

The Economics of Inequality

The Value of Early Childhood Education



BY JAMES J. HECKMAN

Educational equity is often discussed as a moral issue. Another way to think about equity is as a way to promote productivity and economic efficiency. As an economist, I focus on the economic value of equalizing educational opportunities and achievement in order to identify the most effective way to increase the productivity of the American economy. We need a capable and productive workforce that will compete successfully in the global economy. Underdeveloped human potential burdens our economy and leaves us with a workforce that is less than it could be.

James J. Heckman is the Henry Schultz Distinguished Service Professor of Economics at the University of Chicago, a Nobel Memorial Prize winner in economics, and an expert in the economics of human development. His groundbreaking work with a consortium of economists, developmental psychologists, sociologists, statisticians, and neuroscientists has proven that the quality of early childhood development heavily influences health, economic, and social outcomes for individuals and society at large. Heckman has proven that there are substantial economic gains to be had by investing in early childhood development. This article is based on "Schools, Skills, and Synapses," which Heckman wrote for the July 2008 issue of Economic Inquiry, available at <http://ftp.iza.org/dp3515.pdf>.

Traditionally, equity and efficiency are viewed as competing goals. One can be fair in devising a policy, but it often happens that what is fair is not economically efficient. Conversely, what is efficient may not be fair. Thus a cut in the tax rate on capital gains promotes economic efficiency by stimulating investment; it is not fair because it mainly benefits the rich.

What is remarkable is that there are some policies that both are fair—i.e., promote equity—and promote economic efficiency. Investing in the early years of disadvantaged children's lives is one such policy.

A large body of data from economics, biology, and psychology shows that educational equity is more than a social justice imperative; it is an economic imperative that has far-reaching implications for our nation. My work has focused on the economic value of human capital development, specifically the value of providing resources to disadvantaged children and their families in an attempt to equalize the children's possibilities for social and economic success.

For many years, Flavio Cunha from the University of Pennsylvania, myself, and colleagues at the University of Chicago, University College Dublin, and other institutions have been synthesizing what is known from the fields of biology, human development, education, psychology, cognitive science, and

economics to answer the following three questions:

1. When does inequality start?
2. Is it worthwhile to reduce inequality by investing in education?
3. How best to invest limited resources to create more productive human capital?

It is important to look at the data and invest wisely. This is an imperative among economists. Our society has finite resources. Taxpayers can and should expect value for their investments in government programs and in their fellow citizens. Taking a hard look at the economic value of efforts to create human capital helps us see where best to invest our resources in education to achieve its ideal—equalizing opportunity to build greater and enduring value for all.

The evidence is quite clear that inequality in the development of human capabilities produces negative social and economic outcomes that can and should be prevented with investments in early childhood education, particularly targeted toward disadvantaged children and their families.

The Data Show a Need for a New Model of Skill Formation

America is using antiquated models of human skill formation in devising policies to educate children for success in the 21st century. My colleagues and I have analyzed many long-term studies of early human development and the impact of early investment on schooling and adult outcomes. We reached the following conclusions:

1. Inequality in early childhood experiences and learning produces inequality in ability, achievement, health, and adult success.
2. While important, cognitive abilities alone are not as powerful as a package of cognitive skills and social skills—defined as attentiveness, perseverance, impulse control, and sociability. In short, cognition and personality drive education and life success, with character (personality) development being an

important and neglected factor.

3. Adverse impacts of genetic, parental, and environmental resources can be overturned through investments in quality early childhood education that provide children and their parents the resources they need to properly develop the cognitive and personality skills that create productivity.
4. Investment in early education for disadvantaged children from birth to age 5 helps reduce the achievement gap, reduce the need for special education, increase the likelihood of healthier lifestyles, lower the crime rate, and reduce overall social costs. In fact, every dollar invested in high-quality early childhood education produces a 7 to 10 percent per annum return on investment.¹ Policies that provide early childhood educational resources to the most disadvantaged children produce greater social and economic equity. We can create a more level and productive playing field for all by making wise and timely investments in effective education.

Winning or Losing the Lottery of Birth

Each of us is born into circumstances over which we have no control. Our parents, their genes, education, health status, economic resources, and environment are passed onto us through our families and neighborhoods. These endowments shape the trajectories of our lives.

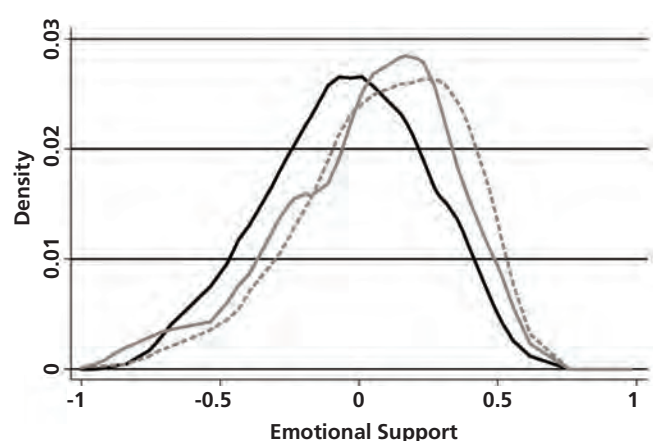
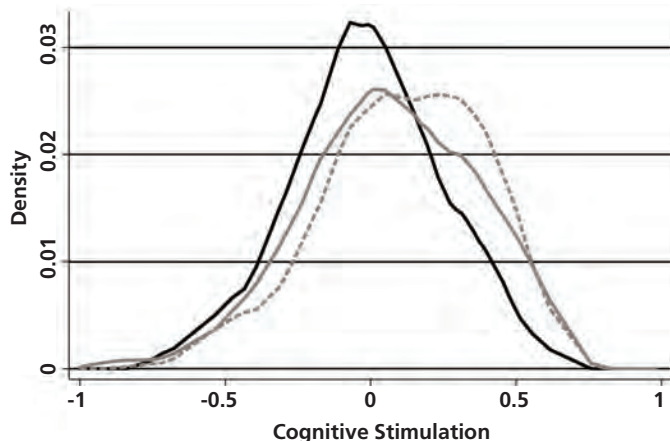
By nature and circumstance, endowments are unequal. At birth, each child inherits different capabilities and different resources to capitalize on them. We can't completely change that picture. But we can change some of it. In particular, we should address the inequity in the resources families have to properly develop their children's potential.

It comes as no surprise that there are significant differences in family environments and the resources invested in children across socioeconomic groups. Gaps in cognitive and emotional stimulation for children from families of different socioeconomic status open up early. Family status makes a substantial difference.

The graphs below show the frequency of cognitive stimulation and emotional support against standardized scales arrayed from the worst on the left to the best on the right. A curve shifted

Cognitive Stimulation and Emotional Support by Family Type

Ages 0–2, female white children, by family type. Cognitive stimulation is measured by how often parents read to children and the learning environment in the home. Emotional support is measured by how often children receive encouragement (e.g., meals with parents).²





rightward indicates more beneficial stimulation or support. Intact families invest greater amounts in their children than do single-parent families, although the exact reasons why are not known. These investments pay off in higher achievement.

There are large gaps in cognitive stimulation and emotional support at early ages. They persist throughout childhood and strongly influence adult outcomes. The evidence on disparities in child-rearing environments and their consequences for adult outcomes is troubling in light of the shrinking proportion of children being raised in intact families. The proportion of American children under the age of 18 with a never-married mother grew from less than 2 percent in 1968 to over 12 percent in 2006. The fraction of American children under age 18 with only a single parent (i.e., never married or divorced) has grown from 12 percent to over 27 percent during this period.

The problem is not just income. Even though income is the standard way to measure poverty, recent research suggests that parental income is an inadequate measure of the resources available to a child. Good parenting is more important than cash. High-quality parenting can be available to a child even when the family is in adverse financial circumstances. While higher income facilitates good parenting, it doesn't guarantee it. *An economically advantaged child exposed to low-quality parenting is more disadvantaged than an economically disadvantaged child exposed to high-quality parenting.*

It is not feasible in a free society to insist that all children be raised by married parents or that individuals pass a parenting test before having children. It is feasible to recognize the trends in our society and make adjustments in social investments to fill gaps and improve social and economic outcomes.

The problem is not just one of single parenting. We currently have a society that makes high-quality parenting difficult. The high cost of living often requires dual careers and incomes. Work

hours and commutes are long, wages are stagnant, and relatively few jobs offer generous parental leave benefits. In addition, we no longer live in intact, intergenerational families where parents are supported in the daily tasks of child-rearing by their parents and siblings.

When asked, a large majority of Americans agree that the interests of children are best served if one parent remains at home with the child. This is a bittersweet affirmation of a family value that is nearly impossible to fulfill for many middle-class families, let alone working-class and working-poor families. Parents need help, and their children will suffer if they don't get it. Society will pay the price in higher social costs and declining economic fortunes.

Poor parenting is an important contributor to life poverty. But parenting deficits can be addressed. An equalizing factor is early access to education, which changes the equation for the parent and the child. Like quality parenting, quality early learning is defined as developing a package of cognitive and character skills.

Cognition and Character Propel Success

Numerous studies have documented that cognitive ability, usually measured by scholastic achievement tests, predicts schooling, wages, participation in crime,

health, and success in many facets of life. Personality traits—often referred to as character—have also proven to be powerful predictors of the same outcomes.³ These abilities are attributes of character: perseverance, motivation, self-esteem, self-control, conscientiousness, and forward-thinking behavior.

Cognition and character work together. They determine future social and economic status. For example, the higher the cognitive and character capabilities, the more likely it is that the individual will choose and succeed in a white-collar job.

This is borne out in my recent joint work on the economic consequences of getting a GED (a high school equivalency credential obtained by scoring high enough on an achievement test). Those who don't graduate from high school but obtain a GED are less successful economically than high school graduates. This has more to do with shortfalls in personality skills—or character—than cognition. The GED test is effective in screening for test takers' cognitive abilities. It completely misses their noncognitive traits.⁴ Individuals who persist in graduating from high school are more likely to have personality traits that help them succeed in life. They show up, control their impulses, work toward a goal, and work with others. Those with GED certificates are as smart as ordinary high school graduates, but they tend to be characters rather than people with character who have greater value and potential for employment. Simply put, cognition and character



drive the educational success that ultimately results in economic success for individuals and society at large.

The same bundle of psychological traits strongly predicts a variety of diverse behaviors, such as smoking, employment, teenage pregnancy, wages, wages given schooling, and many other aspects of economic and social life—all of which affect local, state, and national economies.⁵

Given this fact, it is alarming that our education system primarily values cognitive achievement. Important character traits that promote personal achievement are largely ignored or maligned as “soft” and nonmeasurable skills. Evidence suggests that efforts that focus mainly on closing disparities in cognitive achievement are not as successful as they could be because they neglect the need to close gaps in character development.

Low-quality parenting fails to provide children with cognitive and character development. Low-quality education fails in the same way. High-quality early education can be an equalizing factor.

Targeting Disadvantaged Children Promotes Economic Efficiency

We cannot possibly equalize all the factors that contribute to achievement and personal success. But we can invest wisely to correct disparities that create large and persistent problems that threaten the well-being of our nation.

Gaps in the capabilities that play important roles in determining diverse adult outcomes open up early across socioeconomic groups. The gaps originate before formal schooling begins and persist through childhood and into adulthood. Remediating the problems created by the gaps is not as cost effective as preventing them at the outset.

For example, schooling after the second grade plays only a minor role in creating or reducing gaps. Conventional measures of educational inputs—class size and teacher salaries—that

receive so much attention in policy debates have small effects on creating or eliminating disparities. This is surprising when one thinks of the great inequality in schooling quality across the United States and especially among disadvantaged communities.

My colleagues and I have looked at this. We controlled for the effects of early family environments using conventional statistical models. The gaps substantially narrowed. This is consistent with evidence in the Coleman Report (which was published in 1966) that showed family characteristics, not those of schools, explain much of the variability in student test scores across schools.

Such evidence opens the question of which aspects of families are responsible for producing these gaps. Are they due to genes? Family environments? Family investment decisions? Can the gaps be avoided or surmounted? Evidence from intervention studies, such as the High-Scope Perry Preschool Program⁶ and the Abecedarian Project,⁷ suggests an important role for investing resources in improving family environments in order to produce better education and adult outcomes.* Creating a positive early environment through parental support and/or formal early childhood education shapes abilities, capabilities, and achievement.

Knowing this, it is imperative to change the way we look at education. We should invest in the foundation of school readiness from birth to age 5 by providing early childhood education for disadvantaged children. We should build on that foundation with high-quality elementary and secondary education to sustain the development of successful lives. Providing that kind of equity will build a more productive society for all.

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Enriching Early Family Environments Can Compensate for Disadvantage

The Perry Preschool Program is the flagship early childhood intervention program. Perry enriched the lives of low-income African American children with initial IQs of 85 or below. The intervention was targeted to 3-year-olds and was relatively modest: 2.5 hours per day of classroom instruction, 5 days per week, and 1.5 hours of weekly home visits. Children participated for only two years, and no further intervention was given. But the lives of participants were tracked for decades to see the effect on school and adult outcomes.

Perry did not produce lasting gains in the IQs of its male participants and produced at best modest gains in IQ for females. Yet the program has a rate of return of around 7 to 10 percent per annum for males and females—well above the post-World War II

*To learn more about the Perry Preschool Program, see www.highscope.org. For more information on the Abecedarian Project, see www.fpg.unc.edu/~abc.



stock market returns to equity (estimated to be 5.8 percent before the 2008 meltdown). This evidence defies a strictly genetic interpretation of the origins of inequality.

Even though their IQs after age 10 were not higher on average, participants' achievement test scores were higher. This evidence underscores the difference between achievement test scores and IQ. Achievement tests measure acquired knowledge and are influenced by personality factors.⁸ The principal influence in the Perry Program was its positive effect on non-cognitive (character) skills.⁹

Direct investment in children is only one possible channel for intervening in the lives of disadvantaged children. Many successful programs also work with mothers to improve parenting skills. The two inputs—direct investment in the child's cognition and personality, and investment in the mother and the family environment she creates—are distinct, but they complement each other. Improvements in either input improve child outcomes. Improvements in both are the wisest investment.

The Nurse-Family Partnership[†] intervenes solely with at-risk first-time mothers during pregnancy, sends nurses to the home regularly for the first two years of a child's life, and teaches mothering and infant-care skills. It promotes adult success of the children of disadvantaged mothers. In addition, research documents that perinatal interventions that reduce fetal exposure to alcohol and nicotine have long-term effects on cognition, socioemotional skills, and health.¹⁰

The evidence from a variety of early intervention programs¹¹ shows that enriching the early environments of disadvantaged children has lasting beneficial effects on adolescent and adult outcomes of program participants.

Moving Toward Better Education and Economic Outcomes

Educational equity is often seen as a social movement to bring equal educational opportunities to disadvantaged populations, as well as to equalize educational achievement across a wide range of



people with different backgrounds, skills, abilities, and family resources.

It's a noble cause. But one person's nobility can be seen by another as an entitlement program that provides great value to the receiver and little to the giver. This is why I have not focused my work on the moral aspects of providing equity through early childhood education—even though the case for early intervention could be framed this way. I've focused on its practical value—why it makes sense and how it generates 7 to 10 cents per year on every initial dollar invested.

We can make serious inroads toward reducing inequality, elevating the underclass, and generating more productivity from our investments in people. But to do so requires that we accept the facts and rethink our notions of parenting, education, and the development of human potential.

Achieving educational equity starts by recognizing that nothing is equal and everything is dynamic. People have diverse abilities. These abilities account for a large portion of the variation across people in socioeconomic success. Substantial ability gaps across children from various socioeconomic groups emerge before they start school.

Since inequality starts at or before birth, it can and should be corrected at or before birth with the resource of early childhood and parental education. Evidence shows that supplementing the family environments of disadvantaged children with educational resources is an effective and cost-efficient way to provide equal opportunity, achievement, and economic success. Gains made in early childhood should be followed through with quality ele-

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[†]To learn more about the Nurse-Family Partnership, see www.nursefamilypartnership.org.

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mentary, secondary, and postsecondary education that promote the development of cognition *and* character.

The logic is quite clear from an economic standpoint. We can invest early to close disparities and prevent achievement gaps, or we can pay to remediate disparities when they are harder and more expensive to close. Either way we are going to pay. And, we'll have to do both for a while. But, there is an important difference between the two approaches. Investing early allows us to shape the future; investing later chains us to fixing the missed opportunities of the past.

Controlling our destiny is more in keeping with the American spirit. □

Endnotes

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11. Summarized in Arthur J. Reynolds and Judy A. Temple, "Economic Returns of Investments in Preschool Education," in *A Vision for Universal Preschool Education*, ed. Edward Zigler, Walter S. Gilliam, and Stephanie M. Jones (New York: Cambridge University Press, 2009), 37–68.

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