

# EARLY CHILDHOOD DEVELOPMENT:

## Creating Healthy Communities with Greater Efficiency and Effectiveness

**Gabriella Conti and James J. Heckman<sup>1</sup>**

*University of Chicago*

**H**ealthy communities are catalysts for personal health and economic success. Creating healthy communities by transforming disadvantaged ones, is an enormous challenge. Possible solutions are myriad. Or so it seems. Thanks to developmental, social, and economic science, we know more than many think about how to effect change. We can apply what we know for the public good. The most effective strategies for building healthy communities are based on a causal framework that shows how family, community and institutions matter, how they create health, and where and

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when interventions in the life cycle of human development are most effective.

The most important step in developing sound policies and practices is to move past correlations to understand causal mechanisms. For example, it is often noted that more education leads to better health. Taken at face value, that looks to be the case. Yet, do we really know if education alone is the catalyst for better health, or might there be other, earlier factors, in the developmental lifecycle—for example, prenatal health, family environments, or early childhood development that promotes the education that is positively associated with health outcomes and that also have independent effects on health.

Determining causal mechanisms is important because relying on correlations often leads to poor decisions. One famous example is taken from the Russian peasants in the 19th century. Some peasants noticed that a lot of doctors were present when epidemics spread through the community. They concluded that their health depended on rising up and killing the doctors.<sup>2</sup> We laugh at this type of causal reasoning today, but we are something like Russian peasants in addressing our own vexing problems. Consider our current debate over the causes of obesity. Some blame corn syrup, others carbohydrates, others fat, others processed food, others food deserts, and still others total caloric intake. Some of this analysis is scientific, but most is guilt by association. As a result, food is rapidly becoming part of a culture war. Without hard causal analyses grounded in data, we are at the whim of speculation in making policy.

In addition to determining causality, it is critical to assess optimal timing. Where in the lifecycle of individuals is an intervention most effective? Budgets are tight and resources are scarce. To do the most with our money, we need to know what is best to do and when to do it. We need to be courageous enough to let solid causal evidence drive public and private investments in human capital.

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2 See F. Fisher, *The Identification Problem in Econometrics* (New York: McGraw-Hill, 1966).

A case in point is research conducted by the Robert Wood Johnson Foundation over a decade ago into the causes of early deaths. They estimated that the behavior of individuals and the lack of self-care accounted for 40 percent of early deaths. Thirty percent were due to genetic predispositions, 15 percent were due to social circumstances and 5 percent to environmental exposures. Only 10 percent of early deaths stemmed from shortfalls in medical care. In light of this, it makes little sense that, prior to recent health care reforms, 95 percent of the health budget was spent on treatment, and not prevention in all of its forms.<sup>3</sup> Now, more than a decade later, we focus more resources on prevention, yet we are still not looking analytically at timing. If 40 percent of early deaths are caused by behavioral patterns, when is an investment in prevention most efficient and productive? When can positive behaviors be formed, or when do negative behavior patterns become evident? The answer to these questions can make or break budgets.

Fortunately, empirical analysis provides clear answers when it comes to effective strategies for developing healthy communities. The contributing factors are the things that make for a productive person—strong families, effective early childhood development that includes health and developmentally appropriate education, quality schools, and access to preventive health care. If one were to prioritize resources, evidence suggests we should place greater emphasis on strengthening early childhood development, with families and early health playing essential roles. K-12 education is important, and it is imperative that we fix what is currently wrong. However, waiting until age 5 when children enter formal schooling to influence the cognitive and character skills necessary for a healthy and productive life—and, by extension, a healthy and productive community—is far too late. The evidence is quite clear: Early health and early childhood development from birth to age 5 is a form of preventive health *and* economic investment that drives achievement and economic returns.

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<sup>3</sup> See J. McGinnis, P. Williams-Russo, and J. Knickman, “The Case for More Active Policy Attention to Health Promotion,” *Health Affairs* 21(2) (2002): 78-93.

This finding cuts across the grain of the widely held belief that more education produces better health. To a certain extent, that is true. More highly educated people tend to select higher-paying jobs that come with greater health, social, and economic benefits. They also tend to be more careful about their health. As a result of this belief, many of our current policies to advance healthier individuals and communities promote more education. It is a good strategy, but by itself it is not the most effective strategy.

Careful studies establish that education is a causal factor producing better health. But the traits shaped before children enter school produce success in school and have independent effects of their own. Important early traits include health and socioemotional or character development that enhances cognitive development and generates achievement in school, career, community, and life. These findings suggest that those looking to build healthier communities should incorporate early interventions as an important part of the strategy to catalyze greater returns.

A key piece of evidence for this is our research based on the British Cohort Study (BCS).<sup>4</sup> We use it to examine the causal effect of education on healthy behaviors and on labor market outcomes.

The British Cohort Study is a survey of all babies born after the 24th week of gestation from Sunday, April 5 to Saturday, April 11, 1970 in Great Britain. There have been seven follow-ups to trace all members of this birth cohort: 1975, 1980, 1986, 1996, 2000, 2004, and 2008. We looked at information from the birth survey in 1970, measurements from the second sweep in 1980 and outcomes from the fifth follow-up sweep in 2000.

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4 See G. Conti and J. Heckman, “Understanding the Early Origins of the Education-Health Gradient: A Framework That Can Also Be Applied to Analyze Gene-Environment Interactions,” *Perspectives on Psychological Science*, 5(5) (2010): 585–605; and G. Conti, J. Heckman, and S. Urzua, “The Education-Health Gradient,” *American Economic Review: Papers & Proceedings*, 100(2) (2010): 234–238.

Birth information took “family endowments”—parental resources that formed the foundation for early learning experiences—into account. These included the mother’s age, education, father’s social class, and parity at birth. This was supplemented with family information at age 10 (the second follow-up sweep in 1980) that included the gross family income, whether the child had lived with both parents since birth, and the number of children in the family at age 10.

Measurements in the second follow-up sweep included scores on standard cognitive tests such as math, English, language comprehension and word definition. Also included were measurements of social and personality—character—skills from tests on control, perseverance, cooperativeness, attentiveness, and persistence. These were supplemented by basic physical measurements in height, weight, head circumference, and the height of the child’s parents. The fifth follow-up sweep in 2000 surveyed the adult outcomes of the child, taking into account the length of schooling, labor market outcomes in employment and wages, healthy behaviors, and health status.

We study the measured effect of education on employment and key indicators of health, such as smoking, depression, and obesity. We control for the selective factors that cause some to go to school and others not to—early life experiences (parental endowments, early health, early childhood development, and effective character skills). We find that skills acquired early in life—particularly the early development of the character skills of impulse control, persistence, and sociability—greatly contribute to persistence in education, career attainment, and health. While schooling has a substantial impact on health outcomes, the causal factor and weight of its impact varies by issue and gender. In some cases, schooling plays a greater role; in others, skills acquired early on have more impact. In the majority of cases, the skills acquired early in life explain a greater proportion of the measured effect of education than does the true causal effect of education—the effect of education on outcomes controlling for the influence of early life factors on the studied outcomes.

The chart below shows a clear relationship between education and health. The height of the bars including the light and dark portions displays mean differences in a variety of outcomes between those who stop their education at the compulsory level and those who go on to attain a higher level of education. More educated individuals are more likely to work full-time, earn higher wages, and exercise regularly. In addition they are less likely to be obese, smoke daily, be in poor health and suffer from depression. But how much of the difference between highly and less-educated individuals is caused by education, and how much reflects early life factors (cognitive ability, social skills and early health) and family background characteristics? If education has a causal effect, then increasing the educational level of the population would be an effective health policy. If, instead, more educated individuals are healthier because they have better skills developed as children, then early intervention is a more effective strategy for reducing health disparities in adulthood.

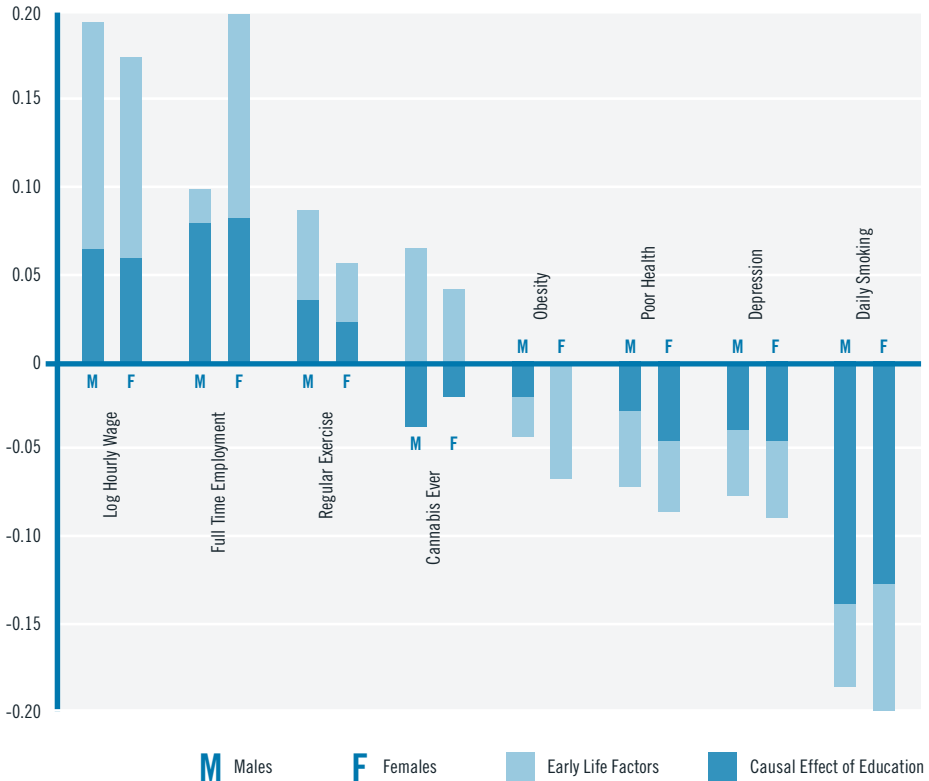
Figure 1 decomposes the drivers of a variety of outcomes by gender. The dark portion of each bar in the graph is the causal contribution of education, and the light portion quantifies the contribution of cognitive and noncognitive skills, early health, and family endowments shaped by early environments. For example, early life factors (cognitive and social skills as well as family endowments) account for at least half of the adult disparities in poor health, depression, obesity, and wages. In addition, the early life factors promote education which has independent effects on outcomes.

Studying the contributions of early life factors and the causal effect of education leads to a solid conclusion: Quality early childhood development can close the income gap, reduce health disparities, and save taxpayers a bundle in lower health and social costs. It saves lives, and it saves money. Early childhood development has substantial health and economic payoffs.

Three important lessons emerge from recent research that should shape future policies to improve the health of individuals, communities, and the American economy.

**Figure 1: Mean Differences in Outcomes Due to Early Life Factors versus the Causal Effect of Education**

Source: Conti and Heckman (2010)



NOTE: The figure displays mean differences by gender in health, health behaviors and labor market outcomes due to early life factors and due to the causal effect of education (post-compulsory schooling level vs. compulsory schooling).

## LESSON 1: DEVELOP THE WHOLE CHILD

Many major economic and social problems such as crime, teenage pregnancy, dropping out of school, and adverse health are linked to low levels of skill and ability. Those with high levels of skill and ability more often succeed in life.

To promote successful lives and healthy communities, policy-makers should recognize the multiplicity of human abilities.

Currently, public policy in the United States focuses primarily on promoting and measuring cognitive ability (typically captured by achievement tests). That emphasis is wrong. We must also promote and assess cognitive, character, and health skills necessary to be a highly adaptive, productive, and valuable adult.

In many ways, we are failing the economic test of our times because our tests are failing us. There is no question that cognitive abilities are important determinants of socioeconomic success. But we must also heed the decisive evidence that skills other than cognition—physical and mental health, perseverance, attention, motivation and self-confidence—are as important in predicting success in life. In many tasks in life, they are more important. They contribute greatly to performance in society at large, to workforce productivity and to stronger, more prosperous communities.<sup>5</sup>

In their quest for accountability in public investments, policymakers must hold themselves accountable for developing the whole child and evaluating progress based on measurements that reflect the full range of skills and abilities that are essential for success in life and that are highly valued in the labor market.

## **LESSON 2: INEQUALITIES OPEN UP EARLY IN LIFE**

We live in an era of substantial and growing social and economic inequality. Research in economics, psychology, neuroscience and genetics examines the origins of inequality and analyzes policies to alleviate it. A large body of research confirms that the accident of birth is a primary source of inequality. Families play a powerful role in creating adult outcomes. Parental resources, skills and abilities matter greatly in shaping the skills of children.

It is widely documented that American mobility across generations is lower than in most European countries. Horatio Alger's "rags to riches" story is not true in contemporary American society. A father's long-run income and social position

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<sup>5</sup> Mathilde Almlund, Angela Duckworth, James J., Heckman, and Tim Kautz, "Personality Psychology and Economics." In *Handbook of the Economics of Education*, edited by in E. Hanushek, S. Machin, and L. Woessman (Amsterdam: Elsevier, 2011).



is a powerful determinant of the income and social position of the son.

Gaps in cognitive, character, and health skills between the advantaged and the disadvantaged open up early in the lives of children, well before they enter school. Parenting and family environments of young children are major causal factors.

Family environments in the United States have deteriorated over the past 40 years. A greater fraction of children is being born into disadvantaged families with fewer parenting resources. At the same time, parents in the top-earning families invest far more in parenting and schooling for their children than ever before. Due to growing inequality in parental resources and child-rearing environments, the disparity of resources between the haves and the have-nots has increased substantially.

As a group, children from families at the top of the income distribution receive far more investment in parenting and schooling than ever before, and the disparity between the haves and the have-nots is widening.

This trend shows no sign of abating. In fact, the current economic downturn has accelerated it. Unchecked, it will further reduce social mobility and create greater economic and social polarization in the next generation. It will also increase the burdens of ill health, crime, and educational and skill deficits for future generations of Americans. Supplementing at-risk families with quality early childhood development resources can help stem this inequality and promote social mobility. Failure to address this problem will result in greater economic deficits with fewer chances to generate revenue through a more productive workforce.

### **LESSON 3: EARLY INTERVENTION IS FAR MORE EFFECTIVE THAN LATER REMEDIATION**

The skills that matter can be created. That is the solid promise for alleviating poverty, promoting health, and creating upward

mobility through opportunity and talent. Child poverty is not solely determined by family income. It is most accurately measured by the parenting resources—the attachment, the guidance and the supervision accorded to children, as well as the quality of the schools and the neighborhoods that parents can draw on.

Investments in early childhood development, from birth to age 5, can improve cognitive and character skills and the health of disadvantaged children. Such early efforts promote schooling, reduce crime, foster workforce productivity, reduce teenage pregnancy, and foster healthy behaviors. The rates of return on these investments are higher than stock market returns, even in normal times.

The substantial benefit from early investments arises because life cycle skill formation is dynamic in nature. Skill begets skill; motivation begets motivation. Motivation cross-fosters skill and skill cross-fosters motivation. Early health is critical to this development process. A healthy child free of asthma and lead poisoning is a child who is ready to engage, who will learn more, and who is more likely to be a productive adult. The longer society waits to intervene in the life of a disadvantaged child, the more costly it is to remediate disadvantage in the form of public job training, convict rehabilitation programs, adult literacy programs, treatment for chronic health conditions or tuition subsidies.

In conclusion, if we truly seek to build healthier communities, we must significantly refocus public policy to capitalize on the importance of the early years in creating opportunity, building capabilities and producing skills that create healthier people, a highly productive workforce, and an economically competitive nation.<sup>6</sup> The path forward is clear: Governments, the community development industry, foundations, and other private organizations should work together to invest in early childhood

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<sup>6</sup> For further evidence, see James J. Heckman, “Schools, Skills, and Synapses,” *Economic Inquiry*, 46 (2008): 289–324. This paper is also available as a discussion paper through IZA available at <http://ftp.iza.org/dp3515.pdf>.

development that will promote better education, health, social and economic outcomes for all—and for many years to come.

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**GABRIELLA CONTI** *is an assistant professor at the Irving B. Harris School of Public Policy, University of Chicago. She is a cofounder of the Health Inequality Network. Among other research she also works with health effects of early life adversity in rhesus monkeys.*

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**JAMES J. HECKMAN** *is the Henry Schultz Distinguished Professor of Economics at the University of Chicago. In 2000, he shared the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel with Daniel McFadden. Heckman directs the Economics Research Center and the Center for Social Program Evaluation at the Harris School for Public Policy, and is professor of law at the University of Chicago School of Law.*