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## Income Inequality and the Well-Being of American Families

*Income inequality has increased steadily over the past 40 years. We briefly review the nature and causes of this increase and show that income-based gaps in children's academic achievement and attainment grew as well. To probe whether the increasing income gaps may have played a role in producing the growing achievement and attainment gaps, we summarize the evidence for the effect of family income on children, paying particular attention to the strength of the evidence and the timing of economic deprivation. We show that, in contrast to the nearly universal associations between poverty and children's outcomes as reported in the correlational literature, evidence from social experiments and quasi experiments shows impacts on some domains of child functioning but not others. At the same time, we have no experimental evidence on how economic deprivation affects children in the first several years of life in the United States. Family environments are all important in the first several years of a child's life, when they are developing most rapidly and have limited autonomy from family, yet family incomes tend to be the lowest in these early years of family development. We describe an ongoing experimental study of income effects on infants and toddlers.*

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*Key Words:* poverty, early childhood, child development.

Americans have long taken pride in the belief that the United States is a land of opportunity, where success depends more on one's work ethic than birthright (Alesina & La Ferrara, 2005). Economic growth has made that ideal a reality for generations of Americans, including many who started out poor. The quarter century following World War II was a golden era for the U.S. economy, with the benefits of economic growth being shared by high-, middle- and low-income families (Goldin & Katz, 2009). But beginning in the 1970s, economic changes favoring highly educated workers, plus demographic shifts such as the rise of single-parent families, produced income gaps between high- and low-income families.

In this article, we explore some of the consequences of income inequality for American families and children. We first document the degree to which income inequality between children growing up in low- and high-income families has increased over the past 40 years. We then show that growing income gaps have been more than matched by increases in the gaps between what low- and high-income parents spend on enrichment activities for their children.

Most distressingly, these growing income and expenditure gaps have been accompanied by a steady divergence in the achievement and educational attainment of children living in low- and high-income families. Differences in the reading and math achievement levels of these

children are much larger than several decades ago, as are differences in college graduation rates.

What accounts for these widening gaps? Among the many structural and policy determinants of children's opportunities, we concentrate on the possible role of one of them: growing income inequality. Drawing from *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances* (Duncan & Murnane, 2011), we explain that the evidence for these gaps supports pathways linking income inequality and achievement gaps operating both through schools and families. In addition to growing differences in what poor and affluent families spend on their children, stagnant income for low-income families has likely continued to affect maternal stress and parenting. We close with some ideas about policy approaches that might be considered as a means to address the enormous task of restoring the kinds of educational opportunities that children need to lead healthy and productive lives.

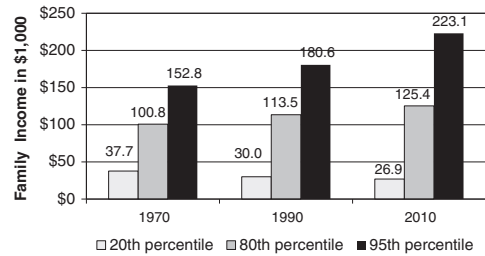
#### GROWING DISPARITIES

Figure 1 uses data from the Current Population Survey to illustrate the growing income disparities over 40 years in the United States within families that include minor children. The left-hand bar in each set of bars in this figure shows the total family income in a particular year (in 2012 U.S. dollars) for children at the 20th percentile of the nation's family income distribution. This means that, in a given year, 20% of children lived in families with incomes below that level, while 80% had incomes above it. In 1970, the dividing line was drawn at about \$37,700 (in 2012 U.S. dollars).

The middle bar in each set shows family income in a given year at the 80th percentile of the distribution, which was approximately \$100,800 (in 2012 U.S. dollars) in 1970. The right-hand bar in each set shows mean income for very high-income families—those with incomes higher than 95% of U.S. families (about \$152,800 in 1970, in 2012 U.S. dollars).

In contrast to the 2 decades before 1970, when the incomes of these three groups grew at virtually identical rates (Duncan & Murnane, 2011), economic growth over the next 4 decades was not shared equally. Compared with 1970, the 20th percentile of cash family incomes had

FIGURE 1. CHILDREN'S FAMILY INCOME OVER TIME. CHART SHOWS 20TH, 80TH, AND 95TH PERCENTILES OF THE DISTRIBUTION OF FAMILY INCOMES FOR ALL CHILDREN 5 TO 17 YEARS OF AGE. THEY ARE BASED ON DATA FROM THE U.S. BUREAU OF THE CENSUS AND ARE ADJUSTED FOR INFLATION (AMOUNTS ARE SHOWN IN 2012 U.S. DOLLARS).



fallen by more than 28% in 2010. (Notably, adding in-kind transfer payments from the Supplemental Nutrition Assistance Program [SNAP], formerly known as *food stamps*, and other programs produces a considerably more favorable trend, at least when it comes to poverty measures; Fox et al., 2015). In contrast, over the same period, the incomes of families at the 80th percentile grew by about 24%, to \$125,400, while incomes at the 95th percentile rose substantially more (46%).

As income inequality increased, so too did the gap between reading and mathematics skills of students from low- and high-income families. As illustrated in Figure 2, based on data from Reardon (2011), among school-age children in the late 1960s, test scores of low-income students lagged behind those of their high-income peers by four fifths of a standard deviation—about 80 points on an SAT-type test. Forty years later, this gap was 50% larger, up to nearly 125 SAT-type points, although there is some evidence that the gap shrank a bit in the early 2000s (Reardon & Portilla, 2016). This growth in the income-based gap is surprising in view of the fact that racial gaps in test scores (also depicted in Figure 2) have diminished considerably in the more than half century since the 1954 *Brown v. Board of Education* decision (Magnuson & Waldfogel, 2008).

Given the importance of academic preparation in determining educational attainment (Magnuson, Duncan, Lee, & Metzger, 2016), it should come as no surprise that growth in the income-based gap in children's reading and mathematics achievement has contributed to a

FIGURE 2. RACE- AND INCOME-BASED GAPS IN READING ACHIEVEMENT IN SAT-TYPE UNITS AT 14 YEARS OF AGE. ADAPTED FROM REARDON (2011).

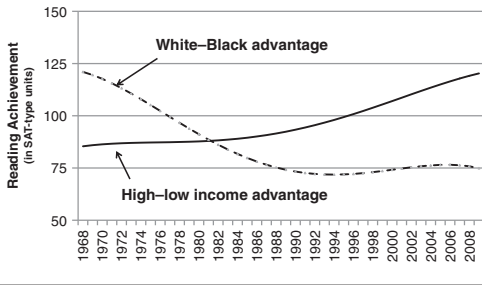
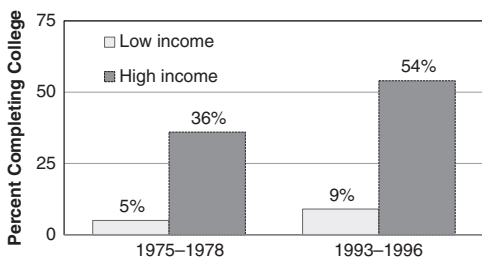


FIGURE 3. COLLEGE GRADUATION RATES FOR LOW- AND HIGH-INCOME CHILDREN BASED ON THE YEAR CHILDREN TURNED 14 YEARS OF AGE, USING AUTHORS' CALCULATIONS BASED ON BAILEY AND DYNARSKI (2011). LOW AND HIGH INCOMES ARE DEFINED AS THE BOTTOM AND TOP QUARTILES OF THE PARENT INCOME DISTRIBUTION.



growing gap in the rate of college completion (see Figure 3, which is based on the calculations of Bailey & Dynarski, 2011). The fraction of children raised in affluent families who completed college jumped by 18 percentage points—from slightly more than one third to more than one half—for students entering high school in the mid-1990s relative to their counterparts entering high school in the mid-1970s. Among children from low-income families, in contrast, the graduation rate was only 4 percentage points higher for the later cohort than for the earlier one. Analysts differ in their assessments of the relative importance of college costs and academic preparation in explaining the increasing gulf between college graduates' rates of affluence and low-income children (Heckman & Krueger, 2005). However, both are rooted, at least in part, in the growth in family income inequality.

## HOW RISING INEQUALITY INFLUENCES CHILDREN'S SKILLS AND ATTAINMENT

The authors of the edited volume *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances* (Duncan & Murnane, 2011) adopted an ecological perspective in their attempt to understand the connections between income inequality and the increasing achievement and attainment gaps between high- and low-income children. Changes in social contexts may affect children's skill acquisition and educational attainments directly, as well as indirectly by influencing how schools operate. For example, growing income inequality increases the gap between the resources that affluent and poor families can invest in their children.

Growing disparities in parental investments may also indirectly widen these children's skill gaps through residential segregation, as the wealthy purchase housing in neighborhoods that less affluent families cannot afford (Reardon & Bischoff, 2011). Without the financial and human resources and political clout of the wealthy, institutions in poorer neighborhoods—perhaps most importantly schools—may decline in quality, with detrimental effects on the education and life chances of children born into poor families. Indeed, residential segregation by income has increased in recent decades (Jargowsky, 1997; Reardon & Bischoff, 2011; Watson, 2009). Living in upscale neighborhoods can reduce interpersonal interactions between affluent and poor parents and children in settings such as schools, childcare centers, libraries, and grocery stores.

Low family income makes it more difficult for parents to gain access to high-quality childcare, which prepares children for kindergarten, and increasing school segregation by income may lead to the entirety of a low-income child's peers in schools being lower-achieving and less attentive students (Duncan & Murnane, 2011). Crime in low-income neighborhoods may provide tempting alternatives to working hard at school and may also make it more difficult for neighborhood schools to recruit high-quality teachers (Leventhal & Brooks-Gunn, 2003).

Although Duncan and Murnane (2011) sorted through some of these influences on low-income children, in this article, we concentrate specifically on family resources and academic achievement. Children growing up in families with greater financial resources score higher on many dimensions of school

readiness upon entering kindergarten than do low-income children (Duncan & Magnuson, 2011). Why and even whether income is the active ingredient behind these differences are two questions that have generated a substantial body of research. With regard to the “why” question, economists, sociologists, developmental psychologists, family scientists, and neuroscientists have emphasized different pathways by which poverty may influence children’s development. Key to the “whether” question is to what extent children’s differences are caused by income itself as opposed to differences in innate abilities or other family characteristics (e.g., a two-parent family structure, parental education levels). Those literatures are reviewed in subsequent sections.

#### THE CONSEQUENCES OF GROWING UP POOR: TWO PERSPECTIVES

The two main conceptual frameworks describing the consequences of growing up in a poor household are the resources and investment perspective and the family and environmental stress perspective. Each is grounded in a different disciplinary background and differs in the extent to which it focuses on socioeconomic status (SES) in general rather than on income, poverty, or any other particular component of SES (e.g., income, parental education, occupational prestige). Nevertheless, these frameworks overlap and are complementary.

##### *The Family Resources and Investment Perspective*

Economists assert that time and money are the two basic resources that parents draw upon when they invest in their children (Becker, 1991). For example, investments in high-quality childcare and education, housing in good neighborhoods, and enriching learning experiences enhance children’s development. Links between endowments, investments, and development appear to differ by the domain of development under consideration (e.g., achievement, behavior, health; Duncan, Magnuson, & Votruba-Drzal, 2014).

Becker’s (1991) household production theory suggests that children from low-income families lag behind their economically advantaged counterparts in part because their parents have fewer resources to invest in them. Compared with more affluent parents, poor parents are

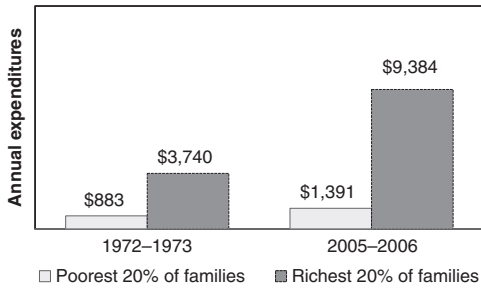
less able to afford or access such things as books and educational materials to use at home, send their children to high-quality child care and schools, and live in safe neighborhoods (Kaushal, Magnuson, & Waldfogel, 2011). Economically disadvantaged parents may also have less time to invest in their children than economically advantaged parents, owing to higher rates of single parenthood, nonstandard work hours, and less flexible work schedules (Henly & Lyons, 2000). These too may have negative consequences for children. Furthermore, evidence suggests that the amount of cognitive stimulation in the home environment varies across different levels of family income (Votruba-Drzal, 2006).

Thus, an obvious advantage of a higher family income is that it provides more resources to buy books, computers, high-quality childcare, summer camps, private schooling, and other enrichments (Kaushal et al., 2011). According to data from the Consumer Expenditure Surveys, low-income families in 1972–1973 spent about \$850 (in 2011 U.S. dollars) per child on child enrichment resources such as those just mentioned. In contrast, high-income families spent about \$3,700 (Figure 4, based on Duncan & Murnane, 2011), so there was already a substantial difference in the early 1970s when the degree of income inequality was smaller than it is now. By 2005–2006, low-income families had increased their expenditures to nearly \$1,400, but high-income families had increased theirs to more than \$9,000 per child. Thus, the differences in spending on children had almost tripled in the intervening years between the two groups. The largest spending differences were for activities such as music lessons, travel, and summer camps (Kaushal et al., 2011). Nonexperimental studies suggest that differences in the quality of the home environments of poor and more advantaged children, such as those implied by these difference in spending on resources for children, account for a substantial portion of the association between poverty and children’s educational achievement (Kaushal et al., 2011).

##### *The Family and Environmental Stress Perspective*

Low-income families experience higher levels of stress in their everyday environments than more affluent families, which may affect their children’s development. The family stress model

FIGURE 4. FAMILY ENRICHMENT EXPENDITURES ON CHILDREN, USING AUTHORS' CALCULATIONS BASED ON DATA FROM THE CONSUMER EXPENDITURE SURVEYS (AMOUNTS ARE SHOWN IN 2011 U.S. DOLLARS). REPRINTED WITH PERMISSION FROM DUNCAN AND MURNANE (2011) AND THE RUSSELL SAGE FOUNDATION.



was first developed by Elder (1974) to document the influence of economic loss on families during the Great Depression. According to this perspective, poor families face substantial economic pressure as they struggle to pay bills and purchase important goods and services, and are forced to cut back on daily expenditures. This economic pressure, coupled with other stressful life events that are more prevalent in the lives of poor than nonpoor families, creates high levels of psychological distress, including depressive and hostile feelings, in poor parents (Kessler & Cleary, 1980; McLeod & Kessler, 1990).

Such psychological distress spills over into marital and coparenting relationships. As couples struggle to make ends meet, their interactions tend to become more hostile and conflicted, which leads them to withdraw from each other (Brody et al., 1994; Conger & Elder, 1994; Conger et al., 2002). Parents' psychological distress and conflict, in turn, are linked to their parenting practices, which tend to be more punitive, harsh, inconsistent, and detached, as well as less nurturing, stimulating, and responsive to their children's needs. Such low-quality parenting is likely associated with elevated physiological stress responses among children and may ultimately harm their development (McLoyd, 1990).

To fully understand how environmental stress related to poverty may affect individuals, it is important to consider other sources of everyday stress that poor children encounter besides their treatment by stressed parents. Compared with their more affluent peers, poor children are

more likely to live in housing that is crowded, noisy, and may have structural defects such as a leaky roof, rodent infestation, or inadequate heating (Evans, Saltzman, & Cooperman, 2001; Evans, 2004). Poor families are also more likely to reside in neighborhoods characterized by high rates of crime with other risk factors such as boarded-up houses, abandoned lots, and inadequate municipal services (Leventhal & Brooks-Gunn, 2003).

The schools that low-income children attend are more likely to be overcrowded and have structural problems (e.g., issues with noise, lighting, and ventilation) compared with the schools attended by more affluent children (e.g., Maxwell & Evans, 2000). Evans (2004) reported that economically disadvantaged children also tend to be exposed to higher levels of air pollution from parental smoking, traffic, and industrial emissions, and that these environmental conditions create physiological and emotional stress on low-income children that may impair their socioemotional, physical, cognitive, and academic development. For example, childhood poverty heightens a child's risk for lead poisoning, which has been linked to health, behavioral, and neurological problems that may endure into adolescence and beyond (Evans, 2004).

Evidence from the field of psychoneuroimmunology suggests that exposure to chronic elevated physiological stress may interfere with the development of poor children's stress response system and health, as well as the regions of the brain responsible for self-regulation (Lupien, King, Meaney, & McEwen, 2001). Nonexperimental studies have found that low-income children have higher levels of stress hormones than their more advantaged counterparts and that early childhood poverty is associated with an increased allostatic load, a measure of physiological stress (Lupien et al., 2001; Turner & Avison, 2003). These higher levels of physiological stress have been linked to poorer cognitive as well as lower immunological functioning, the latter having long-term implications for a host of inflammatory diseases later in life (Miller, Chen, & Parker, 2011). For example, recent work has linked the body's stress system to brain regions that support cognitive skills and self-regulation (Blair et al., 2011). It also found that heightened salivary cortisol, an indicator of an elevated stress response, partially accounts for other effects of poverty on the one hand, and

parenting and children's executive functioning on the other (Blair et al., 2011). Thus, disparities in stress exposure and elevated stress hormones may explain to some extent why poor children have lower levels of cognitive ability and achievement, as well as poorer health later in life, than more affluent children.

The family stress perspective has seen major conceptual and empirical advances in recent years. On the conceptual side, a narrow focus on parental mental health and parenting has been broadened by neurobiological evidence on the importance of maintaining tolerable levels of stress for both parents and children and by a cognitive psychological perspective on links among stress, information processing, and decision-making. Increasingly sophisticated studies also suggest linkages between income support and maternal stress. For example, the family stress and income–investment relationship perspectives are complemented by behavioral science studies of cognitive resources and decision-making. Enhanced family income may create more enriching and less stressful family environments by reducing the cognitive load that parents face (Gennetian & Shafir, 2015). This perspective is bolstered by studies that have shown conditions of scarcity place demands on limited cognitive resources, directing attention to some problems at the expense of others (Mani, Mullainathan, Shafir, & Zhao, 2013; Mullainathan & Shafir, 2013). We expect that this research will continue to benefit from a burgeoning of neuroscience-based findings that will shed light on the connections between stress, behavior, and child development.

#### EVIDENCE ON LINKS BETWEEN INCOME AND ACHIEVEMENT GAPS

It is difficult to untangle the precise effects of all the family-related factors—income and expenditures, family structure, time and language use—on the disparities in children's school readiness and success that have emerged over the past several decades. Ziol-Guest and Lee (2016) investigated the demographic (family income, mother's education, family size, two-parent family structure, and age of mother at birth) underpinnings of the growing income-based gap in school attainment using data from the Panel Study of Income Dynamics. Across their cohorts, increases in the income gap between high- and low-income children were

found to account for about three quarters of the increasing gap in completed schooling, half of the gap in college attendance, and one quarter of the gap in college graduation. In contrast, they found no consistent evidence of increases in the estimated associations between parental income and children's completed schooling. Increasing gaps in the two-parent family structures of high- and low-income families accounted for relatively little of the schooling gap because estimates of the (regression-adjusted) associations between family structure and schooling were small. However, increasing gaps in the age of the mother at the time of birth accounted for a substantial portion of the increasing schooling gap because the mother's age is consistently predictive of children's completed schooling (Duncan et al., 2016).

Going beyond these correlational studies are social experiments, in which families are randomly assigned to receive additional income. If implemented correctly, experiments provide unbiased estimates of income effects. However, experimental studies are exceedingly rare and sometimes base income support on behavior such as full-time work, which may exert its own influence on child development. Almost as trustworthy as experiments are quasi experiments in which income changes are beyond the control of the families involved.

The strongest experimental evidence in the literature relates income increases to children's school achievement and attainment. The only large-scale randomized interventions to alter family income directly were the U.S. Negative Income Tax Experiments, which were conducted between 1968 and 1982 with the primary goal of identifying the influence of guaranteed income on parents' labor force participation. Three of the sites (Gary, Indiana, and rural areas in North Carolina and Iowa) measured impacts on achievement gains for children in elementary school; two of the three found statistically significant impacts (Maynard, 1977; Maynard & Murnane, 1979). In contrast, no achievement differences were found for adolescents. Sites measuring impacts on school enrollment and attainment for youth showed that they were more uniformly positive, with both the Gary site and sites in New Jersey reporting increases in school enrollment, high school graduation rates, or years of completed schooling. Second-through eighth-grade teachers rated student comportment in the two rural sites; results

showed improvements in students at one of the sites but not the other. Taken together, these studies appear to suggest that income may be more important for the school achievement of preadolescents than for adolescents and for the completed schooling of adolescents.

Experimental welfare reform evaluation studies undertaken during the 1990s incentivized parental employment by providing income supports to working-poor parents through wage supplements. Moreover, some measured the test scores of at least some children who had not yet entered school when the programs began. One study analyzed data from seven random-assignment welfare and antipoverty policies, all of which increased parental employment, only some of which increased family income (Morris, Duncan, & Clark-Kauffman, 2005).

The combined impacts of higher income and more maternal employment on children's school achievement varied markedly by the children's ages. Welfare reform treatment-group children between 4 and 7 years of age when the programs took effect—many of whom made the transition into elementary school during or shortly after the programs began—scored higher on achievement tests than their control-group counterparts. A sophisticated statistical analysis of the data on these younger children suggested that a \$4,000 annual income boost (in 2018 dollars) was associated with a gain in the achievement scores of about one fifth of a standard deviation (Duncan, Morris, & Rodrigues, 2011). In contrast, there were no impacts on either teacher- or parent-reported behavior problems.

The achievement of 8- to 11-year-old children did not appear to be affected by the programs. However, the achievement of children who were 12 and 13 years of age seemed to be hurt by the program's efforts to increase family income and parental employment, perhaps because maternal employment forced teens to take on childcare responsibilities that interfered with their schoolwork (Gennetian, Duncan, Knox, Clark-Kauffman, & Vargas, 2002).

Along the lines of the examination of maternal stress, a quasi experimental study took advantage of the increase in the U.S. earned income tax credit (EITC) between 1993 and 1997 to compare children's test scores before and after it was expanded (Dahl & Lochner, 2012). Most of the children in this study were between 8 and 14 years of age and none was

younger than 5 years of age. The authors found improvements in low-income children's achievement in middle childhood that coincided with the EITC increase.

A second study, conducted in Canada, described above for its results on maternal mental health, took advantage of variations in the generosity of the National Child Benefit Program across Canadian provinces to estimate income impacts on child achievement (Milligan & Stabile, 2011). Among children 6 to 10 years of age residing in low-income families, policy-related income increases had a positive and statistically significant association with math scores and a negative link with the likelihood of a child receiving a diagnosis of a learning disability. For 4- to 6-year-olds, the income increases were associated with higher scores on a test of receptive vocabulary for boys, but not for girls. Turning to behavior, higher benefits led to less aggression among 4- to 10-year-olds but did not appear to affect other behavioral dimensions assessed in the study.

A third quasi experimental study examined the impact of the opening of a casino by a tribal government in North Carolina that distributed approximately \$6,000 annually, from its proceeds, to each adult member of the tribe (Akee, Copeland, Keeler, Angold, & Costello, 2010). A comparison of Native American youth with non-Native American youth, before and after the casino opened, found that the receipt of these casino payments by parents for about 6 years increased the school attendance and high school graduation rates of poor Native American youth and reduced criminal behavior during their adolescence. Achievement test scores were not available from these data, nor were data available on children under 9 years of age. Nonetheless, increased family income apparently retained these students through high school.

Related evidence on increased income effects on students' education also comes from evaluations of programs providing conditional cash transfer payments (CCTs) to low-income families. First tested in developing countries as a way to incentivize children's continued schooling and medical care, CCTs are distributed to mothers only when they engage in targeted behavior such as well-baby visits and their children meeting school attendance goals (Fiszbein, Schady, & Ferreira, 2009). Many of



the programs tested in developing countries produced statistically significant improvements in children's development, education, and health. However, it is unclear whether these improvements were the result of the increased income or the structure of CCTs, which provided incentive payments that directly offset the specific and large opportunity costs of the desired behavior.

In the United States, the evaluation of Opportunity New York City (ONYC), a CCT program targeted to reduce family poverty and economic hardship, showed no impact on children's school test scores after 2 years of participation (Riccio et al., 2010, 2013). Possible explanations offered for the null effects included the complexity of the payment schedule, the diversity and complexity of behaviors being targeted, implementation difficulties, and the small amount of cash support relative to the high cost of living in New York City.

In retrospect, several lessons emerge from these experimental and quasi experimental studies. First, achievement gains were selective and depended at least in part on the children's age when income gains occurred. Children making the transition to school, and elementary school students, generally enjoyed the most consistent achievement increases. For adolescents, the achievement changes were mixed, with various studies finding positive, null, and even negative impacts. Second, in the case of adolescents, income appears to have affected educational attainments, such as high school graduation and completed years of schooling rather than test scores. Given the high costs of postsecondary education, the effect of family income on completed schooling was not surprising. Third, we know far more about how poverty reduction affects achievement and schooling outcomes than we do about its effects on relevant behavioral problems such as childbearing and criminal activity.

All in all, the strongest research evidence appears to indicate that money matters, in a variety of ways, for children's long-term success in school. Although some children have always enjoyed greater benefits and advantages than others, the income gap has widened dramatically over the past four decades and the implication of the results of these research studies is that, partly as a consequence, the gap in low-income children's school success has widened as well.

#### WHY EARLY ECONOMIC CONDITIONS MAY MATTER THE MOST

For a number of reasons, the timing of economic disadvantage during childhood and adolescence may matter for children's development. Cunha and Heckman (2007) posited a cumulative model of the production of human capital that allows for the possibility of differing childhood investment stages as well as roles for the past effects and future development of both cognitive and socioemotional skills. In this model, children have endowments at birth of cognitive potential and temperament that reflect a combination of genetic and prenatal environmental influences. The Cunha and Heckman model represents the interactive nature of skill building and investments of families, preschools and schools, and other agents. It suggests that human capital accumulation results from self-productivity—that is, skills developed in earlier stages bolster the development of skills in later stages—as well as the dynamic complementary process that results when skills acquired before a given investment increase the productivity of that investment. These two principles are combined in their hypothesis that “skill begets skill” (Cunha & Heckman, 2007, p. 35). This model predicts that economic deprivation in early childhood creates disparities in school readiness and early academic success that widen over the course of childhood (Cunha & Heckman, 2007).

The idea that children's early years are a fruitful time for intervention to improve educational and achievement outcomes for low-income and disadvantaged children is supported by evidence from intensive programs aimed at providing early care and educational experiences for high-risk infants and toddlers. The best known are the Abecedarian Program, a full-day, center-based educational program for children who are at high risk for school failure, starting in early infancy and continuing until school entry, and the Perry Preschool Program, which provided 1 or 2 years of intensive center-based education for preschoolers (Duncan & Magnuson, 2013). Both of these programs have generated long-term improvements in subsequent education, criminal behavior, and employment that are strongly associated with poverty, although the general pattern of effects from other early childhood education programs is more modest (Duncan & Magnuson, 2013).

Although early income may matter the most for early brain development, income increases may also be beneficial for low-income adolescents, particularly when used to help pay for their postsecondary schooling. Although Pell Grants and other sources of financial aid drive down the net costs of college for low-income students, costs of enrollment in public 4-year colleges have increased faster than grants have. In contrast, the cost of attendance at a public community college has not increased over the past 2 decades for students from very low-income families because the amount of aid has expanded to cover the higher price. Of course, many low-income students and their parents either lack awareness of how much aid is available or are discouraged by the complexities of the federal financial aid application form (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012).

#### A NEW EXPERIMENTAL STUDY

A looming question in the family research field is to what extent income variation actually causes differences in child well-being, especially academic achievement. A promising strategy for securing answers would be to launch a developmental study devoted to assessing the impact of experimental manipulation of income. One such study, called Baby's First Years, is in the process of recruiting 1,000 infants born to mothers living below the federal poverty threshold in four metropolitan areas (250 infants at each site) in the United States. Mothers and infants will be assigned at random to experimental or control groups. Experimental group mothers will receive unconditional cash payments of \$333 per month (\$4,000 per year) for 40 months. The control group will receive a nominal payment—\$20 per month, delivered in the same way as the experimental group's larger payment.

Mothers are being recruited in maternity wards of participating hospitals shortly after giving birth and, after consenting, are administered a 30-minute baseline interview. The three follow-up waves of data collection will provide information about family functioning as well as developmentally appropriate measures of children's cognitive and behavioral development. The investigators will collect information about the mother and child in the home when the child is 12 and 24 months of age. At 36 months

of age, mothers and children will be assessed and interviewed in research laboratories at each site. State and local administrative data regarding parental employment, utilization of public benefits such as Medicaid and SNAP, and any involvement in child protective services will also be collected.

The compensation difference between families in the experimental and control groups will boost family incomes by \$3,760 per year, an amount shown in the economics and developmental psychology literature reviewed here to be associated with socially meaningful and policy relevant improvements in children's school achievement. After accounting for likely attrition, a total sample size of 800 is expected at 36 months of age, which provides sufficient statistical power to detect meaningful differences in cognitive, emotional, and brain functioning, and key dimensions of family context.

Child outcomes will be assessed at 36 months of age using validated, reliable, and developmentally sensitive measures of language, memory, executive functioning, and socioemotional skills. In addition, cognitive development in terms of brain circuitry will be measured by electroencephalography and event-related potentials at ages 12 and 36 months.

If family poverty reduction shapes early brain development and cognitive functioning, it is important to identify the family resource and stress perspective processes that help pave the way. The study will include measures of a number of pathways, including higher-quality housing, nutrition, and nonparental child care; more cognitively stimulating home environments and learning opportunities outside of the home; and, by reducing or restructuring work hours, more parental time spent with children. Another pathway is that additional economic resources may reduce parents' own stress and improve their mental health. This may allow parents to devote more positive attention to their children, thus providing a more predictable family life, less conflicted relationships, and warmer and more responsive interactions. Data will be obtained measuring both of these pathways annually. Survey measures will assess family stress, chaos in the home, parenting beliefs, and maternal symptoms of depression and anxiety. A videotaped free play and cleanup task at 12 and 24 months of age will be coded for parental warmth and harshness. As a measure of

maternal sensitivity, information will be gathered on mother and child synchrony in baseline cortisol levels, as well as in stress reactivity and recovery.

The Baby's First Years project assesses the role of just one of myriad family influences on child development and its income supplements are not presumed to be the only or even the best single policy approach for promoting child well-being. However, because so many policies have the potential for affecting the financial resources flowing to low-income families with children, it is vital to be able to answer the question of to what extent family income is indeed an active ingredient in producing the correlations between socioeconomic status and child outcomes.

#### IMPROVING THE LIFE CHANCES OF LOW-INCOME CHILDREN

To allow the gaps in educational opportunities between children from low- and high-income families to increase because of increasing income inequality jeopardizes the upward socioeconomic mobility of children in low-income families that has heretofore characterized our pluralistic democracy. Reducing these sizeable income gaps and educational disparities is critical to providing all children equal educational opportunities and enabling them to become productive citizens. To do so, we need to formulate a combination of policies that support low-income families and improve the quality of schools that low-income children attend.

If the evidence ultimately shows that poverty early in childhood compromises development during childhood and adolescence, and thus educational achievement, then it makes sense to consider income transfer policies that provide more income to families with young children. In the case of work support programs such as the EITC, this might mean extending larger credits (or reallocating existing credits) to low-income families with young children. In the case of refundable child tax credits, this means providing larger credits to families with young children.

Another step might be to ensure that sanctions and other regulations embedded in social services policies do not deny benefits to families with very young children. Not only do young children appear to be most vulnerable to

the consequences of poverty but mothers with very young children seem least able to support themselves through employment in the labor market.

This article's emphasis on family economic resources should not be taken to suggest that economic support policies should replace the range of parenting and early education interventions that have been developed to assist low-income families and their children. Indeed, this article has already referenced the highly effective Abecedarian and Perry Preschool programs, both of which have provided early education services for young children and one of which (Perry) provides home visits to parents as well. Rather, it is best to conceive of parenting support, early education, health, employment, and income support as interconnected domains of possible intervention targets, with the policy choices focusing on what might be most feasible for a given budget.

#### AUTHOR NOTE

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