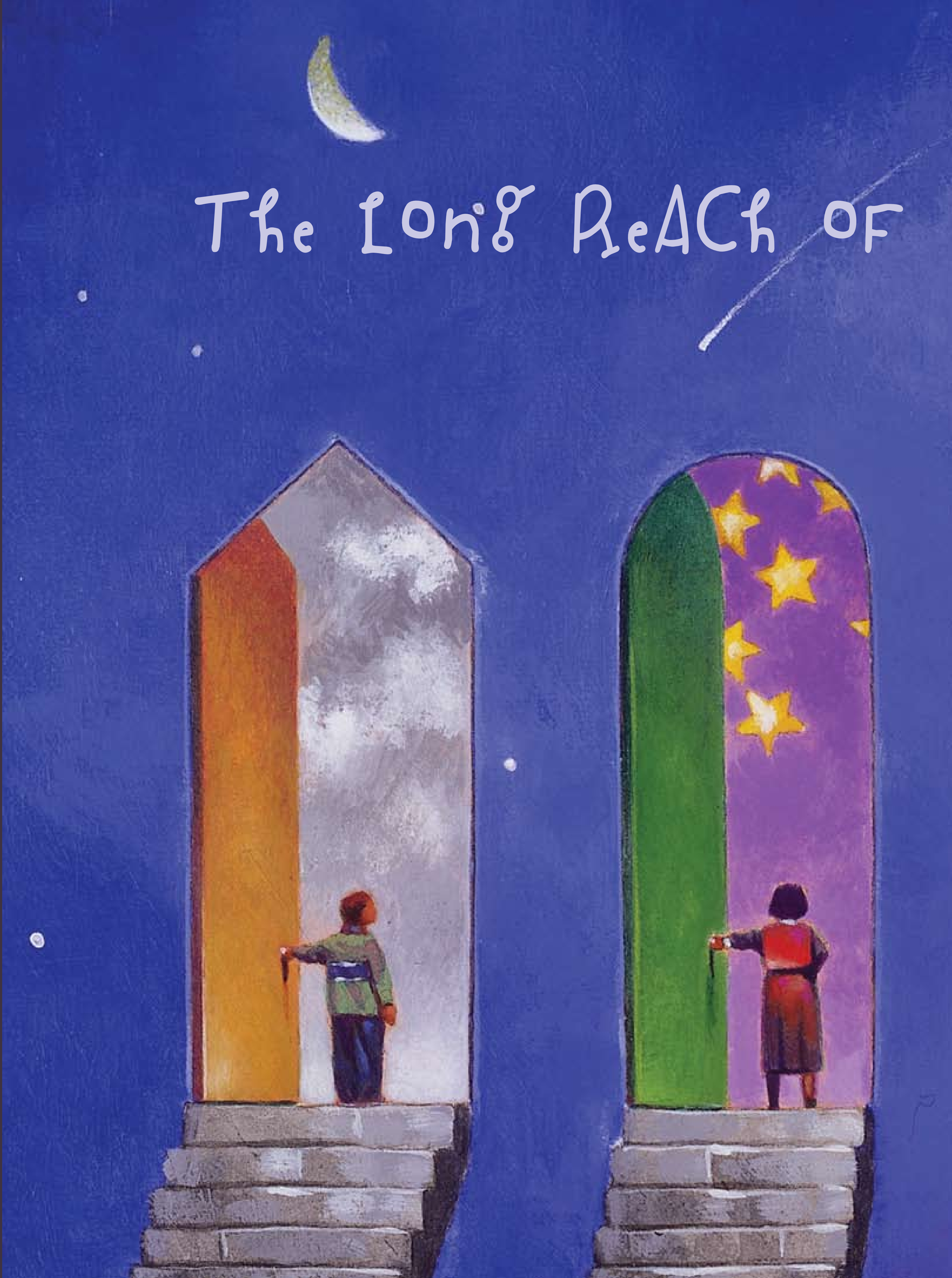
The Long Reach of



Early Childhood Poverty

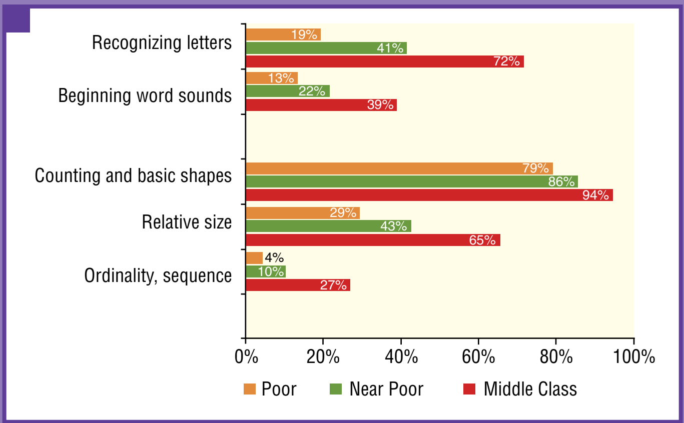
BY GREG J. DUNCAN AND KATHERINE MAGNUSON

Using a poverty line of about $22,000 for a family of four, the Census Bureau counted more than 15 million U.S. children living in poor families in 2009. Poor children begin school well behind their more affluent age mates and, if anything, lose ground during the school years. On average, poor kindergarten children have lower levels of reading and math skills and are rated by their teachers as less well behaved than their more affluent peers (see Figure 1). Children from poor families also go on to complete less schooling, work less, and earn less than others.

Social scientists have been investigating links between family poverty and subsequent child outcomes for decades. Yet, careful thought about the timing of economic hardship across childhood and adolescence is almost universally neglected. Emerging research in neuroscience and developmental psychology suggests that poverty early in a child's life may be particularly harmful because the astonishingly rapid development of young children's brains leaves them sensitive (and vulnerable) to environmental conditions.

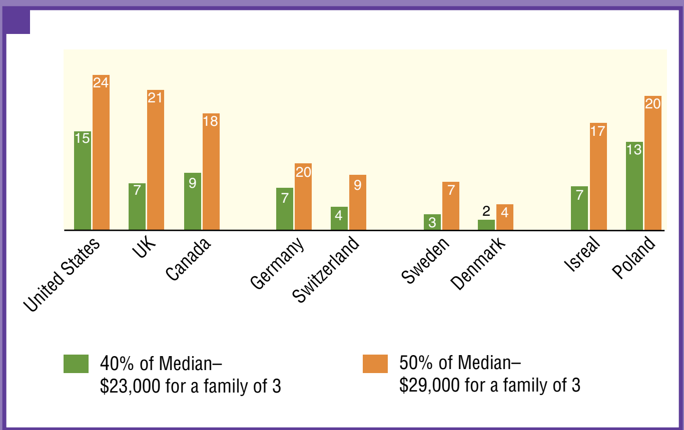
After a brief review of possible mechanisms and the highest quality evidence linking poverty to negative childhood outcomes, we highlight emerging research linking poverty occurring as early as the prenatal year to adult outcomes as far as the fourth decade of life. Based on this evidence, we discuss how policy might better focus on deep and persistent poverty occurring very early in the childhoods of the poor.

FIGURE 1 Rates of kindergarten proficiencies for poor, near poor, and middle-class children



Source: Authors' calculations from the Early Childhood Longitudinal Survey—Kindergarten Cohort

FIGURE 2 Poverty rates for young children



Source: Gornick, J. and Jantti, M. (forthcoming). "Child poverty in upper-income countries: Lessons from the Luxembourg Income Study." In S. B. Kamerman, S. Phipps, and A. Ben-Arieh (Eds.), *From Child Welfare to Child Well-Being: An International Perspective on Knowledge in the Service of Making Policy. A Special Volume in Honor of Alfred J. Kahn.* Springer Publishing Company.

American Poverty and Its Consequences for Children

If we were to draw the poverty line at 50 percent of median disposable income (about $29,000 for a family of three in today's dollars), as is common in much cross-national research on poverty, nearly one-quarter of U.S. children would be classified as poor (Figure 2). Comparing across countries, the U.S. fares badly, though not too much worse than countries like the UK, Canada, and Poland. More striking are the cross-country differences when the poverty threshold is set at a more spartan 40 percent of median disposable income (about $23,000). In this instance, the 15 percent U.S. childhood poverty rate is more than half again as high as any country other than Poland. Clearly, deep poverty is considerably more pervasive for children in the U.S. than among children in most Western industrialized countries.

What are the consequences of growing up in a poor household? Economists, sociologists, developmental psychologists, and neuroscientists emphasize different pathways by which poverty may influence children's development. Economic models of child development focus on what money can buy. They view families with greater economic resources as being better able to purchase or produce important "inputs" into their young children's development (e.g., nutritious meals; enriched home learning environments and child care settings outside the home; and safe and stimulating neighborhood environments), and higher-quality schools and post-secondary education for older children. The cost of the inputs and family income constraints are therefore the key considerations for understanding poverty's effects on children.

Psychologists and sociologists point to the quality of family relationships to explain poverty's detrimental effects on children. These theoretical models point out that higher incomes may improve parents' psychological well-being and their ability to engage in positive family processes, in particular high-quality parental interactions with children. A long line of research has found that low-income parents are more likely than others to use an authoritarian and punitive parenting style and less likely to provide their children with stimulating learning experiences in the home. Poverty and economic insecurity take a toll on a parents' mental health, which may be an important cause of low-income parents' non-supportive parenting. Depression and other forms of psychological distress can profoundly affect parents' interactions with their children. But as we argue below, it is not just the fact that these relationships exist that matters, but *when*.

For some outcomes later in life, particularly those related to achievement skills and cognitive development, poverty early in a child's life may be especially harmful.

Why Early Poverty May Matter Most

It is not solely poverty that matters for children's outcomes, but also the *timing* of child poverty. For some outcomes later in life, particularly those related to achievement skills and cognitive development, poverty *early* in a child's life may be especially harmful. Emerging evidence from both human and animal studies highlights the critical importance of early childhood in brain development and for establishing the neural functions and structures that shape future cognitive, social, emotional, and health outcomes. There is also clear evidence emerging from neuroscience that demonstrates strong correlations between socioeconomic status and various aspects of brain function in young children. For clear and compelling evidence on these points, look no further than the pieces in this very issue of *Pathways*.

Intensive programs aimed at providing early care and educational experiences for high-risk infants and toddlers also support the idea that children's early years are a fruitful time for intervention. The best known of these are the Abecedarian program, which provided a full-day, center-based, educational program for children who were at high risk for school failure, starting in early infancy and continuing until school entry, and the Perry Preschool program, which provided one or two years of intensive center-based education for preschoolers. Both of these programs have been shown to generate impressive long-term improvements in subsequent education and employment. Perry also produced large reductions in adult crime.

A Causal Story?

Regardless of the timing of low income, isolating its causal impact on children's well-being is difficult. Poverty is associated with other experiences of disadvantage (such as poor schools or being raised by a single parent), making it difficult to know for certain whether it is poverty per se that really matters or other related experiences. The best method for identifying the extent to which income really matters would be an experiment that compares families who receive some additional money to similar parents who do not receive such money. The only large-scale randomized interventions to alter family income directly were the Negative Income Tax Experiments, which were conducted between 1968 and 1982 with the primary goal of identifying the influence of a guaranteed income on parents' labor force participation. Researchers found that elementary school children whose families enjoyed a 50 percent boost in family income from the program exhibited higher levels of early academic achievement and school attendance than children who did not. No test score differences were found for adolescents, although youth who received the income boost did have higher rates of high school completion and educational attainment. This suggests that higher income may indeed cause higher achievement, although even in this case it is impossible to distinguish the effects of income from the possible benefits to children from the reductions in parental work effort that accompanied the income increases.

According to newer experimental welfare reform evaluations in the 1990s, though, providing income support to working poor parents through wage supplements does improve children's achievement. One study analyzed data from seven random-assignment welfare and antipoverty policies. All of these policies increased parental employment, while only some increased family income. These analyses indicated improved academic achievement for preschool and elementary school children by programs that boosted both income and parental employment, but not by programs that only increased employment.

These experimental findings suggest that income plays a causal role in boosting younger children's achievement, although here it should be kept in mind that the beneficial welfare-to-work programs increased both income and parental employment. However, combining these results with those from the 1970s experiments, we note that both kinds of programs increased income but produced opposing impacts on work hours. This suggests that the income boost may have been the most active ingredient in promoting children's achievement.

Non-experimental studies that take care to ensure they are comparing families who differ in terms of income, but who are otherwise similar, can also provide strong evidence. One such study took advantage of an increase in the maximum Earned Income Tax Credit for working poor families with more than two children by more than $2,000 between the years of 1993 and 1997. This generous increase in tax benefits enabled researchers to compare the school achievement of children in otherwise similar—and even the same—working families before and after the increase in the tax credit. And indeed, improvements in low-income children's achievement in middle childhood coincided with the policy change. A second, Canadian study found similar results when researchers took advantage of variation across Canadian provinces in the generosity of Canada's National Child Benefit program to estimate income impacts on child achievement. Thus, the weight of the evidence suggests that increases in income for poor families are causally related to improvements in children's outcomes.

The Long Reach

None of this past income literature has been able to examine family income early in a child's life in relation to that child's adult attainments. This limitation comes largely from the lack of data on both early childhood income and later adult outcomes. Recent research by Duncan and his colleagues, however, has now made this link using recently-released data from the Panel Study of Income Dynamics, which has followed a nationally representative sample of U.S. families and their children since 1968. The study is based on children born between 1968 and 1975, for whom adult outcomes were collected between ages 30 and 37.

Measures of income were available in every year of a child's life from the prenatal period through age 15. This enabled Duncan and his colleagues to measure poverty across several distinct periods of childhood, distinguishing income early in life (prenatal through age 5) from income in middle childhood and adolescence. The simple associations between income early in life and adult outcomes are striking (Table 1). Compared with children whose families had incomes of at least twice the poverty line during their early childhood, poor children completed two fewer years of schooling, earned less than half as much money, worked 451 fewer hours per year, received $826 per year more in food stamps, and are nearly three times as likely to report poor overall health. Poor males are more than twice as likely to be arrested. For females, poverty is associated with a more than five fold increase in the likelihood of bearing a child out of wedlock prior to age 21.

None of these simple comparisons, however, considered the various factors that go along with growing up in poverty that also might explain poorer adult outcomes (e.g., single parenthood or lack of motivation). To account for this, we also adjusted for an extensive set of background control variables, all of which were measured either before or near the time of birth. This effort to separate income from other related disadvantages and characteristics of poor children produces smaller correlations than in the absence of these statistical controls. This suggests that a substantial portion of the simple correlation between childhood income and most adult outcomes can be accounted for by the disadvantageous conditions associated with birth into a low-income household.

But what about the timing of poverty? To better understand whether poverty in early childhood is particularly important, Duncan and colleagues replaced the average childhood income measure with three stage-specific measures of income. As before, adjustments are made for the effects of the extensive array of background conditions.

In the case of adult earnings and work hours, early childhood income appears to matter much more than later income. For some measures, like work hours, there appears to even be a negligible role for income beyond age 5. Early income also appears to matter for completed schooling, but in this case adolescent family income seems to matter even more. In contrast, the strong association between overall childhood income and health and non-marital birth seems to be largely attributable to income during adolescence, rather than earlier in childhood.

More detailed analyses show that for families with average early childhood incomes below $25,000, a $3,000 annual boost to family income is associated with a 17 percent increase in adult earnings (Figure 3). Results for work hours are broadly similar to those for earnings. In this case, a $3,000 annual increase in the prenatal to age-5 income of low-income families is associated with 135 additional work hours per year after age 25. In contrast, increments to early-childhood income for higher-income children were not significantly associated with higher adult earnings or work hours. The implication is clear: If we are hoping that giving parents extra income will bolster their children's chances for success, early childhood is the time to do it.

Refashioning Income Supports

Early childhood is a particularly sensitive period in which economic deprivation may compromise children's life achievement and employment opportunities. Research continues to confirm a remarkable sensitivity (and growing number) of developing brain structures and functions that are related to growing up in an impoverished home.

We also have convincing evidence linking early poverty with both child achievement and adult employment. The achievement studies employ unusually rigorous methods for estimating causal relationships between income early in life and achievement test scores as children age. The effect sizes estimated in these studies are broadly similar. An annual income increase of $3,000 sustained for several years appears to boost children's achievement by roughly one-fifth of a standard deviation. In the early grades, children's achievement increases by nearly one standard deviation per year, so 20 percent of a standard deviation amounts to about two months' advantage in school.

Very recent research has linked poverty early in childhood to adult earnings and work hours. Although non-experimental, the study's key finding—that income early in childhood appears to matter much more than income later in childhood for a range of employment outcomes—is strikingly consistent with the achievement studies.

Taken together, this research suggests that greater policy attention should be given to remediating situations involving deep and persistent poverty occurring early in childhood. In the case of welfare policies, we should take care to ensure that sanctions and other regulations do not deny benefits to families with very young children. Not only do young children appear to be most vulnerable to the consequences of deep poverty, but mothers with very young children are also least able to support themselves through employment in the labor market.

A more generous, and perhaps smarter, approach would be enacting income transfer policies that provide more income to families with young children. In the case of work support programs like the Earned Income Tax Credit, this might mean extending more generous credits to families with young children. In the case of child tax credits, this could mean making the credit refundable and also providing larger credits to families with young children.

Interestingly, several European countries gear time-limited benefits to the age of children. In Germany, a modest parental allowance is available to a mother working fewer than 20 hours per week until her child is 18 months old. France guarantees a modest minimum income to most of its citizens, including families with children of all ages. Supplementing this basic support is the Allocation de Parent Isolé (API) program for single parents with children under age 3. In effect, the API program acknowledges a special need for income support during this period, especially if a parent wishes to care for very young children and forgo income from employment. The state-funded child care system in France that begins at age 3 alleviates the problems associated with a parent's transition into the labor force.

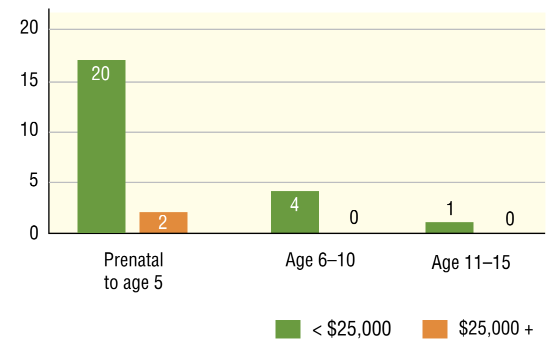
In emphasizing the potential importance of policies to boost income in early childhood, we do not mean to imply that focusing on this area is the only policy path worth pursuing. Obviously investments later in life, including those that provide direct services to children and families, may also be well-advised. Economic logic requires a comparison of the costs and benefits of the various programs that seek to promote the development of disadvantaged children throughout the life course. In this context, expenditures on income-transfer and service-delivery programs should be placed side by side and judged by their costs and benefits, with the utmost goal of making our social investments as profitable as possible.

TABLE 1 Adult outcomes by poverty status between the prenatal year and age five

	Income below the official U.S. poverty line	Income between one and two times the poverty line	Income more than twice the poverty line
	Mean or %	*Mean or %*	*Mean or %*
Completed schooling	11.8 yrs	12.7 yrs	14.0 yrs
Earnings ($10,000)	$17.9	$26.8	$39.7
Annual work hours	1,512	1,839	1,963
Food stamps	$896	$337	$70
Poor health	13%	13%	5%
Arrested (men only)	26%	21%	13%
Nonmarital birth (women only)	50%	28%	9%

Note: Earnings and food stamp values are in 2005 dollars.

FIGURE 3 Percentage increase in adult earnings associated with a $3,000 annual increase in childhood income



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