



Economic Policy Institute

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FIVE SOCIAL DISADVANTAGES THAT DEPRESS STUDENT PERFORMANCE

Why Schools Alone Can't Close Achievement Gaps

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Executive summary

That students' social and economic characteristics shape their cognitive and behavioral outcomes is well established, yet policymakers typically resist accepting that non-school disadvantages necessarily depress outcomes. Rather, they look to better schools and teachers to close achievement gaps, and consistently come up short.

This report describes how social class characteristics plausibly depress achievement and suggests policies to address them. It focuses on five characteristics for purposes of illustration:

- parenting practices that impede children's intellectual and behavioral development
- single parenthood
- parents' irregular work schedules
- inadequate access to primary and preventive health care
- exposure to and absorption of lead in the blood.

These are not the only characteristics that depress outcomes, nor are they necessarily the most important. This report makes no judgment about the relative importance of the many adverse influences on child and youth development. Parental unemployment and low wages, housing instability, concentration of disadvantage in segregated neighborhoods, stress, malnutrition, and health problems like asthma are among other harmful characteristics.

Certainly, some children with severe socioeconomic disadvantages achieve at higher levels than typical children without them; a range of outcomes is associated with every characteristic, and descriptions of the impacts of social class characteristics only describe averages, not the performance of any particular child. Likewise, this report does not imply that all lower-social-class families have each of these characteristics. But all have many of them.

Because characteristics of lower-class status overlap and may be interdependent, available data do not permit the isolation of any one. Econometric studies that identify the effect of a particular characteristic by holding others constant are valuable, but no study controls for all, and few control for very many.

For each characteristic reviewed here, this report describes its average incidence by race (black versus white) and socioeconomic status. Data limitations preclude similar descriptions of Hispanics' characteristics. Where research is available, we then review what is known about the characteristic's prediction of cognitive (academic performance or IQ, for example) and non-cognitive (behavioral) outcomes. We next review the "plausible pathways" by which the characteristic influences youths' outcomes—i.e., how these predictions might reflect causality. We conclude by recommending policies to reduce the intensity of these specific disadvantages.

This report's key findings are as follows:

- *Parenting practices that impede children's intellectual and behavioral development:* Lower-social-class parents engage in fewer educationally supportive activities with young children, such as reading aloud or playing cognitively stimulating games. Lower-social-class parents also exert more direct authority and offer children fewer choices in their daily interactions, leaving them less prepared for "critical thinking" when school curricula expect it. Parents' failure

to engage in educationally supportive activities is associated with children's poorer academic and behavioral outcomes. There are well-validated programs that can offset these effects. High-quality early childhood care and education centers provide intellectually stimulating environments that disadvantaged children may miss at home. Nurse home-visiting services assist disadvantaged mothers with health problems and teach developmentally appropriate parenting skills. High-quality after-school and summer programs that offer cultural and organizational activities are typically attended by middle-class youth, not students from lower-social-class backgrounds.

- *Single parenthood:* Mothers raising children alone are more likely to be low-income, African American, and less educated. Their children typically have lower test scores, are more likely to drop out of school, and have greater emotional and behavioral difficulties (more delinquency and violence, more school dropout, more suicide). Sex education and school-based health centers that provide long-lasting contraception to teenage girls are important, but they will not be as effective as they have to be if African American men remain poor marriage partners—unable to help support families because of excessive unemployment and discriminatory arrest and incarceration. Full employment as well as labor market and criminal justice reforms that enable fathers to earn middle-class incomes are needed to improve children's outcomes.
- *Parents' irregular work schedules:* Computerized scheduling and the weakening of norms governing employers' responsibility for employee welfare have combined to produce irregular work schedules for many hourly paid low-wage workers, disproportionately African Americans and the less educated. Unpredictable schedules make it difficult, if not impossible, to place children in high-quality child care centers and to establish regular home routines in which children can thrive. Children of mothers with non-standard schedules have worse verbal and other cognitive skills, mental health, and behavior. New regulatory policies—for example, requiring call-in pay for workers sent home before shifts end—could create incentives for employers to reduce use of “just-in-time” employee scheduling.
- *Inadequate access to primary and preventive health care:* Minority children and those whose parents are less educated or who live in low-income neighborhoods are less likely to have personal physicians or nurse practitioners, or receive necessary referrals to specialists. No research directly associates physician access with children's cognitive or non-cognitive outcomes, but a relationship is easy to intuit. Children with limited access are more likely to have routine and preventable illnesses, causing more frequent absences from school. Regulatory changes that support school-based health centers and Medicaid reimbursement changes to create incentives for primary care physicians to locate in low-access neighborhoods could address this.
- *Exposure to and absorption of lead in the blood:* Children with high blood lead levels are disproportionately low income and African American. Lead reduces cognitive ability (IQ) and causes adverse behavioral outcomes, such as increased violence and other criminal behavior in adolescents and young adults. Although lead was removed from gasoline in the 1970s and 1980s, lead remains on the ground and is frequently stirred up into breathable air. Lead also remains in windows, window frames, the walls of older buildings, and pipes carrying water to residences. Lead cleanup is expensive, but it would result in substantial overall savings in reduced special education placements, reduced criminal behavior, and greater worker productivity from adults with greater cognitive ability.

Introduction

Policymakers are perplexed about addressing the impact of racial and socioeconomic class differences on student outcomes. While they generally understand that family and community characteristics affect performance, they also fear

that acknowledging this fact means we should tolerate lower standards for disadvantaged children, something they consider morally and politically unacceptable. As a result, contemporary education reform efforts focus disproportionately on school and teacher incentives and do little to narrow achievement gaps.

Economists, sociologists, and developmental psychologists have consistently concluded that background characteristics strongly shape cognitive and behavioral outcomes.¹ When school improvement is not complemented by policies to narrow social class differences, students' chances of success are greatly diminished.

Thus, educators should, *as educators*, be vocal advocates for policies that reduce poverty and address other characteristics of lower-class status.³ But educators can do more, seizing opportunities to coordinate school improvement with community services that ameliorate socioeconomic disadvantage—services such as early childhood care and education, nurse home-visiting programs, after-school and summer opportunities, school-based health centers, and sponsorship of community lead cleanup. Such services cannot substitute for macroeconomic policies like full employment, higher wages, and stable work schedules, all of which help parents nurture and support their children, but the limitations of school-based social and economic improvement programs should not discourage educators from pursuing them.

Highlighting the socioeconomic impediments to student achievement does not make “excuses” for the achievement gap, as some advocates glibly, and defensively, charge.² Rather, it provides explanations. Although some educators may use student poverty as an excuse for inadequate performance, the conscientious understand that without good explanations for low achievement, policies to address it are unlikely.

Of the many social class characteristics known to depress outcomes, this report deals with five: challenged home intellectual environments, single parenthood, irregular parental work schedules, inadequate health care access, and exposure to environmental lead. These factors were chosen because recent research has offered important new insights regarding each. But these are not the only important characteristics depressing outcomes, nor is there a research basis for determining with any certainty whether they are necessarily the most important. Therefore, this report can make no judgment about the relative importance of such adverse influences on children, although we can assert with confidence, based on available research, that each is quite important. Other characteristics, all associated with poverty—including parental unemployment and low wages, housing instability, concentrated disadvantage in segregated neighborhoods, stress, malnutrition, and health problems like asthma—deserve similar treatment. We will consider these in future work.

Such characteristics interact, so precise estimates are not possible for the shares of achievement gaps attributable to specific social class differences, just as they are not possible for the shares attributable to teacher performance or other school qualities. For example, this report describes how poor parental literacy and irregular work schedules each varies by race and social class and affects children's outcomes. But they co-vary—simply adding effects together exaggerates estimates of harm because poor literacy and irregular work are themselves correlated; research has not established the additional impact of children's suffering from the results of both, rather than one factor.

a. In popular discourse, “lower class” has pejorative connotations, not intended here. By lower class, we refer to families with mutually reinforcing characteristics that usually include low income, less educational attainment, less wealth, living in disadvantaged neighborhoods, and others. “Lower class” is a socioeconomic status, contrasting with “middle class” and “upper class.”

We also underestimate harm by considering disadvantage only for individual children. When disadvantaged children are concentrated in classrooms and schools, their difficulties are exacerbated. Children in racially isolated and predominantly low-income schools have few peers who legitimize higher achievement standards. Their teachers must focus more on remediation and discipline, without time to devote to children whose problems they could address only if those needing special attention were few.

Because characteristics of lower-class status overlap and may well be interdependent, available data do not permit the isolation of any one. Econometric studies that identify the effect of a particular characteristic by holding others constant are valuable. But no study controls for all, and few control for very many. Correlations between specific socioeconomic barriers and child outcomes may, in many cases, seem small. But while we cannot estimate the precise contribution of each disadvantage to achievement gaps, influences not attributable to schools are so numerous that policy should consider how to address them.

No influence is fully determinative. Some children with less literate parents excel beyond the typical performance of college graduates' children. Each adverse socioeconomic influence has a wide range of outcomes but, on average, exposed children will perform less adequately.

For the characteristics reviewed below, where recent research provides reliable information, we discuss:

- average race and social class differences in incidence^b
- prediction of cognitive outcomes
- prediction of non-cognitive outcomes
- the plausible pathways by which these associations may reflect causation.^c

We conclude by reviewing practical reforms to narrow differences in these characteristics that would, in turn, likely help narrow outcome gaps. Ultimately, to make substantial progress in narrowing gaps, school improvement should be complemented by and coordinated with amelioration of socioeconomic disadvantages.

Parenting practices that impede children's intellectual and behavioral development

How parents shape home environments affects children's outcomes.³

b. This report does not discuss Hispanics because data are insufficiently disaggregated to shed light on the socioeconomic disadvantages that many experience. Available data are too confounded by national differences (e.g., Cuban versus Mexican) and generational differences (recent immigrants versus assimilated third-generation and beyond). Typically, reported disadvantages of average Hispanics fall, in severity, somewhere between those for non-Hispanic whites and non-Hispanic African Americans. The socioeconomic disadvantages of recent-immigrant low-wage Hispanic workers' families are probably more similar to those of African Americans. Data limitations also preclude discussion of Native Americans and other disadvantaged minorities. Recent immigration of Africans now also poses a challenge to researchers analyzing data for a category that blends together such immigrants with descendants of American slaves, the group to which the terms "African American," "black," or, previously, "Negro" or "colored" have previously applied. However, the relative share of immigrants in the African American population is still not large enough to preclude the usefulness of the category."

c. Most research reported here is correlational, exposing association between factors but not proving that one factor causes another. Correlations can suggest theories of causation for which plausible pathways may be explored.

TABLE 1

Home intellectual environment, households with children 5 years of age and younger, 2013

Adult (parent) activity the day prior to survey	Ratio of white adult minutes to black adult minutes in the activity
Read books to child(ren)	1.36
Played with child(ren), not sports	3.20
Did arts and crafts with child(ren)	*
Talked with/listened to child(ren)	3.25

* Ratio is not calculable because there were reported minutes for white adults but not for black adults.

Source: BLS (n.d.)^[6]

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Race and social class differences

The Department of Education's Early Childhood Longitudinal Study, Kindergarten Class of 2010-2011 (ECLS-K: 2011) asked a nationally representative sample of entering kindergartners' parents about the number of books in their homes, a measure considered a reliable indicator of home intellectual environment.⁴ On average, white parents reported 112 books, black parents 44.⁵

ECLS-K: 2011 also surveyed parents about literacy activities—reading aloud, telling stories, doing art—conducted with their entering kindergartners. White parents consistently reported greater frequency than black parents. However, survey questions were poorly framed, encouraging social acceptability bias (the tendency of interview subjects to exaggerate their responses in accordance with what they understand is considered desirable). A more reliable measure than the ECLS-K on this score is the Bureau of Labor Statistics' American Time Use Survey (ATUS), which also asks adults about educationally supportive activities.^d **Table 1** compares white to black adult reports.

White adults spend 36 percent more time than black adults reading to young children, and three times more time talking with and listening to them. Other analyses find that black mothers are about two-thirds as likely as white mothers to read to toddlers daily.⁷

ECLS-K reports responses by socioeconomic status (SES), using an SES definition including parents' income, education, and occupational prestige. Such definitions are useful but limited, missing other important social class characteristics. For example, in 2010, the ratio of black to white median family income was 56 percent, while the ratio of black to white median family wealth was 5 percent, owing largely to 20th century housing policy that barred African Americans from purchasing suburban homes that later appreciated in value, a primary source of wealth for households.⁸

d. ECLS asks about typical activities; ATUS asks specifically about time spent the previous day, generating more accurate responses. ECLS's query about books at home, however, is more concrete and likely reliable.

TABLE 2

Books at home, entering kindergartners, fall 2010, by race and socioeconomic status

Number of books at home reported by parents

	Low SES (quintile 1)	Low-middle SES (quintile 2)	Middle SES (quintile 3)	High-middle SES (quintile 4)	High SES (quintile 5)	Average
<i>All</i>	38	63	83	111	135	86
<i>White</i>	71	84	98	124	145	112
<i>Black</i>	34	38	50	54	69	44
<i>Ratio, white to black</i>	2.1	2.2	2.0	2.3	2.1	2.5

Source: NCES (n.d.)^[10]

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The ECLS-K definition of SES also fails to capture other important social class characteristics that are important for understanding differences in child outcomes—characteristics such as single parenthood, the overall economic circumstances of one’s neighborhood, or other factors. Patrick Sharkey, for example, has shown that the quality of the neighborhood where a child’s mother was raised has a bigger influence on the child’s achievement than the quality of neighborhood where the child was raised.⁹ Overlooking differences like these leads to reports that black children underperform seemingly similar white children who are actually more advantaged. Thus, we must report data using such definitions with great caution. Mindful of this qualification, **Table 2** describes parent reports of books at home by SES quintile.

For each quintile, parents report more books than the next lower quintile, and whites report twice as many books as blacks.

ATUS finds that middle- and upper-class adults (those in the top three weekly earnings quintiles) report 66 percent more time reading books to young children than lower-class adults (those in the bottom two quintiles). Other research finds that parents on public assistance, unemployed, or with less than a high school education typically provide less cognitive stimulation to children.¹¹ When reading aloud, lower-class parents provide less guidance and are less strategic in building on children’s prior knowledge to expand it.¹²

By age 6, white children have typically spent 1,300 more hours engaged in conversations with adults than black children. Six-year-olds from affluent families have spent 1,300 more hours in indoor and outdoor recreation, churches, businesses, and other non-school, non-home, and non-caretaker settings than children from low-income families. Differences are greater still (1,800 hours) between children of parents with less than a high school education and children of college graduates.¹³ This gives children of high-income and highly educated families more background knowledge, the most important predictor of later academic achievement.¹⁴

How parents shape children’s choice-making, self-direction, and stances toward authority varies by social class. Middle-class parents typically give fewer direct orders, instead providing controlled choices. Lower-class parents expect more

deference to authority. Lower-class children typically have more unstructured leisure time where they need not follow adult rules, while middle-class children typically have more structured schedules.¹⁵

Middle-class children who are used to operating in controlled environments, similar to classrooms, may be more likely to thrive in school compared with children who are used to unstructured time on the one hand and disciplinary action on the other.

Association with cognitive outcomes

Math and reading skills of entering kindergartners in the top and bottom SES quintiles differ by about 40 percentile points in normal distributions.¹⁶ Cognitive gaps do not change much from kindergarten to middle school. This does not mean that schools are ineffective with lower SES children; rather, lower SES gains resemble those of higher quintiles, and initial gaps are left mostly unchanged.¹⁷

Low-income parents of children in Head Start who spend more time reading to their children, visit the library more often, keep more children's books in the home, and begin reading to their children at an earlier age have children with higher literacy skills. These children are more ready to read when they reach school age, have better vocabularies, are better able to identify words and letters, and know more story and print concepts—the title of a book, the author, reading from left to right, understanding characters' feelings.¹⁸ Toddlers of low-income mothers who read to them daily have better vocabulary and comprehension at 24 months.¹⁹ Five-year-olds have poorer language and math skills if, when they were two years old, their parents were less educationally supportive—engaging in less cognitive stimulation, being less sensitive to children's perspectives, and demonstrating less love, respect, and admiration toward their children—when doing activities like puzzles.²⁰

Parents who teach about expectations for schooling have children with better school performance.²¹

Association with non-cognitive outcomes

Non-cognitive skills of entering kindergartners in the top and bottom SES quintiles differ by about 10 to 23 percentile points in normal behavioral distributions.²² These gaps do not disappear, forecasting adult differences. Children from the lowest quintile have adult arrest rates 15 percentage points higher and high school completion rates 31 points lower than highest-quintile children.²³

Parents who are more involved in their children's educations by volunteering outside the classroom, helping their children with homework, and checking their children's homework have children with fewer behavioral problems in the classroom.²⁴

The availability of children's books and whether mothers read aloud, share meals with their children, use non-harsh discipline, expect their children to help keep their homes clean, are affectionate with their children, and encourage children to contribute to conversation all predict better social skills and fewer teacher-reported behavioral problems.²⁵

Plausible pathways

Parents with more education have greater educational expectations and can convey enjoyment of learning. Children internalize these, leading to higher achievement.²⁶

TABLE 3

Percent of children living with mother alone, by race, 2013

	All	Black	White
Children under 18 living with mother only	24%	51%	18%
Children under 18 living with never-married mother only	11	34	7

Source: Census (2013)^[29]

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Parents with less education have fewer educational interactions with their children at home. Among low-income African American mothers, those who are less educated tend to provide less assistance and be less supportive and encouraging of their children during home-based teachable tasks like puzzle-making.²⁷ Because African American mothers have lower average education levels than white mothers, this finding can likely explain an overall racial difference in these parenting behaviors.

Middle-class children with more choice-making opportunities in daily interactions with parents, as well as with more participation in structured leisure activities (e.g., music lessons, organized sports), may be more comfortable navigating environments similar to classrooms than lower-class children more accustomed to following direct instructions and having more unstructured time.²⁸ This difference may be especially advantageous for middle-class children after elementary school, when making intellectual choices (“critical thinking”) becomes more important in school curricula.

Single parenthood

Children raised by single parents have lower average outcomes than children raised by two parents.

Race and social class differences

The share of children living with a single mother varies by children’s race and social class.

Table 3 shows shares of children, by race, living with single mothers. Some may have lived with mother-alone only briefly (because of divorce, separation, death of spouse, or absence of spouse, for example), so also shown are shares of children living with never-married mothers.

Although black children are more likely to be living with the mother alone than white children, the share of both white and black children in single-parent homes has grown, partly because falling real wages have made it more challenging for women to find marriage partners who earn sufficient incomes to support families.³⁰ The greater rates of unemployment and incarceration and the lower wages for young black than for young white men help explain racial differences in single parenthood. Table 3 shows that black children have never-married mothers at nearly five times the rate of white children. Although about one in four children lived with a mother alone in 2013, twice as many had lived with a mother alone at some time during childhood.³¹

TABLE 4

Percent of children living in various family structures, by parent's education, 2013

Children under 18	Parent's education			
	Less than H.S. graduate	H.S. graduate only	Some college or associate degree	Bachelor's degree or more
All*+	10%	22%	29%	39%
Living with both parents+	7	18	26	48
Living with mother only	18	30	37	16
Living with never-married mother only	22	35	34	9

* Does not include children in households where no parent lives.

+ Shows attainment of more highly educated parent.

Source: Census (2013)^[32]

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Table 4 shows average parental education by family structure.

A child whose parent has only a high school education is twice as likely to be living with a never-married mother than with two parents (35 versus 18 percent), whereas a child with a college-educated parent is more than five times as likely to be living with two parents than with a never-married mother (48 versus 9 percent).

Table 5 compares the economic circumstances of various family structures.

Children living with never-married mothers are four times as likely to be in low-income families as children living with both parents. The poverty rate (not shown in the table) for children living with a never-married mother only is 53 percent, with a mother only 45 percent, and with both parents 13 percent. A child living with a never-married mother alone is therefore four times as likely to be in poverty as a child living with both parents.³⁴

In 2003, average single-mother household income was 37 percent of married household (with children) income; even after public assistance of various kinds was included, the ratio was still only 55 percent. The disparities are likely greater now, after the weak recovery for lower-income families from the recession, than they were in 2003. Another estimate found that in the year following a divorce, a single-mother household suffers a 40 percent income loss, with little change in subsequent years. And single-parent households have, on average, substantially less wealth than two-parent households.³⁵

In 1999, 10 percent of all births were births to unmarried teenagers, many of whom then had additional children as unmarried adults. These children are still of school age today, the oldest in high school, with their siblings in the lower grades. By 2014, the share of births that were births to unmarried teenagers had dropped to 6 percent, and it is reasonable to assume that these teenagers too will have some subsequent children as unmarried adults. These children will be

TABLE 5

Percent of children living in various family structures, by family income, 2013

Children under 18	Family income*				
	Lower (below \$30,000)	Lower-middle (from \$30,000 to \$50,000)	Middle (from \$50,000 to \$75,000)	Upper-middle (from \$75,000 to \$100,000)	Upper (over \$100,000)
All**	27%	17%	17%	13%	27%
Living with both parents	16	15	18	16	36
Living with mother only	57	21	12	5	5
Living with never-married mother only	65	19	9	4	4

* Census does not report data corresponding to actual income quintiles. In 2013, the actual upper limits of the bottom four income quintiles were approximately \$28,600, \$51,400, \$79,300, and \$121,700.

** Does not include children in households where no parent lives.

Source: Census (2013)^[33]

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of school age in the years to come. Although fewer teens of all social classes now become mothers, those who do are more likely to be school dropouts, and their children are more likely to suffer from abuse and neglect.³⁶

Association with cognitive outcomes

Children of single parents, especially teenage single parents, are less likely to graduate from high school or college.³⁷ Thirty percent of adolescents in single-parent households repeat a grade, compared with 19 percent of other children.³⁸ Children of single parents have lower test scores.³⁹

Association with non-cognitive outcomes

Children of single parents also have worse behavioral outcomes.⁴⁰ Table 6 summarizes results from a nationally representative 1995 survey.

On each measure, adolescents in single-parent households reported greater emotional and behavioral difficulty, including higher rates of delinquency and illicit drug use. Girls raised in single-parent households are more likely to give birth themselves as single mothers.⁴²

If a teenage mother has a high school diploma, the average annual incomes of her children when they reach young adulthood will be more than 10 percent greater, on average, than those of children of a teenage mother without a diploma. For teenagers, delaying a first birth improves their children's circumstances as adults in terms of annual incomes, likelihood of depression, and chances of single parenthood.⁴³

Table 7 shows outcome differences at five life stages for children of never-married, divorced, and married parents.

TABLE 6

Adolescent reports of problem behavior, by family type, 1995

	Adolescents living in households with:	
	One parent	Two parents
<i>Suspended from school</i>	40%	21%
<i>Delinquency</i>	45	36
<i>Violence</i>	44	36
<i>Smoking</i>	23	13
<i>Suicide thoughts</i>	15	11
<i>Suicide attempts</i>	3	2

Source: Amato (2005),^[41] Table 1 (p. 86)

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TABLE 7

Outcomes at five life stages for children of never-married, divorced, and married parents (percent successful)

	Early childhood	Middle childhood	Adolescence	Young adulthood	Adulthood
Children of parents who are:					
<i>Never-married</i>	38%	38%	28%	31%	27%
<i>Divorced</i>	51	54	42	51	49
<i>Married</i>	66	71	67	69	66

Source: Grannis and Sawhill (2013);^[44] Howard and Reeves (2014)^[45]

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At each stage, children of never-married parents have worse outcomes than children whose parents were married during some of their childhoods and those whose parents were married throughout their childhoods.

Plausible pathways

Single parents are less able to provide resources for children—high-quality child care, books, computers, and consumer goods (such as cell phones, shoes, and clothes) that give children status with peers—and less able to offer structure, conversation, and time.⁴⁶ The importance of lower income in explaining the adverse effects of single parenthood is suggested by data showing that children of single mothers do better when fathers pay child support than when fathers do not—although fathers who pay child support may also be involved with their children in other ways, also contributing to better outcomes.⁴⁷

Single parents' time is also scarcer. Teenagers, especially boys, in single-parent households are more likely to be unsupervised after school.⁴⁸

Single mothers are also more likely to smoke cigarettes and use illicit drugs during pregnancy, receive inadequate prenatal care, and have low-birthweight babies, a well-established predictor of poor cognitive and behavioral outcomes.⁴⁹ A national survey, the Fragile Families and Child Wellbeing Study (FFCWS) of the late 1990s, found nearly 8 percent of unwed mothers drinking heavily, four times the married mothers' rate.⁵⁰

Single parents' lower incomes also entail greater likelihood of living in poor neighborhoods with more disorder and crime that cause children stress.⁵¹ Single parents themselves are more stressed.⁵² Mothers with greater stress are less emotionally supportive of children and employ less consistent and harsher discipline. Single mothers are more depressed and more likely to abuse children, causing worse outcomes for children themselves.⁵³

Frequent home moves also cause childhood stress, from loss of friends and from instructional discontinuity. Single-parent families move more, partly because mothers may form new relationships that entail moving in with new partners.⁵⁴ The adverse consequences of moving are especially severe for boys because moving often results in reduced (or loss of) contact with fathers.⁵⁵

Family instability also predicts poor outcomes for children who may not form healthy child-parent relationships with their mothers' subsequent partners. During the five years of the FFCWS, one-quarter of unmarried mothers lived with a new partner, and one-fifth had a child with a new partner. Half of children's biological fathers saw their children less than once a month, making effective parenting much less likely.⁵⁶

The FFCWS also found that children in single-parent families are in consistently worse health—more asthma, obesity, accidents, or injuries—likely contributing to greater school absenteeism, which leads to lower academic performance.⁵⁷

Parent's work schedules

Employers in the retail and service sectors now have computer technology that predicts customer and supplier traffic levels.⁵⁸ This technology, in combination with a weakening of the implicit contract governing relationship norms between employers and employees, has encouraged supervisors to create “just in time” work schedules, in which workers can be called to work or sent home on short notice, based on predictions of customer demand or supply delivery times.⁵⁹ If a delivery truck's arrival time is expedited or delayed, workers may be called in on short notice to unload it, without regard to these workers' previously established schedules. Or if customer traffic patterns at 4 p.m. have previously predicted retail or restaurant patterns at 6 p.m., employers have the ability on short notice to send employees home, call them in, or hold them beyond the end of their scheduled shifts, without regard to previously posted schedules.

Race and social class differences

Table 8 shows racial differences in non-standard work, i.e., work in which most hours do not fall between 8 a.m. and 4 p.m., shifts rotate, or schedules vary weekly or otherwise. The table describes workers at age 39, a typical childrearing year. White parents are only two-thirds as likely to be assigned non-daytime shifts as minority parents.

TABLE 8

Percentage of workers (age 39) who work non-standard schedules, by race

	Black	Non-black*
<i>Working variable, non-daytime, or other non-standard schedule</i>	24%	20%
<i>Working non-daytime schedule</i>	17	11

* Mostly non-Hispanic whites, but also includes Asians, and others

Source: Presser and Ward (2011),^[60] Chart 3.

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TABLE 9

Share of workers (age 39) who work non-standard schedules, by educational attainment (percent of attainment group)

	Less than H.S.	H.S.	Some college	College or more
<i>Working variable, non-daytime, or other non-standard schedule</i>	23%	24%	18%	19%
<i>Working non-daytime schedule</i>	17	15	10	5

Source: Presser and Ward (2011),^[61] charts 4, 5

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Table 9 shows that less-educated workers are more likely to have non-standard schedules. College-educated parents have non-daytime shifts one-third as often as parents with high school degrees or less.

Mothers with non-standard schedules are more likely to be low-income and younger and to have spent more years as single parents.⁶² But not all parents with non-standard schedules are low-income: Some work non-standard schedules by choice—for example, to ensure that one of two parents is always available to care for children. Such families tend to be more affluent, older, and married, and tend to include mothers who are better educated, than families where parents (and especially single mothers) work nights or evenings.⁶³ Lower-income parents who work such shifts may be required to do so by their employers, or these parents may find it necessary to assemble multiple part-time jobs to earn full-time incomes.

Table 10 shows shares of hourly paid workers, particularly working parents, who receive little advance notice of weekly hours, making earnings unpredictable. Of hourly workers, about half of African Americans, half of low-wage workers, and one-third of mothers with pre-teen children get one week or less notice of weekly schedules. Most have substantial fluctuation in weekly hours. Sixty-nine percent of hourly paid mothers of pre-teens report weekly fluctuations in work hours.

TABLE 10

Advance notice given to hourly employees, childrearing years (age 26–32)

Notice of schedule (percent receiving notice of):

	≤ 1 week	≤ 2 weeks	≤ 4 weeks	Share of hourly workers whose weekly hours vary (percent)
<i>All hourly employees</i>	41%	55%	61%	74%
<i>Women</i>	34	48	57	70
<i>White</i>	39	51	58	74
<i>Black</i>	49	65	69	73
<i>Mothers of children < 13 years of age</i>	32	44	51	69
<i>Women in part-time jobs</i>	41	58	68	81
<i>Low-wage (<\$15/hr) part-time workers</i>	49	67	76	83
<i>Janitors and housekeepers</i>	40	54	60	66
<i>Food service workers</i>	64	81	84	90
<i>Retail workers</i>	50	78	89	87
<i>Home care workers</i>	55	65	67	71

Source: Lambert, Fugiel, and Henly (2014), tables 3, 5, 12, 13;^[64] Fugiel (2015)^[65]

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Association with cognitive outcomes

Children whose parents work non-standard schedules demonstrate poorer cognitive performance. Comparing 15-month-olds of otherwise observably similar mothers (similar in age, cognitive capacity, educational level, marital status, family size, level of depression, and both recent and long-term poverty status), the toddlers whose mothers have non-standard work demonstrate worse perception, memory, learning, problem solving, and verbal communication.⁶⁶ At 36 months, they have worse verbal comprehension and have a harder time naming objects.⁶⁷ Patterns established this early in life are difficult to reverse, and have a strong influence on adolescent and adult outcomes.

Association with non-cognitive outcomes

Children and adolescents whose parents work non-standard schedules have worse mental health and behavior. Preschoolers whose mothers work non-standard schedules lose from 10 to 12 percentile points in a normal distribution of preschoolers' negative behavior (e.g., depression, anxiety, withdrawal, aggression).⁶⁸

Each additional nighttime hour that low-income African American mothers work is associated with a decrease in their preschoolers' positive behavior (e.g., being "playful"); the preschoolers of mothers working full eight-hour night shifts lose 15 percentile points in a normal behavioral distribution.⁶⁹

Teachers of schoolchildren whose parents work variable schedules rate these children as less engaged, more aggressive, and impulsive.⁷⁰

Children age 13 and 14 whose mothers and/or fathers work night shifts are more likely to engage in risky behavior (e.g., smoking, consuming alcohol, delinquency, sex), and are more likely to be depressed. The negative outcomes were apparently set in motion when parents had worked non-standard schedules earlier in these adolescents' lives. The number of years fathers work nights before children's fifth birthdays predicts increased sexual activity for the children when they reach adolescence. The 13- and 14-year-olds are more likely to drink alcohol if, when they were between 5 and 10 years old, their mothers worked night shifts.⁷¹

Children and adolescents whose parents work non-standard hours have more physical health problems that, in turn, are associated with poorer academic outcomes.

Children with parents who work non-standard hours are heavier than those whose parents work regular schedules. Lower-middle-class children (those whose families are in the second income quartile) whose mothers have worked non-standard shifts for from one to four years have close to twice the odds of being overweight at age 13 or 14 as children from economically similar families whose mothers do not work non-standard shifts.⁷²

Plausible pathways

It is plausible that parents' non-standard working hours, independent of other characteristics, would inhibit children's cognitive and behavioral outcomes.

Mothers with non-standard schedules must make last-minute child care arrangements with friends or relatives; many cannot enroll children in high-quality centers that require predictable drop-off and pick-up times. Many states scale child care subsidies to the number of hours parents work, so parents working irregular and variable schedules are at heightened risk of losing eligibility for subsidies and, when they do, can no longer afford to place their children in formal centers.⁷³

Parents with non-standard schedules find it more difficult to spend time with children and engage in cognitively stimulating activities with them.⁷⁴ For example, for low-income African American mothers of preschool children, each additional nighttime hour of work is associated with a decrease in cognitively stimulating mother-child activities of about 1.5 percentile points in a normal distribution of mothers' engagement in such activities. Thus, mothers who work a full eight-hour night shift decrease their engagement in cognitively stimulating mother-child activities by about 21 percentile points in such a distribution.⁷⁵ Parents who work non-standard schedules are less able to spend time with their children, take care of their homes, have meals with their children, and, particularly in the case of fathers, be close to their children. Parents working nights can't supervise children's critical after-school time.⁷⁶ Parents with non-standard hours are more tired, anxious, irritable, and stressed, making children's delinquency, aggression, and other negative behavior more likely.⁷⁷

Parents' variable schedules require irregular family mealtimes and bedtimes for children that interfere with their healthy development.⁷⁸

Because parents, especially single parents, with variable schedules cannot easily schedule doctor appointments, their children likely receive less non-emergency, routine, and preventive care.⁷⁹ They may then have marginally worse health and more school absenteeism, also harming their development.

Parents with variable part-time schedules cannot easily secure second jobs to support their children's welfare. Variable schedules prevent parents from enrolling in school themselves, an activity that might enable them to provide better intellectual environments and models of educational aspiration for their children.⁸⁰

In general, the harmful effects of working non-standard schedules seem to be more pronounced for children of parents who work night shifts (starting after 9 p.m.) than for children of parents who work other non-standard schedules (evening shifts beginning after 2 p.m., rotating or variable shifts). At first glance this empirical result seems to be counterintuitive, because supervision of adolescents is most necessary in the after-school and evening hours. There are two plausible explanations for the excess harm attributable to night shifts. One is that night work has more of an effect on parents' moods, making them more anxious and irritable than parents who work evening shifts, and this reduces the quality of parent-child time, even when a parent is present. The other seems to be that data showing a greater harmful effect from night than from evening or rotating shift work results from the experience of two-parent families where parents organize their schedules so that when one is working, the other is available to supervise children. This option is more available to parents who are married, are older, have higher maternal education, and have higher family income. It is in single-mother families that shift work is most strongly associated with delinquent behavior.⁸¹

Access to physicians

Health differences exacerbate social class outcome gaps. Differences in access to primary care physicians are a factor.⁸²

Race and social class differences

Table 11 describes differences by race, maternal education, neighborhood safety, and family income in whether children have personal physicians or nurse practitioners, and whether children can easily get necessary referrals to specialists.

Although public programs such as Medicaid and the Children's Health Insurance Program (CHIP) have now extended coverage to most low-income children, they have not fully equalized access to primary and preventive care. Restricted access impedes timely treatment of conditions like skin allergies, asthma, and dental problems, more prevalent (partly from less access) for black than white children.⁸⁴ For each race or social class category surveyed, disadvantaged children have less access to quality health care. For each comparison, differences in having personal physicians or nurses are small, but the differences are so consistent across all comparisons that real problems seem evident.

A 2006 survey found that in higher-income communities there were fewer than 1,000 children per physician, and 86 percent of doctors were board certified. But in more middle-class neighborhoods there were over 3,000 children per physician, and only 76 percent were board certified.⁸⁵ Physician supply in low-income neighborhoods was likely even more restricted.⁸⁶

TABLE 11

Access to physicians, children under age 18 (2007)

	Have a personal physician or nurse	Can, without difficulty, get referral to specialists when needed
<i>White</i>	95%	85%
<i>Black</i>	89%	78%
<i>Difference</i>	6 ppt.	7 ppt.
Family perception of neighborhood		
<i>Safe</i>	93%	84%
<i>Unsafe</i>	88%	70%
<i>Difference</i>	5 ppt.	15 ppt.
Mother's education		
<i>More than high school</i>	95%	84%
<i>High school</i>	90%	81%
<i>Less than high school</i>	84%	73%
<i>Difference (more than h.s. – less than h.s.)</i>	11 ppt.	11% ppt.
Household income (relative to federal poverty line)		
<i>= or > 400%</i>	97%	88%
<i>200% – 399%</i>	94%	83%
<i>100% – 199%</i>	89%	79%
<i>< 100%</i>	85%	72%
<i>Difference (= or > 400% – < 100%)</i>	12 ppt.	16 ppt.

Source: Strickland et al. (2011),^[83] Table 2

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Parents seeking appointments with specialists for their children are refused two-thirds of the time with public insurance but only 11 percent of the time with private insurance.⁸⁷

Plausible pathways

Available data do not directly associate physician access with children's educational outcomes. But it seems apparent that children with limited access are more likely to be sick and absent from school. A 2011 survey of public preschools in Chicago found that African American 4-year-olds missed 7 percent of school days from illness, while whites missed 3 percent. Although the white and black children came from economically similar families, the black children came from poorer neighborhoods.⁸⁸

Differences in treatable illnesses may contribute to differences in performance even when children are present in school. For example, asthmatic children who do not have inhalers are more likely to be awake at night, and come to school more drowsy and inattentive.

Lead absorption

Public health authorities measure children's lead absorption by micrograms of lead per blood deciliter. In 2000, approximately 4 percent of children tested for lead had very dangerous levels of 10 micrograms or higher, but by 2013 less than 1 percent had levels that high.⁸⁹

Previously, a major source was exhaust from automobiles, aircraft fumes, and industrial emissions.⁹⁰ In 1973, the Clean Air Act required phase-out of leaded gasoline. By 1990 lead was almost entirely eliminated from gasoline, and industrial and aircraft emissions continued to decline, although at a slower rate than in the 1975-1990 period. By 2010, lead-in-air levels had declined to only 3 percent of their 1980 level.⁹¹ Average blood levels dropped from 16 micrograms per deciliter in 1976 to 3 in 1991. About half of the decline in lead-in-blood levels in this period was probably attributable to banning leaded gasoline. Removal of solder from food cans also likely contributed.⁹²

But lead once used in gasoline remains on the ground and is kicked into the air when ground dirt is disturbed. Food grown in contaminated soil continues to carry lead. However, the most important remaining source of lead today is lead-based paints in homes built before 1978, particularly those built before 1950, and lead pipes that carry drinking water from municipal water supplies.⁹³

In recent decades, the lead-in-blood level considered dangerous was reduced from an earlier standard of 10 micrograms per deciliter, and in 2003 the Centers for Disease Control and Prevention (CDC) determined that there is no safe blood lead level—any exposure is harmful.⁹⁴ The danger is greatest for children younger than seven, and effects of this early exposure persist throughout life.⁹⁵ Of the many social, economic, and environmental conditions that influence youth performance, the relationship between lead and negative outcomes is one of the most firmly established, partly because so many studies have consistent findings, and partly because the rates at which states required the elimination of leaded gasoline differed from 1975 to 1985, creating a natural experiment that reasonably well isolated the role of lead in causing cognitive and behavioral changes.⁹⁶

Race and social class differences

Blacks remain about twice as likely as whites to have levels greater than a dangerous 5 micrograms of lead per blood deciliter.⁹⁷ Most American children have levels of 1 or 2, but about half a million, mostly living in urban neighborhoods, have levels above 5.⁹⁸

Table 12 reports results of a CDC survey measuring lead-in-blood levels of children from 1 to 5 years of age.

For children born several decades ago (not shown in the table), lead most likely had a relatively more powerful role in depressing the outcomes of white children and of those whose parents were more educated and affluent than of black children and of those whose parents were less educated and affluent. When lead in gasoline was a chief source of exposure, white and black and upper- and lower-class children were all exposed, but because black and socioeconomically disadvantaged children had so many other adverse influences causing poorer outcomes, lead probably had a larger

TABLE 12

Percent of children age 1–5 with lead-in-blood levels ≥ 5 micrograms per deciliter, 1999–2002
and 2007–2010

	1999–2002	2007–2010
Race		
<i>Black</i>	19%	6%
<i>White</i>	7	2
Family income (relative to poverty line)		
< 1.3	13%	4%
≥ 1.3	5	1
Age of housing		
<i>Pre-1950</i>	18%	5%
<i>1950–1977</i>	5	1
<i>1978 or later</i>	2	0
Medicaid enrollment		
<i>Yes</i>	15%	4%
<i>No</i>	6	2

Source: Wheeler and Brown (2013)^[99]

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influence on the cognitive and behavioral outcome variation among white and advantaged children than among black and disadvantaged children. Nonetheless, black and disadvantaged children suffered greater harm from lead because these children lived in more urban and more congested areas, where air was more polluted from lead emissions, where the ground upon which these emissions settled was more contaminated, and where poorly maintained apartments had walls and windows coated with lead-based paint. Children who are black, from very low-income families, living in older housing, or enrolled in Medicaid are more than twice as likely to have dangerous blood lead levels as children who are white, from families with higher incomes, who live in housing constructed more recently, and who are not enrolled in Medicaid. During the 2000s, the black-white and Medicaid non-enrolled versus enrolled gaps declined very slightly, while the income gap and the gap between children living in older versus newer housing grew substantially.

Today, when remains of lead pollution from gasoline, along with lead paint in poorly maintained residences, are the chief sources of lead, disadvantaged children in older and congested urban areas are most affected. So too are children living near Superfund toxic waste sites that have not fully been cleaned; these were disproportionately located in low-income and minority communities.¹⁰⁰

Association with cognitive outcomes

Even very low levels of lead contribute to cognitive impairment, including reductions in IQ and verbal and reading ability, with no identifiable safe bottom threshold.¹⁰¹ In particular, increases in blood lead levels at the lower end of the blood-lead-level scale (less than 10 micrograms per deciliter) are associated with the strongest decreases in IQ, while quantitatively similar increases at the higher end of the blood-lead-level scale have a definite but less severe marginal impact.¹⁰²

Children with blood lead levels from 5 to 9 have average IQ scores 4.9 points lower than children with levels below 5. They consequently have lower average verbal and reading ability.¹⁰³ Children with higher blood lead levels not only have lower standardized reading, math, and science test scores, but greater special education placement.¹⁰⁴

Every lead-in-blood increase of 1 microgram per deciliter is associated with a loss of about three-quarters of an IQ point up to about 10 micrograms, and a loss of one-quarter of a point for every microgram above 10.¹⁰⁵ Using this estimate, it appears that the decrease of lead-in-blood from 16 to 3 micrograms per deciliter from 1976 to 1991, noted above, might have been responsible for an average IQ increase for American children of as much as six points.

Association with non-cognitive outcomes

Lead exposure affects young children's behavior and the harm persists, in the form of teenagers' greater propensity to engage in risky behavior and young adults' greater violent or criminal activity.¹⁰⁶ Children with blood lead levels above 10 are about three times as likely to be antisocial or hyperactive as are children with lower levels.¹⁰⁷

Environmental lead levels experienced by each child cohort for the last 75 years are closely correlated with rates of undesirable behavior for the same cohort when it reached adolescence and young adulthood. In 1941 there were about 0.3 tons of lead in gasoline for every 1,000 Americans; 17 years later there were about 10 pregnancies per 1,000 teenagers (ages 15-17) and 23 years later, about two violent crimes reported per 1,000 Americans. Subsequently, combustion engine traffic grew rapidly. Environmental lead peaked in about 1970 at 1.4 tons. Twenty years later, pregnancies among 15- to 17-year-olds peaked at nearly 60 per 1,000 teenagers and, shortly afterward, violent crimes peaked at about 7.5 per 1,000 Americans. After 1970, environmental lead steadily plummeted. Beginning with the 1986 child cohort, teen pregnancy and young adult violent crime declined rapidly; by 2009, teen pregnancy was less than 30 per 1,000 teenagers (less than half its earlier peak), and violent crimes were only 4.5 per 1,000 Americans (about 60 percent of its earlier peak). Similar correlations exist for murder (the most accurately reported crime) and in other countries.¹⁰⁸

The natural experimental condition that arose from the different rates at which states required lead removal from gasoline reveals correlations, in otherwise observably similar young children and teenagers, between state blood lead levels and lagged non-cognitive outcomes including impulsiveness, inattention and hyperactivity disorder, defiant behavior, delinquency, bullying, lack of temper control, cruelty, drug and alcohol abuse, early sexual activity, and teen pregnancy.¹⁰⁹ Childhood lead exposure also appears to be closely linked to young adult criminal behavior. Crime rates fell more rapidly in states where leaded gasoline was banned more quickly.¹¹⁰

In fact, higher lead exposure in early childhood has an even greater relationship to the non-cognitive outcomes of teenagers than to those of younger children. Increasing children's lead-in-blood levels by 10 percent predicts a 1 per-

cent increase in child behavior problems but a 4 percent increase in teenage aggressive behavior, a 5 percent increase in teenage criminal behavior, and an 8 percent increase in teenage pregnancy.

As with cognitive (IQ) results, the halving of average lead-in-blood levels during the period when lead was being removed from gasoline was associated with an overall decrease of about 5 percent in the number of children with reported behavior problems nationwide.¹¹¹ Higher blood lead levels of black children may partly explain findings that they have more behavior problems, on average, than otherwise observably similar whites.¹¹²

The halving of blood lead levels during that period was also associated with a 24 percentage-point decline in the likelihood of teen pregnancy. The decline in teen pregnancy in recent years has not been fully explained by researchers; lower lead-in-blood levels may provide part of the explanation.¹¹³

Plausible pathways

Young bodies treat lead as though it were calcium, essential to healthy brain development. If children's diets are too low in calcium, substitution of lead becomes more likely. When brains absorb lead instead of calcium, connections essential to executive functions, like control of aggression, develop less adequately.¹¹⁴ Low-income children's diets are lower in calcium than higher-income children's; among low-income children, black children's diets are lower in calcium than white children's, making black children more likely to absorb lead.¹¹⁵

Recommendations

This report has reviewed only a few of many social and economic characteristics that influence youth outcomes. Housing instability, the concentration of poverty in segregated neighborhoods, stress, poor nutrition, and asthma are among additional characteristics with strong influence.

Because these characteristics co-vary, we cannot know whether addressing any one will be effective without simultaneously addressing others. Yet because research upon which this report relies usually includes controls for some other characteristics, addressing any of these issues will likely make some difference.

Certainly, educators should not wait until socioeconomic inequalities are eliminated before attempting to improve schools, a conclusion some critics use to caricature the implications of reports like this. Rather, policymakers should simultaneously improve schools and narrow inequalities. From the patterns described in this report, it seems advisable for responsible policymakers to consider whether narrowing inequalities could spur larger youth outcome gains than school improvements requiring comparable spending and effort.

What follows is a brief summary of policies that, by addressing disadvantages reviewed in this report, might plausibly improve cognitive and non-cognitive child and youth outcomes.

To improve (and complement) parenting:

- Expand Head Start to enable all low-income parents to enroll children at age 3, and expand half-day Head Start to full day (less than half of all Head Start centers are full day).¹¹⁶ Head Start includes not only age-appropriate care and instruction for children but also guidance for parents in effective childrearing. Although early test score gains are not sustained (a characteristic shared by all carefully studied early childhood programs), long-term non-cogni-

tive effects are strong. Head Start participants have greater educational attainment, better long-term health, and less teen parenthood and criminal activity.¹¹⁷ There are large reported differences in the quality of Head Start programs. Expanding Head Start should improve average outcomes. Improving quality should improve them more.

- Some higher quality (and more expensive) public and private preschool programs may provide models. Evaluations of the Perry Preschool program, the Abecedarian Project, and the Chicago Child Parent Centers find long-term benefits.¹¹⁸ Careful replication, with ongoing evaluation, is warranted.

But preschool programs enrolling 3- and 4-year-olds begin too late to make the most significant impact on parenting practices.

- The Nurse-Family Partnership (NFP) is a proven program in which registered nurses make regular home visits to disadvantaged mothers during pregnancy and for two years after delivery, helping coordinate physician visits and devising behavioral-change strategies to reduce cigarette, alcohol, and illegal drug use. After childbirth, nurses work with mothers to improve parenting practices, helping them understand infants' and toddlers' communicative signals and encouraging activities that promote emotional and cognitive development.

NFP leads to improved prenatal health, fewer subsequent pregnancies, increased maternal employment, greater intervals between births for mothers, fewer childhood injuries, and improved school readiness. A randomized trial found that by age 15 children whose mothers participated in an NFP program had a 48 percent reduction in abuse and neglect and a 59 percent reduction in arrests.¹¹⁹

The Affordable Care Act includes funding for visiting nurse programs, but they serve few families needing this support. Careful expansion is warranted.

- For lower-class students, high-quality after-school and summer programs (as distinguished from “extended learning time” that primarily offers remedial classes or homework help and tutoring) offer opportunities for structured choices and organizational experiences that middle-class parents typically provide. These programs help school-children develop critical thinking and cultural experiences that support success.

Students without adult supervision after school are at significantly greater risk for pregnancy, arrest, truancy, stress, poor grades, substance abuse, and other risk-taking behaviors. Students are most likely to become perpetrators or victims of crime in the first few hours after school; the juvenile crime rate triples between the hours of 3:00 and 6:00 p.m. Out-of-school programs help avoid these risks.¹²⁰

To reduce single parenthood and support single parents:

- The employment-to-population ratio of African American men age 20-24 was below 50 percent in early 2014, the lowest rate for any demographic group.¹²¹ We can enhance outcomes for African American children by creating opportunities for their fathers to support them. This requires a national full-employment policy, including public jobs when the private sector is too weak to absorb the unemployed.¹²² Macroeconomic policy is education policy.
- Also necessary is ensuring that available jobs have compensation levels adequate to support families. Inadequate pay in jobs available to African American men living in urban ghettos encourages African American women, when they have children, to do so as single parents. Raising the minimum wage and the Earned Income Tax Credit (EITC) would support marriage for those who presently cannot afford it. These steps should be complemented by eliminat-

ing tax code requirements that married couples claiming the EITC must file jointly (thereby raising their marginal tax rate).¹²³ Wage supplements like the EITC should also be extended to non-custodial fathers, enabling them to make child-support payments that would assist mothers in caring for and nourishing their children.

- Young African American men as a group are less employable because they are discriminatorily incarcerated at very high rates. FFCWS found that 36 percent of unmarried fathers had prison records, five times the share for married fathers.¹²⁴ Reforming drug laws, ending imprisonment of non-violent offenders, and curtailing racial profiling in urban policing can result in fewer young African American men disqualified from employment because they report criminal records. There will also be fewer young African American men corrupted by prison culture and adopting values inconsistent with stable employment and healthy fatherhood.
- Better sex education in schools, improving contraception advice and availability in school-based health clinics, mass media campaigns to encourage men to use condoms, and expansion of Medicaid coverage for long-acting women's contraception can all contribute to reducing unintended teen pregnancy.¹²⁵ But when growing numbers of middle-class women are single mothers by choice, we cannot expect lower-income women to delay childbearing indefinitely when we fail to create conditions for economically viable marriages. When men have the economic resources to become stable partners, it becomes more realistic to encourage teenage girls to postpone pregnancy until marriage.
- With 40 percent of births currently to unwed mothers, even if programs to reduce this rate are effective, single parenthood will continue. Ameliorating single parenthood's negative outcomes requires reforms discussed above: home-visiting programs like the NFP, high-quality early childhood care and education, and high-quality after-school and summer programs for children whose home lives are unstable and resource-starved. The federal tax code's child care subsidy is inadequate and its availability insufficient to enable low-wage single mothers to afford high-quality child care.¹²⁶

To stabilize parents' irregular employment:

- Although employer demands for evening and night work will continue, incentives are plausible to discourage employers from scheduling split or rotating shifts that impede employees' ability to make consistent child care arrangements and provide stable home lives for children. Amendments to the Fair Labor Standards Act should require premiums for work performed beyond eight hours following the first working hour of the day or outside typical daytime hours (e.g., 7 a.m. to 6 p.m.). Workers required to stay beyond their regularly scheduled shifts should be entitled to overtime premiums, even if they have not yet worked 8 hours in the day or 40 hours in the week. In 2014, legislation was introduced in Congress to require employers to post schedules at least two weeks in advance and to provide pay guarantees for workers sent home early because of unanticipated slack.¹²⁷

Presently, just-in-time assignments increase employee absenteeism and turnover.¹²⁸ If curtailing such scheduling practices reduced these, increased labor costs might be offset, to some extent. Worker productivity could grow because of increased worker experience from longevity, or from employer decisions to invest in training, made cost-effective by higher compensation.

To enhance access to primary care physicians:

- For physician-population ratios in low-income neighborhoods to grow, medical schools should expand to graduate more physicians, and incentives should be revised to encourage new physicians to specialize in pediatrics or primary

care. Higher Medicaid reimbursement rates for medical professionals—physicians, nurse practitioners, physician assistants, dentists, dental hygienists, and optometrists—who practice in high-need areas could affect the choices they make.

- Full-service school-based health centers should be expanded, providing full pediatric, dental, and optometric services to schoolchildren and their families. Only 11 states explicitly assure reimbursement to such clinics for Medicaid-eligible children who are enrolled in managed care organizations. Many other states effectively block such clinics, for example with policies requiring prior authorization from the managed care organization (into which Medicaid recipients must be enrolled) for each visit made by a child to a school clinic.¹²⁹ Removal of such obstacles could help ensure adequate health care access for children and their parents in disadvantaged neighborhoods.

Protecting children from lead absorption:

- All children should be screened for lead. A few states require lead screening at school entry, and Medicaid requires it for all enrolled children at 1-2 years of age.¹³⁰ Still, too few are screened. From 2000 to 2010, the number of children tested for lead rose from 10 to 17 percent, but then dropped to 8 percent in 2013.¹³¹
- Prevention should be the priority for reducing children’s lead exposure, but when prevention is too late, remedial steps, while not fully effective, can be taken. Counseling parents to improve children’s nutrition by increasing iron and calcium intake is one, because these minerals in appropriate quantities can help to block the absorption of lead by preventing the body from mistaking lead for these essential nutrients.¹³²
- Lead clean-up should be a priority. Where hazardous levels exist, housing code enforcement, home repair subsidies, even demolition are appropriate to ensure that children live in lead-safe housing.¹³³ These will be expensive and require replacing all lead-painted windows and painting over all deteriorating paint on walls in older residences, removing contaminated soil, and replacing lead water pipes or installing filters on all home water faucets.¹³⁴ Great danger would result if these clean-ups were not done properly, because they can release more lead into the environment than they remove. But savings—in improved cognitive and non-cognitive outcomes, including reductions in special education placements, crime, and teen pregnancy, and improvements in cognitive skills and worker productivity—could exceed the costs.¹³⁵ Because of lead’s disproportionate effect on urban children, and particularly on low-income black children who tend to live in more dense and polluted neighborhoods, lead-safe housing should narrow the cognitive and non-cognitive racial gaps in outcomes.

Conclusion

In this report, we examine a few specific factors outside of school that lead to differences in achievement between children from lower-social-class backgrounds and those from middle-class backgrounds. We try to show the effect of children’s social conditions on their cognitive and non-cognitive outcomes. This analysis does not imply that school improvement cannot improve the outcomes of disadvantaged children, but rather that policies other than school improvement should be given strong consideration, as should the possibility that at least some of these policies may be more powerful levers for raising the achievement of disadvantaged children than the school improvement strategies that policymakers conventionally consider and advocate.

None of this report’s recommendations alone will close the achievement gap, but, implemented together, they could make a substantial difference. As we have explained, social and economic characteristics described in this report inter-

act. Improving one could have a positive effect on the others. For example, because lead poisoning is linked to teen pregnancy, decreasing lower-social-class children's lead poisoning could decrease single parenthood, with a consequent positive impact on the resources available to children of the next generation. Assuring parents of more predictable work schedules could provide them with opportunities to read more frequently to their children and/or to enroll them in Head Start or other quality early childhood programs.

Most of the research on which we rely is based on population averages. Some lower-social-class children will defy averages and have higher achievement than their peers, despite challenging social and economic circumstances. But the inevitable distribution of outcomes associated with a given set of social and economic background characteristics should not mislead us to the conclusion that all disadvantaged children can be above average compared to children of similar background characteristics.

Closing the education achievement gap by improving the outcomes of lower-social-class children requires that we reform their social conditions. Policymakers should develop labor market, health, and social policies, such as those recommended in this report, that will improve the living conditions of lower-social-class children and their families and that will likely have a palpable impact on children's achievement. The greater the gaps that remain in such conditions, the greater the gaps that will likely remain in achievement by race and social class.

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