levels and venues at which these courses are offered. Finally, we examine reasons why incarcerated individuals might not be interested in education, even if it might provide concrete benefits.

The majority of incarcerated individuals are interested in participating in academic programs, as shown in Table 5. Approximately three quarters of incarcerated individuals with dependent children and incarcerated individuals with no children are interested in taking classes (74.9 percent and 76.8 percent respectively). In contrast, just under half of individuals with grown children had any interest in doing so (49.5 percent). One reason for the difference might be because individuals with grown children are older on average than those with no children or dependent children (50.6 years old versus 33.9 and 34.0 respectively) and therefore may believe that increasing their skills will translate to a lower increase in lifetime earnings. Alternatively, these individuals may have already taken the courses in which they were most interested.

**Table 5. Percent of incarcerated individuals interested in an academic program, by dependent status**

Incarcerated adults with...	N	Percent
Dependent children	598	74.9%
No children	332	76.8%
Grown children	260	49.5%
No children or grown children	592	65.0%

Individuals have a variety of reasons for wanting to participate in education while in prison. Table 6 shows the most common reasons for participating in an academic course, while Table 7 shows reasons for participating in a basic skills course.<sup>5</sup> Between 28.8 and 35.8 percent of incarcerated individuals who took an academic course during their current period of incarceration did so to increase knowledge or skills, and between 17.1 and 32.1 percent did so to improve job opportunities upon release. Between 9.7 and 14.6 percent of individuals took courses because they were required to do so, meaning that the vast majority of those taking academic courses were genuinely interested in doing so. Individuals with no children were statistically significantly less likely to take courses to increase possibilities of job assignment or for family related reasons than those with dependent children. Individuals with grown children were less likely than those with dependent children to take courses to obtain a certificate or to increase their job opportunities upon release (as these individuals tended to be older), and were more likely to take courses because they were required to do so, for family reasons, or for “other” reasons.

**Table 6. Percentages of incarcerated adults reporting the following reasons for participating in an academic course**

Reason for interest	Dependent children	No children	Grown children
Required to participate	9.7% (2.0%)	10.8% (2.4%)	14.6%*** (3.2%)
To increase knowledge or skills	30.8% (2.9%)	28.8% (3.7%)	35.8% (4.3%)
To obtain a certificate	13.4% (2.2%)	14.7% (2.7%)	10.1%*** (2.5%)
To increase job opportunities upon release	28.3% (2.9%)	32.1% (3.7%)	17.1%*** (3.6%)
To increase possibilities of job assignment	9.2% (1.8%)	5.3%*** (1.6%)	9.4% (2.8%)
Family related reasons	2.3% (0.9%)	2.0%* (1.1%)	3.1%** (1.6%)
Other	6.3% (1.6%)	6.3% (1.9%)	9.9%*** (2.8%)
N	247	161	120

Columns sum to 100 percent. Stars denote statistically significant difference from incarcerated individuals with dependent children. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

<sup>5</sup> Importantly, these show the primary reason for doing so – many individuals may have more than one.

In Table 7, individuals participating in basic skills courses were more likely than those in academic courses to be required to participate. However, the most common reasons for participation were still to increase knowledge or skills and to increase job opportunities upon release. Individuals with no children were more likely than those with dependent children to take basic skills courses to increase their knowledge or skills or for family related reasons and less likely to do so because they were required. Individuals with grown children were less likely than those with dependent children to take basic skills courses to increase their job opportunities upon release or for “other” reasons and more likely to do so because they were required or for family related reasons.

**Table 7. Percentages of incarcerated adults reporting the following reasons for participating in a basic skills course**

Reason for interest	Dependent children	No children	Grown children
Required to participate	16.3% (2.5%)	13.6%* (3.1%)	20.5%* (4.4%)
To increase knowledge or skills	26.7% (3.0%)	31.3%* (4.0%)	31.5% (4.9%)
To obtain a certificate	14.4% (2.3%)	12.3% (2.8%)	16.0% (3.6%)
To increase job opportunities upon release	32.0% (3.0%)	30.5% (3.8%)	23.8%*** (4.5%)
To increase possibilities of job assignment	5.2% (1.3%)	4.6% (1.7%)	4.7% (2.5%)
Family related reasons	1.7% (0.9%)	3.6%*** (1.6%)	2.2%* (1.9%)
Other	3.7% (1.2%)	4.0% (1.6%)	1.3%*** (1.1%)
N	230	140	89

Stars denote statistically significant difference from incarcerated individuals with dependent children.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

Table 8 shows the grade levels in which incarcerated individuals were most interested in enrolling.<sup>6</sup> There were not substantial differences in grade level enrollment by dependent status. Individuals from each group were most likely to be interested in enrolling at the certificate level, and were unlikely to be interested in enrolling in grades 9 or below or in post-bachelor’s programs. Individuals seeking either a certificate or an associate’s degree were most likely to

<sup>6</sup> While individuals’ degree interests may vary substantially based on their prior education, the fact that there are not statistically significant differences between the education levels of incarcerated individuals with dependent children, those without children, and those with grown children means that some population-based comparisons are possible.

have a high school diploma, although some had tertiary degrees. Individuals with no children were less likely than those with dependent children to be interested in education below the tertiary level but more likely to be interested in all degrees at the bachelor's level or higher. Individuals with grown children are more likely than those with dependent children to be interested in grades 1-6 but less likely to be interested in grades 7-9; less likely to be interested in a high school diploma or GED but more likely to be interested in pre-associate training; less likely to be interested in a bachelor's degree but more likely to be interested in each of the listed postbaccalaureate degrees.

**Table 5. Percentages of incarcerated adults most interested in enrolling in particular education levels**

Education level	Dependent children	No children	Grown children
Grades 1-6	0.3% (0.2%)	0.0%*** (0.0%)	1.1%*** (0.8%)
Grades 7-9	0.8% (0.4%)	0.0%*** (0.0%)	0.0%*** (0.0%)
HS Diploma or GED	19.7% (1.9%)	16.9%** (2.4%)	15.9%** (3.3%)
Pre-Associate	13.5% (1.6%)	11.2%** (2.0%)	17.2%** (3.3%)
Certificate	27.6% (2.2%)	28.6% (2.9%)	31.7% (4.0%)
Associate's	18.2% (1.9%)	16.5% (2.4%)	17.2% (3.2%)
Bachelor's	14.5% (1.6%)	17.0%** (2.4%)	7.3%*** (2.4%)
Master's	3.9% (0.8%)	6.4%*** (1.5%)	4.7%* (1.8%)
Professional	0.7% (0.5%)	0.9%** (0.6%)	2.1%*** (1.5%)
Doctorate	0.7% (0.5%)	2.5%*** (1.0%)	2.8%*** (1.3%)
N	440	251	131

Stars denote statistically significant difference from incarcerated individuals with dependent children.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

Table 9 shows which entities offered courses to incarcerated individuals. Approximately two-thirds of individuals participating in academic courses took them through the jail itself. The



second most common venue for incarcerated parents of dependent children was a high school or vocational two-year school (15.1%), the second most common for those with no children was a community college (10.9%), and the second most common for those with grown children was an “other” institution (12.4%). However, high schools and vocational two-year schools were fairly common across all three categories, between 9.4% and 15.1%. Individuals with no children were more likely than those with dependent children to take courses offered by a four-year college, community college, independent study, or “other” medium and less likely to take courses offered by a high school or vocational two-year college. Individuals with grown children were more likely than those with dependent children to take courses offered by a four-year or community college or “other” medium and less likely to take them through a high school or vocational two-year college, independent study, or correspondence or distance learning.

**Table 9. How current course is offered**

How offered	Dependent children	No children	Grown children
In prison or jail	68.8% (3.0%)	64.4% (3.7%)	64.5% (4.5%)
By four-year college	1.6% (0.9%)	3.2%*** (1.4%)	4.6%*** (1.8%)
By community college	4.9% (1.4%)	10.9%*** (2.5%)	7.2%*** (2.5%)
By high school or vocational two-year	15.1% (2.4%)	9.8%*** (2.2%)	9.4%*** (2.8%)
Independent study	1.0% (0.6%)	1.3%** (0.9%)	0.8%** (0.8%)
Correspondence or distance learning	2.3% (1.0%)	2.6% (1.2%)	1.1%*** (1.2%)
Other	6.2% (1.5%)	7.9%** (2.1%)	12.4%*** (3.0%)
N	246	161	120

Stars denote statistically significant difference from incarcerated individuals with dependent children.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

However, some individuals did not want to participate in academic coursework, as shown in Table 10. Many individuals did not select any of the response options provided in the background questionnaire, as roughly half of all responses fell into the “Other” category. A greater percentage of individuals with grown children than those from the other groups listed that taking an academic course meant giving up a valuable volunteer or work assignment (consistent with the hypothesis that these individuals are older than those with dependent children). Between

10.0 and 15.3 percent of incarcerated individuals, regardless of whether they had children, believed that academic programs were not useful, while approximately 10.0 percent did not believe that they met educational qualifications. Relatively few said that waiting list length was dissuading them from taking academic courses at all. Nevertheless, 25.0 percent of all incarcerated individuals remained on an academic waitlist (not shown in table). This number was fairly consistent (and not statistically significantly different) across individuals with dependent children (26.4 percent), those with no children (22.0 percent), and those with grown children (26.2 percent).

Individuals with no children were more likely than those with dependent children to report not wanting to take an academic course because they did not meet educational requirements, they did not want to give up a volunteer or work assignment, the wait list was too long, or program quality was too poor; they were less likely to do so because they believed that academic courses were not useful or for “other” reasons. Individuals with grown children were more likely than those with dependent children to not want to take an academic course because they did not meet educational qualifications, did not want to give up a volunteer or work assignment, believed the program quality was too poor; they were less likely to do so because they wanted to enroll in a higher-level course than was available or for “other” reasons.

**Table 10. Reason for not wanting to take an academic course**

Reason for lack of interest	Dependent children	No children	Grown children
Don't meet educational qualifications	8.0% (2.2%)	11.8% <sup>***</sup> (3.6%)	11.3% <sup>***</sup> (2.9%)
Want to enroll in higher level than available	9.7% (2.2%)	9.4% (3.3%)	5.6% <sup>***</sup> (2.0%)
Don't want to give up volunteer/work assignment	2.8% (1.4%)	8.1% <sup>***</sup> (2.9%)	15.3% <sup>***</sup> (3.2%)
Waiting list is too long	2.2% (1.1%)	3.7% <sup>***</sup> (2.4%)	2.3% (1.3%)
Poor program quality	5.2% (1.7%)	8.7% <sup>***</sup> (3.4%)	7.3% <sup>***</sup> (2.1%)
Academic classes offered are not useful	13.2% (2.5%)	10.0% <sup>**</sup> (3.4%)	15.3% (3.1%)
Other	58.9% (3.9%)	48.3% <sup>**</sup> (5.5%)	42.9% <sup>***</sup> (4.4%)
N	154	83	128

Stars denote statistically significant difference from incarcerated individuals with dependent children.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

Some individuals also said that they were uninterested in enrolling in job skill courses, shown in Table 11.<sup>7</sup> While many incarcerated individuals, regardless of children, did not report any of the reasons listed in the background questionnaire, over a quarter of each group said that they were not eligible to attend job skills courses. Additional research into why these individuals were ineligible to attend—for example, whether they were deemed insufficiently skilled or too skilled—might provide insight into the job opportunities for individuals upon release. While very few people were entirely dissuaded from job skill courses by waiting lists, 14.0 percent were on a waiting list. This was again fairly constant across individuals with dependent children (14.8 percent), those with no children (13.5 percent), and those with grown children (12.2 percent). Individuals with no children were less likely than those with dependent children to not want to take a job skill course because they did not meet educational qualifications or because they were not interested and more likely to do so because they were ineligible. Individuals with grown children were less likely than those with dependent children to do so because they did not meet educational qualifications.

**Table 11. Reason for not wanting to take a job skill course**

Reason for lack of interest	Dependent children	No children	Grown children
Don't meet educational qualifications	12.1% (1.5%)	9.3%*** (2.0%)	8.7%*** (2.2%)
Not eligible to attend	26.8% (2.1%)	38.7%*** (3.2%)	25.3% (3.3%)
On waiting list	3.0% (0.8%)	3.5%* (1.2%)	3.3% (1.4%)
Not interested	20.3% (1.9%)	14.1%*** (2.3%)	22.5% (3.1%)
Other	37.8% (2.3%)	34.4% (3.1%)	40.2% (3.7%)
N	446	237	177

Stars denote statistically significant difference from incarcerated individuals with dependent children.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

There is no clear pattern in the likelihood of being on an academic or job skills waiting list by time to release, shown in Table 12. However, the percentages in both academic and job skill courses were lower for individuals with less than six months remaining and for those with more than five years remaining than for any of the intermediate categories. This could reflect a

<sup>7</sup> Job skill courses are different from academic courses in two main regards. First, they tend to focus more on applied learning used in professional work rather than on the general education curriculum found in most high schools and four-year colleges. Second, they tend to have different funding sources (e.g., the Perkins Act versus Title II of the Workforce Investment Opportunities Act).

larger set of relevant courses immediately upon incarceration and a willingness to ensure that individuals receive training immediately prior to release, but it is hard to say for certain with the present data. Initial analyses do not show obvious patterns in waitlist status by year of current incarceration (Figure 1).

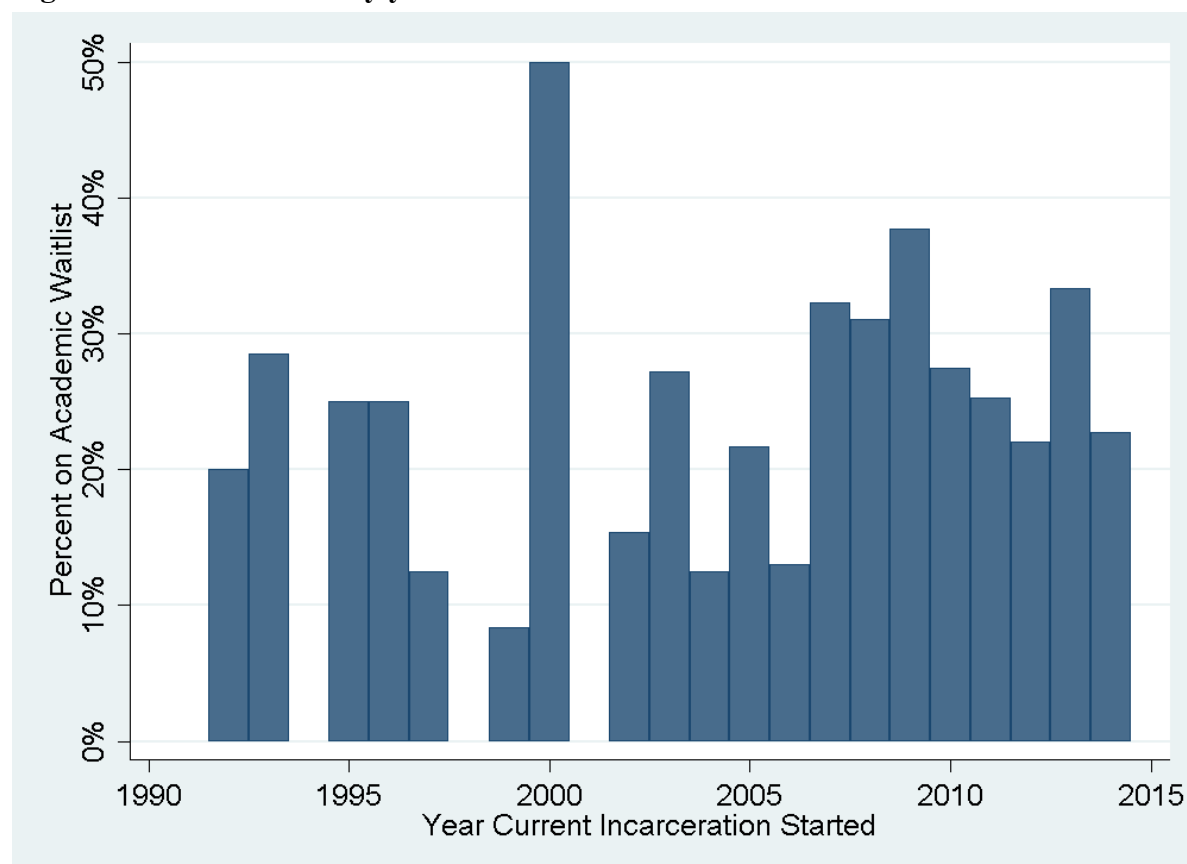
**Table 12. Percent of incarcerated parents on waitlists, by time remaining to release**

	Academic			Job Skills		
	N	Percent	S.E.	N	Percent	S.E.
Less than 6 months	97	20.7%	3.9%	123	11.9%	2.8%
6 to 12 months	75	31.3%	5.5%	102	18.0%	4.0%
1 to 2 years	87	34.4%	5.1%	94	14.5%	3.7%
More than 2 years	<30	a	a	<30	a	a
2 to 5 years	55	31.4%	6.5%	67	18.2%	5.1%
More than 5 years	94	19.3%	4.2%	98	12.4%	3.4%
Never	< 30	a	a	< 30	a	a

<sup>a</sup> Results suppressed for sample sizes lower than 30.

All values shown are for incarcerated parents with at least one child under age 18.

**Figure 1. Waitlist status by year of incarceration**



We therefore find that interest in educational programs (whether academic or vocational) is quite high. Most incarcerated individuals are interested primarily in order to improve their career prospects; very few parents of dependent children listed family reasons as their primary reason. However, it is unclear whether this means that it is not a reason for pursuing further education at all (in which case, emphasizing intergenerational gains from education could be a useful policy) or whether it is simply not the primary reason for doing so (in which case, it would not be a particularly useful policy). Proper targeting of courses could lead to higher enrollment, but many respondents' reasons for not enrolling were not captured in the PIAAC survey, making this a useful area for further investigation.

### **Plan for Further Research**

Future PIAAC analysis will focus on incorporating additional methodologies. This could include varieties of matching analysis, in which parents of dependent children in PIAAC's prison sample are compared to parents of dependent children in the household sample who share particular features in common. This could be an exact (or coarsened exact) match, in which individuals in one data set are compared against those in the other data set who share a set of features in common; it could be a propensity score match, where matches are based on an index of features; or it could be something else entirely. There are also a host of additional factors to be taken into account, such as whether an individual should be matched to multiple people and how match quality is weighted under non-exact matching. There are two major concerns that must be addressed in these analyses, though. The first is that matching estimates typically require a large amount of data in order to construct enough matches; PIAAC's size may lead to small sample issues. The second is that we cannot control for all factors that affect both incarceration status and outcomes; for example, someone with a taste for risk may be more likely to both have periods of unemployment and be incarcerated. It will be worth exploring how to address these issues, and whether matching analyses can be conducted within the prison sample alone.

Additionally, the research questions listed above are just a small sample of those that can be addressed in the PIAAC data. We hope to run additional descriptive analyses on a variety of other outcomes; for example, whether literacy and numeracy skills vary by occupational sector prior to incarceration.

Ultimately, we are interested in doing a broader study on (1) the extent to which the skills of incarcerated parents are associated with positive or negative student academic, occupational or other life outcomes, and (2) how incarcerated parents' participation in correctional and reentry education impacts their children. While it is generally accepted that a parent's, particularly a mother's, level of education has an influence on children's academic attainment in middle and late adolescence and occupational success (Magnuson, 2007; Dubow, Boxer, Huesmann, 2009), there is no research on the aforementioned topics. There is also limited research focused on how the education that the overall population adults pursue impacts the educational and employment

outcomes of their children, let alone research focused on correctional education. While the PIAAC data set does not allow for the analysis of child outcomes, this proposed project will provide valuable background information on the incarcerated parent population and could lay the groundwork for further analysis addressing these issues.

## **Conclusion**

The descriptive data and analyses in this paper provide a preliminary picture of the literacy and numeracy skills of incarcerated parents of dependent children. The intent of this initial work is to improve researchers', educators' and policymakers' understanding of incarcerated parents' skills and participation in correctional education programs. The paper serves a foundation for future policy discussions and research focused on how to more effectively provide correctional education and training for the incarcerated population.

The descriptive PIAAC data on incarcerated parents demonstrates a clear need for them to build their skills so that they are able to access employment opportunities upon release. More than three-quarters of incarcerated parents with a child under the age of 18 have low literacy (75 percent) and numeracy (89 percent) skills. The majority of these prison inmates have completed a high school diploma or an alternative credential and many had extensive employment histories, but very few possess a postsecondary credential. These results align with previous studies showing this population to have lower average skill levels and education levels (e.g. Greenberg, Dunleavy, and Kutner, 2007). We also find that their literacy and numeracy skills are correlated with their education levels.

Incarcerated parents of dependent children differ from other incarcerated individuals on a variety of margins, though not always in ways that lead to a clear narrative. These individuals are less likely to be interested in tertiary degrees or taking courses from tertiary venues than other incarcerated individuals. They (along with incarcerated individuals with grown children) are also more likely to have been employed for a greater share of their potential working years than incarcerated individuals who do not have children. They are also more likely (along with incarcerated individuals without children) to be interested in job opportunities upon release than individuals with grown children. Broad similarities between these groups, however – in terms of education levels, literacy and numeracy levels, reasons for seeking education, and waitlist status – emphasize the unmet demand for both academic courses and job training among the incarcerated population as a whole. Previous research indicates that increasing prisoners' literacy and numeracy skills through correctional education significantly reduces recidivism because it supports individuals' abilities to find employment opportunities and successfully reintegrate into their communities. A descriptive understanding of the skill levels of incarcerated individuals can help state policymakers determine whether current correctional educational programming is well-aligned with the skill levels of their state's incarcerated population

Most (75 percent) of incarcerated parents of dependent children participate or are interested in participating in correctional education programs. Overall, incarcerated parents of dependent children were as likely to be placed on a waitlist as the total sample of incarcerated adults included in the PIAAC. While some incarcerated parents are required to participate in basic skills programs, incarcerated individuals participating in programs of all types indicated that they were interested in participating in order to increase knowledge or skills or improve their employment prospects. Further research might focus on the specific reasons why incarcerated students choose to enroll in specific types of programs. For example, do students enrolling in general postsecondary education programs anticipate additional benefits, in addition to being able to increase their employment prospects?

Our findings also highlight some potential intergenerational effects. Adults in our sample both were disproportionately low-educated and had disproportionately low-educated parents; this was especially true for individuals with low literacy or numeracy. Providing these individuals with an education while in prison may be a way to prevent this trend from continuing into the future and could therefore lead to improved employment and legal outcomes not only for currently incarcerated individuals, but for their children as well. Future research documenting these intergenerational effects using datasets other than PIAAC could strengthen the social policy argument for devoting additional resources to correctional education because it has longstanding, positive social effects.

Given the potential gains from further education, it is surprising that approximately a quarter of incarcerated parents of dependent children are not interested in academic courses. Because over half of those uninterested in academic coursework and close to 40 percent of those uninterested in a job skill course did not provide a clear reason, further qualitative research should determine the demand-side barriers to prison education. It does not appear to be due to waitlisting, as very few individuals listed a waitlist as their primary concern. Qualitative research could determine the specific factors that contribute to a lack of interest in pursuing additional education. For example, prisoners might lack confidence, interest, or motivation due to previous negative experiences with schooling. It is also possible that they may not perceive the potential return on investment to be substantial. Future research could also focus on whether prisoners had varying reasons for choosing not to participate in career-focused vocational education programs, versus more general academic secondary and postsecondary correctional education programs.

One barrier may be the quality and nature of education offered in prison—approximately 20 percent of individuals not interested in academic coursework listed as their primary reason that courses were either at too high or too low a level, and another approximately 20 percent felt that courses were not useful or too low-quality. Further policy research at the state level could focus on the incarcerated population's skill levels relative to the educational programming offered by state prisons in order to ensure that educational options are available at all relevant levels. In addition to course content, future research might also focus on the modes of instruction that are most appealing to incarcerated individuals.

Overall, our descriptive research examining the educational backgrounds of inmates is consistent with previous research from NCES and other sources that inmates tend to have lower literacy and numeracy skills than the overall U.S. population. Ours, however, is the first nationwide analysis to focus on the correctional education available to inmates and the extent to which they participate in educational programming. Consistent with prior research on the prison population overall, we find that incarcerated parents of dependent children tend to have lower literacy and numeracy skill levels than the U.S. population as a whole. In addition, many have not completed postsecondary credentials, or even earned a high school diploma. Despite the potential reasons for not participating in correctional education discussed above, most incarcerated parents were either participating in programming or interested in increasing their skills through correctional education coursework. Their participation will likely have a positive effect on both their social reintegration after returning from prison and the future social and economic welfare of their families.



## References

- Behrman, J.R., & Rosenzweig, M.R. (2002). Does Increasing Women's Schooling Raise the Schooling of the Next Generation?. *American Economic Review* 92(1), 323-334.
- Black, S.E., Devereux, P.J., & Salvanes, K.J. (2005). Why the Apple Doesn't Fall Far: Understanding the Intergenerational Transmission of Human Capital. *American Economic Review* 95(1), 437-449.
- Blumstein, A. (2015). Racial disproportionality in prison. In *Race and social problems* (pp. 187-193). Springer, New York, NY.
- Bureau of Justice Statistics (2010). *Parents in Prison and Their Minor Children*. Washington, DC: Department of Justice.
- Chevalier, A. (2004). *Parental Education and Child's Education: A Natural Experiment*. IZA Discussion Paper No. 1153.
- Chevalier, A., & Lanot, G. (2002). The Relative Effect of Family Characteristics and Financial Situation on Educational Achievement. *Education Economics* 10(2), 165-181.
- Davis, L., Bozick, R., Steele, J., Saunders, J., & Miles, J. (2013). *Evaluating the effectiveness of correctional education*. Prepared for the Department of Justice. Retrieved from [www.bja.gov/Publications/RAND\\_Correctional-Education-Meta-Analysis.pdf](http://www.bja.gov/Publications/RAND_Correctional-Education-Meta-Analysis.pdf).
- Davis, L. M., Steele, J. L., Bozick, R., Williams, M. V., Turner, S., Miles, J. N., Saunders, J., & Steinberg, P. S. (2014). *How effective is correctional education, and where do we go from here? The results of a comprehensive evaluation*. Santa Monica, CA: Rand Corporation.
- Dewalt, D., Berkman, N. Sheridan, S. Lohr, K., & Pignone, M. (2004). Literacy and Health Outcomes: A Systematic Review of the Literature. *Journal of General Internal Medicine* 19(12), 1228-39
- Ewert, S., & Wildhagen, T. (2011). *Educational characteristics of prisoners: Data from the ACS*. Paper presented at the Annual Meeting of the Population Association of America (SEHSD Working Paper #2011-8). Washington, DC.
- Foster, H. & Hagan, J. 2015. Punishment Regimes and the Multilevel Effects of Parental Incarceration: Intergenerational, Intersectional, and Interinstitutional Models of Social Inequality and Exclusion. *Annual Review of Sociology* 41, 35–158.

- Geller, A., Garfinkel, I., Western, B. 2011. "Paternal Incarceration and Support for Children in Fragile Families." *Demography* 48:25–47.
- Greenberg, E., Dunleavy, E., and Kutner, M. (2007). *Literacy Behind Bars: Results From the 2003 National Assessment of Adult Literacy Prison Survey* (NCES 2007-473). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Haigler, K. O., Harlow, C, O'Connor, P., & Campbell, A. (1994). *Literacy behind prison walls: Profiles of the prison population from the National Adult Literacy Survey*. Washington: National Center of Educational Statistics.
- Hughes, T. A., & Wilson, D. J. (2004). *Reentry trends in the United States*. Washington, DC: US Department of Justice, Bureau of Justice Statistics.
- Johnson, E.I. & Easterling, B. (2012). Understanding unique effects of parental incarceration on children: Challenges, progress, and recommendations. *Journal of Marriage and Family* 74, 342–356.
- Lemieux, Thomas. (2006) "The 'Mincer equation' Thirty Years after *Schooling, Experience, and Earnings*" in *Jacob Mincer: A Pioneer of Modern Labor Economics*, Shoshanna Grossbard, ed., Springer: New York. pp. 127–145.
- Marks, G.N. (2008). Are Father's or Mother's Socioeconomic Characteristics More Important Influences on Student Performance? Recent International Evidence. *Social Indicators Research* 85(2), 293-309.
- OECD (2013). Country note: Survey of Adult Skills first results: United States. Paris: Author.
- OECD (2012), *Literacy, numeracy and problem solving in technology-rich environments: Framework for the OECD Survey of Adult Skills*. OECD Publishing.
- Sacerdote, B. (2002). The Nature and Nurture of Economic Outcomes. *American Economic Review* 92(2), 344-348.
- Sewell, W.H. & Shah, V.P. (1968). Parents' Education and Children's Educational Aspirations and Achievements. *American Sociological Review* 33(2), 191-209.
- The Pew Charitable Trusts (2010). *Collateral Costs: Incarceration's Effect on Economic Mobility*. Washington, DC: The Pew Charitable Trusts.

Travis, J., Western, B., & Redburn, S. (eds.). 2014. *The growth of incarceration in the United States: Exploring causes and consequences*. Washington, DC: National Academy Press.

Turney, K. & Wildeman, C. (2013). Redefining Relationships: Explaining the Countervailing Consequences of Paternal Incarceration for Parenting. *American Sociological Review* 78, 949–979.

Wakefield, S. & Wildeman, C. (2013). *Children of the prison boom: Mass Incarceration and the future of the American inequality*. New York, NY: Oxford University Press.

Wood, W. (2010). *Literacy and the Entry-Level Workforce: The Role of Literacy and Policy in Labor Market Success*. Washington, DC: Employment Policies Institute.

## I. Appendix A: Variables

Research Question	Analysis Variables	Analytic Technique
1. What percent of the incarcerated population has one or more dependent children?	<p>J_Q03A (Background – Children) [Binary]</p> <p>J_Q03CUS_C (Background – Age of the child (categorized, 5 categories)) [Categorical]</p> <p>J_Q03D1US_C (Background - Age of the youngest child (categorized, 5 categories)) [Categorical]</p>	Simple mean comparison
2. Does the highest level of education for incarcerated parents with dependent children vary by literacy and numeracy skill levels (level 2 and below, level 3, and level 4/5)?	EDCAT8 (Highest level of formal education obtained (8 categories - derived)) [Categorical]	T-test (with binary conversion as needed)
3. To what extent are the literacy and numeracy skills of incarcerated parents with dependent children influenced by the educational attainment of their parents?	<p>J_Q06B (Background - Mother/female guardian - Highest level of education) [Categorical]</p> <p>J_Q07B (Background - Father/male guardian - Highest level of education) [Categorical]</p> <p>PARED (Highest of mother or father's level of education (derived)) [Categorical]</p>	T-test (with binary conversion as needed)
4. What percent of incarcerated parents with dependent children have expressed an interest in pursuing education and training while in prison? How does this compare with incarcerated individuals without dependent children?	P_Q060 (Prison - Education - Enrollment) [Binary]	T-test (with binary conversion as needed)
5. Are incarcerated parents with dependent children more likely than incarcerated individuals without dependent	<p>P_Q150 (Prison - Education - Current – Reason) [Categorical]</p> <p>P_Q040 (Prison - Education - Basic skills – Reason) [Categorical]</p>	T-test (with binary conversion as needed)

<p>children to participate in education and training while in prison? What are the motivating factors?</p>		
<p>6. In which programs (e.g., programs offering a high school diploma or GED, certificate from a college or trade school) do incarcerated parents with dependent children tend to enroll?</p>	<p>P_Q080 (Prison - Education - Enrollment - Degree) [Categorical]  P_Q130 (Prison - Education - Current - Course of study) [Categorical]</p>	<p>T-test (with binary conversion as needed)</p>
<p>7. Do incarcerated parents with dependent children face barriers to pursuing educational programs due to program capacity constraints?</p>	<p>P_Q100 (Prison - Education - Enrollment - Reason not) [Categorical]  P_Q070 (Prison - Education - Waiting list) [Binary]  P_Q230 (Prison - Education - Waiting list job training) [Binary]  P_Q250 (Prison - Education - Job training - Reason not) [Categorical]</p>	<p>T-test (with binary conversion as needed)</p>
<p>8. Does access to education and training vary by time to release from prison for incarcerated parents with dependent children?</p>	<p>P_Q070 (Prison - Education - Waiting list) [Binary]  P_Q230 (Prison - Education - Waiting list job training) [Binary]</p>	<p>T-test (with binary conversion as needed)</p>