Rebalancing

Children First

A Report of the
AEI-Brookings Working Group on
Childhood in the United States

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The AEI-Brookings Working Group on Childhood in the United States

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Introduction

The future of America rests in part on how the country prepares the next generation to live and to lead. Childhood is a consequential and cost-effective time to make investments that last a lifetime. Yet, many children in the United States do not have the resources or relationships they need to build a strong foundation for their future.

Since 2019, scholars at the American Enterprise Institute and the Brookings Institution have convened a working group of leading experts to study the challenges and opportunities facing children in America. The members of this working group represent a wide range of academic disciplines, views on the proper roles and effectiveness of government programs, understanding of the current condition of American life, and opinions on how public policy should properly weight competing goods, such as personal responsibility and economic security.

Yet, one area of resounding agreement among this diverse group is the need to rebalance national investments toward children. What follows is a consensus report on our conclusions, laying out actionable policies across a range of policy areas to improve the life of every child in the United States.

The working group was guided by expertise, evidence, and values, and arrived at consensus through constructive dialogue. While there is broad agreement across academic disciplines and the political spectrum on the need to invest in children, there are substantial tensions resting just beneath the surface. The research base for some policies is mixed and reasonable people disagree about how to interpret and act on the evidence. These disagreements, as well as philosophical differences in how to set priorities, generate division. Through work in consensus-building and compromise, and based on both evidence and shared values, the working group has helped to clarify areas that can garner widespread support.

The working group focused its attention on children ages 12 and younger.[1] Across critical domains—household resources, family structure and stability, early development, health, education, and the teenage years—the

1. Unless otherwise specified, the words "child" or "children" in this book refer to this age group.

report presents key facts about the state of childhood in the United States, assembles evidence on policy effectiveness, and establishes a set of priorities for progress.

Every member of the working group has endorsed this report in its entirety and as a whole—meaning support for one idea cannot be separated from any other. This is a consensus document reflecting considerable compromise. No individual group member wholeheartedly supports everything in this report, and in many cases individual members oppose particular items in the report. But all members agree that the recommendations and conclusions in the report, taken as a whole, would improve on the status quo.

The working group agrees that public investment, adequate family income that is based in part on parental employment, and loving relationships in safe and nurturing environments are all critical to ensuring that children have what they need to prosper. The working group agrees that the research evidence indicates that, on average, children are most likely to thrive if they have two parents in the home committed to raising children together, and if the household has sufficient economic resources.

Crucially, the working group supports substantially increasing public investment in children in the context of budget neutrality—in other words, rebalancing existing resources toward children.

I. Priorities for a Healthy and Secure Childhood in America

The following are the key proposals on which the working group found consensus.

The working group supports helping people to be ready for parenthood before they start a family. The group also recognizes that parenting is a key ingredient of children's healthy development; parenting's importance is one reason parental mental health is so critical. The working group calls on both government and the nonprofit sector to build more evidence on programs that care for caregivers and offer regular home- and community-based support for parents.

The working group believes that a healthy relationship between a child's parents is critical to well-being. The most common route to healthy and stable relationships in the United States is through marriage. The working group supports policies to strengthen and encourage marriage along with clear public messages about the importance of marriage.

Addressing the inadequate economic resources that too many families live with is key to improving children's well-being and reducing hardship they experience. The working group supports increasing resources available

to low-income families with families with children through changes to the Child Tax Credit and the Supplemental Nutrition Assistance Program (SNAP). Making the tax credit for children available to households with no earnings and increasing SNAP benefits by 20 percent for families with children ages 5 and younger would reduce child poverty and help children to succeed later in life.

It is critical to ensure that parents have rewarding employment. The working group supports policies that help parents in the acquisition of new skills that lead to better jobs, policies such as those that expand access to apprenticeships, career and technical education, and programs that support parents who are students in the successful completion of their degrees. The working group supports increasing the generosity of the Earned Income Tax Credit as it is a proven pro-work and antipoverty program.

Children should be insulated from economic instability; research suggests that the safety net for children should be strengthened during economic downturns. That safety net includes greater support for out-of-work parents, both to maintain their labor force attachment and to reduce household income volatility. Furthermore, school spending should be protected during economic downturns; letting school spending fall in recessions, and in turn harming children's education, reflects misaligned budgetary priorities.

The working group recognizes the importance of access to health care and the value of public health insurance for children. It is important to maintain high rates of health insurance coverage, increase participation in prenatal care and well-child visits, and ensure affordable access to doctors. There is progress still to be made to protect children from the lifetime consequences of early exposure to lead, including better screening.

This report argues that families should have access to high-quality and affordable early childhood education and recommends expanding school choice options so that parents can find opportunities that are good matches for their children. The report concludes that there is a strong case for investing more in schools. It recommends support for programs that provide targeted instruction to struggling students. Recognizing the the effect that teachers have on learning, the United States needs to improve its systems for developing skills and improving instruction so that more children have access to excellent classroom teachers. The working group believes that schools and the adults who work in them should be held accountable for student outcomes.

II. Rebalancing the Budget to Invest in Children

The working group proposes, in short, rewriting the generational contract. In 2019, the share of the federal budget spent on children was 9.2 percent and the share spent on the adult portions of Social Security, Medicare, and Medicaid was 45 percent. In 2020, the share of the federal budget spent on children fell to 7.4 percent even as total expenditures on children rose (Hahn et al. 2021). This allocation is a statement of national priorities—priorities that the working group agrees need to change.

How does the working group plan to pay for our proposals? First, the working groups agrees that existing government spending should be rebalanced to focus more on children without adding to the deficit. In other words, the working group proposes that increased spending on programs for children should be financed by redirecting resources away from existing programs currently benefiting wealthier adults.

Increased spending on children should be financed by offsetting new spending with cuts to entitlement programs that benefit upper-middle-class and affluent seniors; so-called corporate welfare, including agriculture subsidies; subsidies to well-off households in the federal tax code; and increased tax enforcement. The working group encourages states and localities to make similar shifts in priorities.

Roughly 40 percent of the federal budget goes to Americans over the age of 65, mainly through Medicare, Social Security, and, to a lesser extent, Medicaid (CBO 2021; Gleckman 2019). Assuming no change in the benefit levels, these payments will make up more than half of the federal budget at some point in the next 10 years. Projected spending on Medicare and Social Security will increase from 7.9 percent of the nation's total gross domestic product (GDP) today to 10.3 percent of GDP in 2029 (Kogan and Bryant 2019).

Currently, a large share of Medicare and Social Security spending goes to well-off seniors. But older Americans are already in good financial shape by historical standards. Their average net worth has increased more than 50 percent since 1995 (Sawhill and Pulliam 2019). The working group believes that the federal budget can be redirected toward children while still maintaining the most important features of these programs that support older generations.

While official poverty measures suggest that about 13 percent of older adults live in poverty, these numbers do not reflect how they have fared over the past 10 years or how their circumstances compare with those of other groups (Li and Dalaker 2021). Using consumption and income data to assess changes in living standards, research shows that those 65 and older have much lower poverty rates than most other demographic groups and that these rates have fallen sharply over time (Meyer and Sullivan 2012). Few

other groups have enjoyed as much improvement in living standards over the past three decades.

Corporate welfare can also be cut in order to direct more resources toward children. Through direct grants and subsidies and special tax expenditures, the United States spends tens of billions of dollars on corporate welfare (Edwards 2017). The largest chunk of this spending is for agriculture subsidies, which increased even more during the pandemic response: 40 percent of farm income in 2020 was from federal subsidies (Lincicome 2020; Rappeport 2020). Farm subsidies go disproportionately to large firms and to high-earning and higher-wealth households (Government Accountability Office 2020).

Finally, the United States spends more than $1.4 trillion per year through the tax code on a variety of deductions and exemptions (US Department of the Treasury 2018), including deductions for state and local tax payments and mortgage interest payments. Almost 60 percent of tax expenditures go to the top 20 percent of the income distribution (Sammartino and Toder 2019). Tax expenditures should be thought of as spending programs administered through the tax code—and some of this existing spending on the well-off should be redirected to children. In addition, the share of taxes that were owed but unpaid is even more disproportionately concentrated among the wealthy: the top 5 percent of households account for about half of unpaid taxes (Sarin 2021). Better tax enforcement would generate revenue to invest in children.

Investments in today's children will make tomorrow's adults more economically self-sufficient. Rebalancing federal spending toward children and away from financially-secure elderly adults, the well-off, and special interests, advances the values of promoting economic opportunity, encourages self-sufficiency, and focuses scarce resources where they will do the most good.

III. Rebalancing toward Children in the Context of COVID-19

The COVID-19 pandemic has created new challenges for children that may come with lifelong consequences. While the working group has chosen to build this volume on decades of trends and evidence—all of which held prior to the pandemic and nearly all of which, the group believes, will hold in the years to come—this introduction pauses here to reflect on how the pandemic intersects with this work. The working group is necessarily circumspect, since research is preliminary, conditions on the ground continue to develop, and the future is uncertain.

As of February 2022, an estimated 75 million people in the United States have contracted COVID-19 (Johns Hopkins University 2022), including 9.3 million children ages 17 and younger (Statista 2022). Of the approximately

880,000 deaths in the United States associated with COVID-19 to date, about 750 were children (Centers for Disease Control and Prevention 2022c).

For children and teens, the consequences of the health crisis over the past two years have been much broader than COVID caseloads. By one estimate, more than 167,000 children have lost a caregiver to COVID-19, about 40 percent of whom have lost a parent (Treglia Cutuli, and Arasteh 2021). Changes in routines, missed significant life events, isolation, anxiety, and parental stress all harm children's mental health. Among adolescents and young adults, especially, these interruptions have occurred amid a broader mental health crisis, with sharply rising rates of depression and suicide over the past decade (Curtin 2020; Twenge 2020). The vast majority of teens report they have been negatively impacted due to the pandemic, with about half of teens reporting they have less motivation to do schoolwork, are less involved in sports, clubs, or extracurricular activities, and are learning less. COVID impacted their physical health as well: according to the CDC, the obesity rate among children rose quickly during the pandemic (Lange et al. 2021).

The closure of schools and child-care facilities affected tens of millions of children; these missed opportunities for academic and social learning are experiences that children cannot make up. By some estimates, nationwide 1.3 million fewer children were enrolled in public schools from pre–K through Grade 12 in 2020–21 than were enrolled in 2018–19 (O'Keefe, Korman, and Dammu 2021). For those who were learning remotely, home learning environments, housing instability, and inaccessible internet and school materials exacerbated inequalities (Van Lancker and Parolin 2020). Student absences, less instructional time, and reduced quality of instruction have all had negative academic consequences: course failures are up and test scores are down (West et al. 2021). Many children will suffer for decades from mental health challenges due to school closures, and will lose tens of thousands of dollars of lifetime earnings due to the time they spent out of the classroom. For low-income children especially, it will be difficult, if not impossible, to make up this lost time. As the world emerges from the pandemic, the country must prioritize investments to improve children's mental and physical health and make up for lost learning time.

Some aspects of the social policy response to the pandemic point to a way forward for investing in children. Resources were targeted directly to children, including to younger children, through the increased Child Tax Credit and Pandemic Electronic Benefit Transfer (widely known as Pandemic EBT) for missed school meals. In the midst of the crisis, poverty and poverty among children by the supplemental measure has declined (US Census Bureau 2021).

One of the most striking features of the United States' response to the pandemic was a singular focus on protecting adults from contracting COVID-19, including those who have been vaccinated, with insufficient attention being paid to the needs of children. The working group argues that these priorities are backwards, and that aspects of society's response to the pandemic

prove more than ever that the United States needs to rebalance its priorities toward children.

The working group believes that stability—in resources and relationships—is the foundation for a healthy American childhood. The consensus report that follows builds on decades of peer-reviewed research to describe the condition of American childhood. In general, the working group believes that the COVID-19 pandemic has exposed and intensified preexisting conditions for American children in the domains that this report has prioritized: household resources, family structure and stability, early development, health, education, and the teenage years.

In short, this consensus report sets a path for bringing children safely out of the COVID-19 era and into their future.

CHAPTER 1

Household Resources

Family resources—both money and time—contribute to children's success. By some measures, children have become better off in recent decades: parents are more highly educated and more likely to be working for pay, fewer children are born to teenage mothers, and the share of children living in poverty has fallen. On the other hand, stagnating real wages and a fall in the proportion of children living with two parents have added to the strain on resources for many families. Additional financial resources and time can build relationships and buy opportunities for children, such as better housing and amenities, including school and neighborhood quality, all of which predict children's outcomes (Chetty et al. 2019).

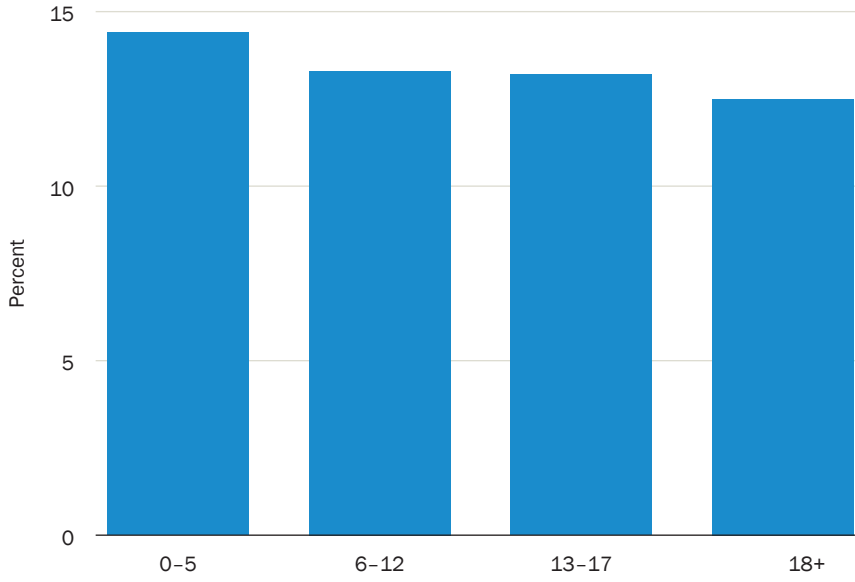
There are substantial differences in resources available to children in the United States: Higher-income parents are more likely to report that their neighborhood is a good place to raise children. Their children are more likely to live with two parents; are more likely to participate in extracurricular activities such as sports, music, dance, art lessons, or scouts; and are more likely to spend quality time with their parents. These differences in turn correlate strongly to disparate outcomes for children by income level. Children from lower-income families tend to do worse in school, are less likely to graduate from high school or attend college, and are more likely to be in poverty as adults.

Family structure and job opportunities for parents—both of which are largely determined by parents' education levels and the macroeconomy—are the two factors that contribute most to determining the resources a child has. This does not mean that simply closing marriage and income gaps will eliminate all differences in outcomes (see Mayer 1997). But increasing family resources can meaningfully improve a wide range of economic, health, and social outcomes for children in the moment and for the adults they will become.

Ensuring that children have essential resources requires families, communities, and policymakers to make investments, spend the time. Safety-net programs boost incomes for families in poverty, those families with members

FIGURE 1.1

Supplemental Poverty Rate, by Age (2018)



Source: Bureau of Labor Statistics Current Population Survey (2019); authors' calculations.

Note: Income and poverty thresholds are defined under the Supplemental Poverty Measure.

who are working but earn modest incomes, and those that experience temporary or recession-related income volatility. We can improve the functioning of many of our safety-net programs in straightforward ways. Increasing public investment in children, while also centering the role of both marriage and employment in promoting a flourishing home environment, are the keys to ensuring that all children have the resources they need to thrive.

I. Resources Available to Children in the US Context

A. The State of Resources

Approximately one in seven children ages 12 or younger lives in poverty in the United States. Children are more likely than adults to be in poverty, and younger children are more likely than older children to live in poverty (figure 1.1). Note that this figure reports the supplemental poverty measure

(SPM), which is a poverty measure that includes as income both earnings and resources from many government programs that are aimed at reducing poverty; this measure also bases the threshold on a broader measure of needs. As shown in figure 1.1, 13 percent of children ages 5 or younger were living in poverty in 2019. Poverty rates are somewhat lower among older children, but more than 11 percent of children in every age range live in a family that is in poverty. Poverty rates among adults are substantially lower—and among the elderly are lower still. Poverty rates among children are proportionally higher among Hispanics of any race and African Americans than they are among non-Hispanic whites (National Academies of Sciences, Engineering, and Medicine 2019).

Poverty damages prospects: deprivation during childhood has lasting negative effects—on children's health and education, and on the likelihood that they will obtain steady, well-paid employment as an adult. But poverty is only one proxy for limited economic resources. Many families who have incomes above the poverty threshold also struggle with lack of resources and income volatility; for example, two-thirds of families experiencing food insecurity have incomes above the poverty threshold (Schanzenbach, Bauer, and Nantz 2016).

Figure 1.2 shows the proportion of children under the age of 12 by income and family structure: 13 percent live in families with income levels below the poverty threshold, and another 34 percent live in families with incomes between 101 and 200 percent of the poverty threshold. At the other end of the income scale, 17 percent of children live in families with incomes four times the poverty threshold or more.[1] An unmistakable pattern in the data is that children in higher-income families are much more likely to have married parents—in fact, the share of families headed by a married couple increases uniformly with higher incomes. These differences are quite stark: just over one-third of the lowest-income families have married heads-of-household, while 91 percent of the highest-income families do. More than half of the children ages 12 and under in the lowest-income families live in families headed by single parents, compared with only 6 percent of those in the highest-income families.[2]

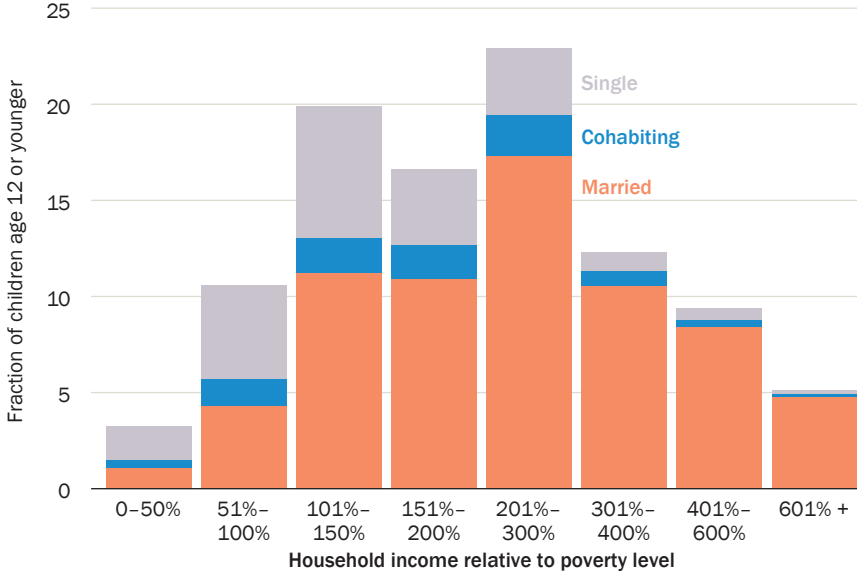
In addition to family structure, the employment status of adults in the family is self-evidently and strongly related to income (figure 1.3). The figure shows that 92 percent of the children in families with incomes over the poverty

1. The SPM thresholds differ by family composition as well as by whether the family rents their living unit, owns it with a mortgage, or owns it without a mortgage. In 2019 the SPM poverty threshold for a family of two adults and two children was about $29,000 for home owners with a mortgage and for renters, and about $25,000 for home owners without a mortgage (Fox 2020).

2. Cohabitation rates range from a high of 13.5 percent (in the 51–100 percent of poverty income range) to a low of 3.1 percent (in the 600 percent of poverty or higher income range).

FIGURE 1.2

Share of Children Age 0–12, by Household Structure and Income-to-Poverty Ratio (2019)



Source: Bureau of Labor Statistics Current Population Survey (2020); authors' calculation.

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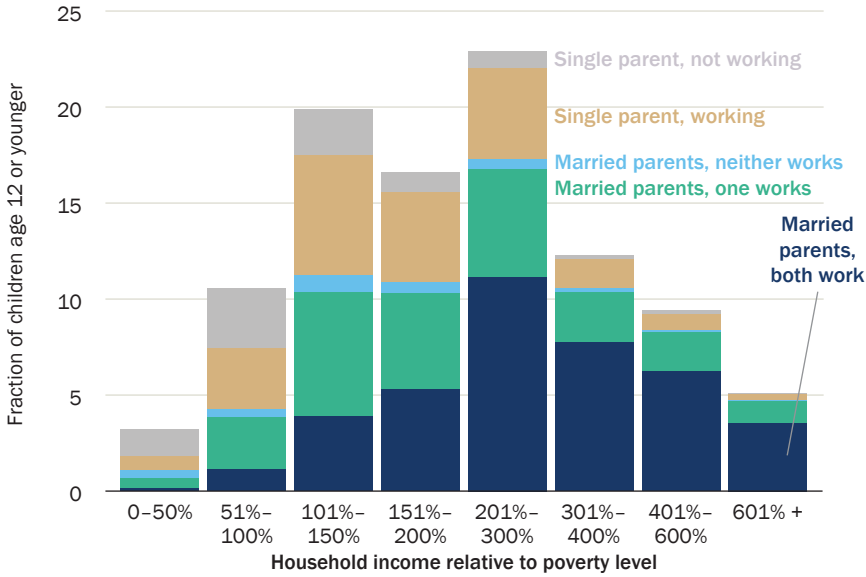
Note: Income and poverty thresholds are defined under the Supplemental Poverty Measure.

threshold had at least one worker in 2019. Notably, for 63 percent of the children in families with income above the poverty line—and nearly 60 percent of children overall—*all* parents in the family are employed. The causes of and solutions to lower levels of sustained employment among those in poverty are complex and we will turn to those below. Parental employment patterns raise relevant questions about parental time with children, as well as the need for attention to the quality of caregiving options experienced by children.

Time that parents spend with children is another resource that children have. Research has consistently found that parents with higher levels of education spend more time with their children (Guryan, Hurst, and Kearney 2008), a pattern that further reinforces differences across socioeconomic status. Figure 1.4 shows caregiving hours spent by mothers with their children, among mothers with children ages 12 and under, by education level, and by employment status. Caregiving time includes caring for and helping children in the household, activities related to children's education and health, and travel associated with children's activities. Not surprisingly, mothers who are employed spend less time caring for children than mothers who are not employed—though it may be surprising that the difference in caregiving time

FIGURE 1.3

Share of Children Age 0–12, by Family Income, Family Structure, and Parents' Employment Status (2019)



Source: Bureau of Labor Statistics Current Population Survey (2020); authors' calculation.

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Note: Income and poverty thresholds are defined under the Supplemental Poverty Measure.

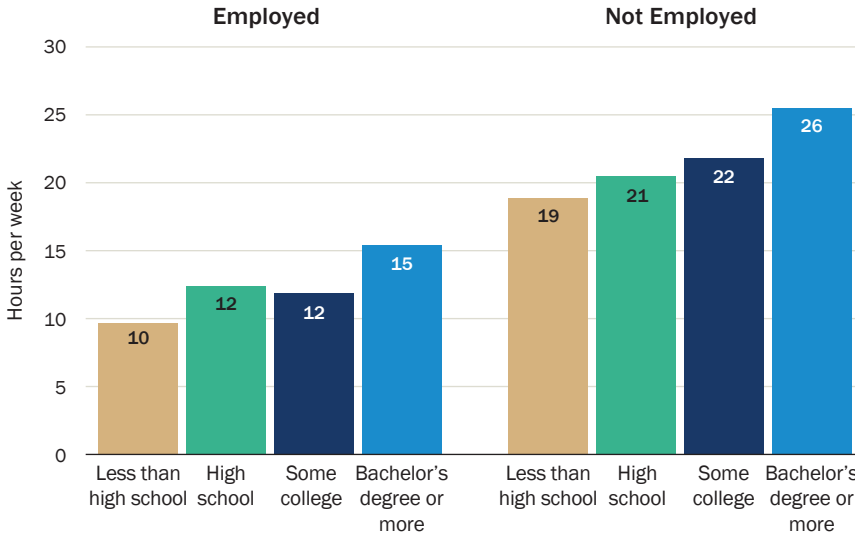
is less than 10 hours per week. Conditional on employment status, mothers with higher levels of education spend more time in caregiving than those with lower levels of education.

B. Three Key Trends

Three trends help to illuminate the changing patterns of resources available to children. First, there has been a sharp decline in the share of children living with married parents, from 88 percent in 1975 to 76 percent in 2019; this decline has been sharper still among those parents with less education. (Family structure will be discussed further in chapter 2.) Second, there has been an increase in the share of children with a working mother (figure 1.5). In 2019, 63 percent of children ages 12 or younger had mothers who worked, up from 38 percent in 1975. For children being raised by a single mother, the increase in employment was especially sharp in the mid-1990s in the wake of welfare reform and a major expansion of the Earned Income Tax Credit

FIGURE 1.4

Hours per Week Spent in Caregiving, Women with Children Age 12 and Under, by Employment Status and Education (2013–2018)



Source: Bureau of Labor Statistics American Time Use Survey (n.d); authors' calculations.

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Note: Diaries are pooled for 2013–18. Caregiving sums the time spent on direct care activities. For additional details, see the technical appendix to Bauer et al. 2021.

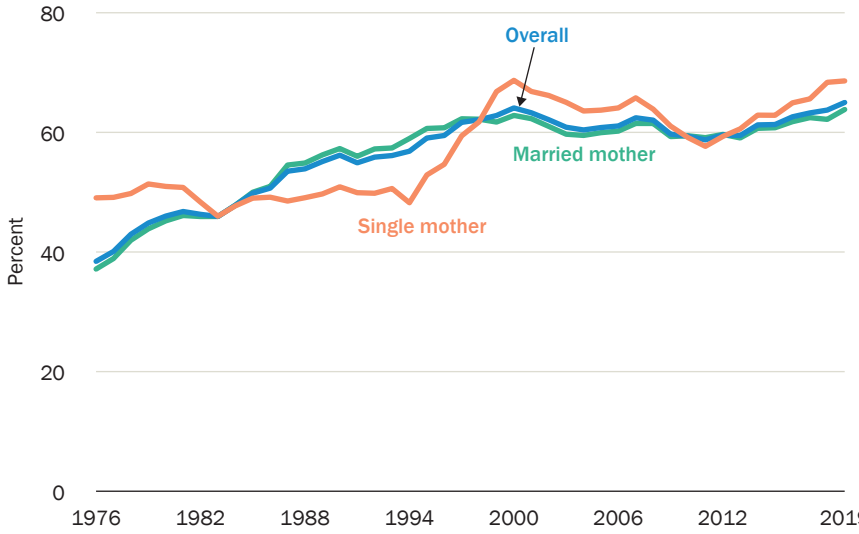
(EITC). Third, child poverty rates have come down significantly over the past four decades.

There are many ways the government increases incomes of families with children. Under the Tax Cuts and Jobs Act, the Child Tax Credit (CTC) increases disposable income by reducing tax liabilities: taxpayers can claim a CTC of up to $2,000 for each child 17 and under. The credit is phased out for high-income families earning more than $400,000 for married couples or $200,000 for single parents. A portion of the CTC is also refundable to low-income families that do not owe federal taxes. The Tax Policy Center estimates that 91 percent of families with children receive the CTC, with an average annual benefit of $2,420 in 2019 and 92 percent received the CTC in 2021 with an annual average benefit of $4,380. The share of families claiming the CTC and the average amount is highest in the middle three income quintiles, but is also a vital source of income in the lowest quintile. In 2018 the CTC was estimated to raise 4.3 million people out of poverty, including 2.3 million children.

There are many more income assistance programs aimed at lower-income families, and spending on these programs has more than doubled over the past 25 years (Hoynes and Schanzenbach 2018). In particular, payments from both

FIGURE 1.5

Share of Children 0–12 with Working Mothers (1976–2019)



Source: Bureau of Labor Statistics Current Population Survey (n.d.); authors' calculations.

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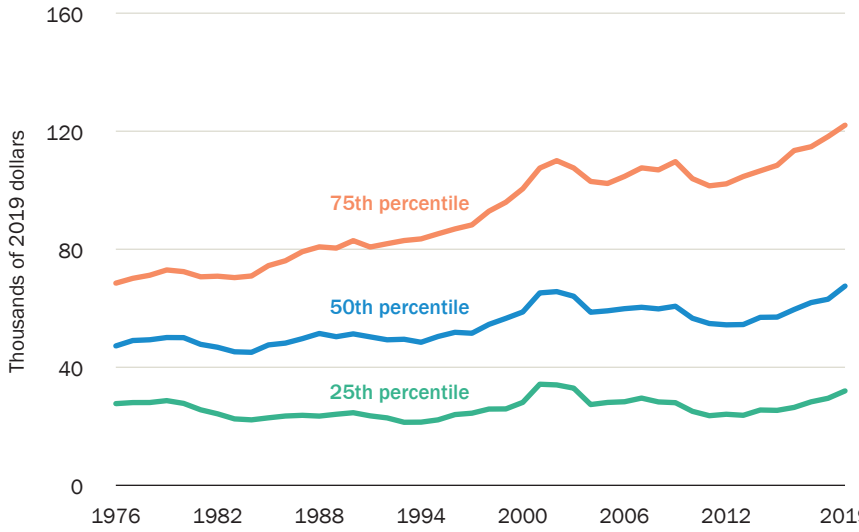
the EITC, a program available only to working families, and the CTC increased during this period. Other drivers of the overall increase include increased spending on the Supplemental Nutrition Assistance Program (SNAP) and on public health insurance for children through the Medicaid program.

In 2018 the federal government spent about $370 billion on programs generally targeted to low-income families, providing cash or near-cash benefits; these programs include the EITC, CTC, SNAP, and Temporary Assistance to Needy Families (TANF). In addition, the federal government spent $116 billion on Medicaid and other health insurance programs for children (Isaacs et al. 2019). Approximately half the spending through this core set of safety-net programs goes to families with incomes above the poverty threshold. Much of it also goes to working families, by design: as the name implies, the EITC is available only to families with earnings. But it also reflects low wages, as well as insufficient or inconsistent paid hours among working families that make them eligible for income support programs. Overall, four-fifths of the spending on these core programs goes to families with earners, with a declining share going to low-income families without earners (Hoynes and Schanzenbach 2018).

Growing up poor not only harms children in the short run, but also, by limiting investments in their human capital, harms them in the long run. These safety-net programs significantly increase family resources and reduce child poverty. Using an income-based poverty measure, the social safety net

FIGURE 1.6

Household Income for Families with Children 0–12 (1976–2019)



Source: Authors' calculations using the Bureau of Labor Statistics Current Population Survey (n.d.).

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Note: Adjusted for inflation using PCEPI deflator.

reduces child poverty from 25 percent (which would be the rate in the absence of taxes and transfers) to 15 percent (the rate after the impacts of the current safety-net programs) (Shapiro and Trisi 2017).[3] In other words, although the social safety net lifted 7.4 million children out of poverty, 11.1 million children remained in poverty.

II. Evidence that Resources Matter for Children

There is a large and growing set of research studies suggesting that alleviating poverty and increasing family income have tangible, positive impacts on children. Many of the best studies leverage variation in access to safety-net programs like the EITC and SNAP to identify the causal effect of these programs on outcomes. Based on the strength of this evidence, we agree that there are especially formidable social returns from increasing resources for

3. The TRIM model corrects for measurement error associated with underreporting of participation on social safety net programs in survey data.

children in low-income families, through greater safety-net spending and/or increased employment and earnings.

The recent research on policy interventions dovetails with a broader research literature in public health, epidemiology, and economics that has deepened our understanding of the long-run impact of early-life circumstances, including family income. This research shows that there are critical periods, both prenatally and in early childhood, that deserve particular policy focus (see Almond, Currie, and Duque 2018 for an excellent recent review). Of course, the evidence base is far from complete. But it is strong enough to provide policy guidance.

One policy that has been consistently shown to improve children's outcomes is the EITC. Payments can be quite sizable: in 2019 a single mother with two children who works full time for a year in a minimum wage job would earn $15,080 in wages and would receive the maximum credit of $5,828, fully 40 percent of her pretax earnings. The average benefit for families with children was $3,191 in tax year 2017 (Center on Budget and Policy Priorities [CBPP] 2019). The EITC also has a large antipoverty impact, having raised 5.6 million people, including about 3 million children, out of poverty in 2018.

The EITC has been expanded several times since it was introduced in 1975, and researchers have been able to study the impact of these expansions to estimate its impact. Because the EITC is available only to families with positive earned income, it leads to increases in employment, which further raises family incomes (Hoynes and Patel 2018; Schanzenbach and Strain 2020).[4] Studies of the EITC therefore measure the combined effects of both increased income as well as changes in parental employment—likely positive to the extent that employment brings additional income to the family, but potentially negative to the extent that children attend a low-quality childcare program or receive a smaller investment of time from their parents. The EITC has been shown to improve a wide range of children's outcomes. Infant health is improved—both increasing average birth weight (Baker 2008; Strully, Rehkopf, and Xuan 2010) and decreasing the share of low-birth-weight newborns (less than 5.5 pounds) (Hoynes, Miller, and Simon 2015). The EITC also improves educational outcomes, from test scores to high school graduation and college enrollment (Bastian and Michelmore 2018; Chetty, Friedman, and Rockoff 2011; Dahl and Lochner 2012, 2017).

The SNAP program has also been shown to improve children's outcomes. SNAP provides food vouchers to low-income families to use at the grocery store and reaches a large number of families. In 2019 10.9 percent of the population participated in SNAP, with average monthly benefits of $258 per household, or about $130 per person. SNAP is estimated to have

4. This consensus has been challenged in a recent working paper (Kleven 2019).

lifted 3.3 million children out of poverty in 2016.[5] Unlike the EITC, SNAP is not conditioned on work. Access to SNAP has also been shown to improve infants' health at birth, increasing birth weights and reducing the incidence of low-birth-weight newborns (Almond, Hoynes, and Schanzenbach 2011; East 2018). SNAP availability for children under age 5 has also been shown to improve their parent-reported health in adolescence, potentially through reduced school absences, doctor visits, and hospitalizations (East 2020).[6] Furthermore, children with access to SNAP had better health in adulthood, as measured by lower obesity rates, healthier body mass index, and fewer chronic conditions, such as diabetes and high blood pressure. Similarly, access to SNAP during childhood improves later education and economic outcomes, such as increasing high school graduation rates by 18 percentage points. SNAP during childhood also leads to improved outcomes for women, including higher earnings, higher family income, better educational attainment, and increased rates of employment (Hoynes, Schanzenbach, and Almond 2016).

Another nutrition assistance program, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), provides targeted support for pregnant and postpartum women and for those with young children to purchase certain food items. WIC has been shown to increase birth weight for infants born to mothers who receive WIC benefits (Hoynes, Page, and Stevens 2011; Rossin-Slater 2013). Prenatal WIC participation also leads to reductions in subsequent diagnoses for attention-deficit/hyperactivity disorder (ADHD) and other childhood mental health conditions and reduces the chances of a child repeating a grade in school (Chorniy, Currie, and Sonchak 2019).

There have been calls for the United States to adopt a universal child allowance, or similar policies that provide lump-sum cash transfers to families with children. These may impact children—especially the poorest children—in a similar way to cash welfare payments under the former Aid to Families with Dependent Children (AFDC) program, and the current TANF program. The best evidence here comes from several state welfare experiments in the years prior to federal welfare reform in 1996. These suggest that an additional $1,000 in family income from cash welfare increases student achievement by about the same amount as an equivalent increase from the EITC (Duncan, Morris, and Rodriguez 2011).

A newly released 2022 randomized control study of a poverty reduction intervention further shows how cash income can have important impacts as

5. SNAP participation is known to be under-reported in surveys, and this estimate corrects for that problem. Unadjusted figures indicate that 1.6 million children were lifted out of poverty by SNAP in 2015 (CBPP 2019).

6. One recent paper has found that students' test scores are lower if they take a test when the family received their SNAP payment more than three weeks prior, consistent with evidence of a monthly food stamp cycle in which families eat better in the weeks immediately after receiving payment (Gassman-Pines and Bellows 2018).

early as infancy (Troller-Renfree et al. 2022). Infants of low-income families who received a monthly unconditional cash gift for 12 months (the equivalent of $4000 per year) starting right after birth exhibited higher brain activity than infants of low-income families who received a much small monthly unconditional cash gift (the equivalent of $240 per year) over the same time period. Based on other research, the magnitude of this increased infant brain activity is positively associated with children's subsequent learning and thinking.

An interesting set of studies sheds additional light on the effect of additional cash income for disadvantaged populations. Akee et al. (2010) measure the impact of the receipt of cash payments by the Eastern Band of Cherokee Indians after opening a casino on their land in North Carolina. An additional $4,000 per year in income to the poorest households led to sizable improvements in educational attainment and a reduction in criminal activities for children in affected households. It even led to more parental investment and more positive interactions between parents and children, as well as to beneficial effects on children's emotional and behavioral health during adolescence (Akee et al. 2018).

Additional evidence that changes in family resources affect both short- and long-run outcomes for children is provided by studies that examine the consequences of a parent becoming unemployed. In the short run, parental job loss has been shown to negatively affect infants' outcomes, such as lower birth weights (Lindo 2011), as well as outcomes for older children, such as a greater likelihood of repeating a grade (Stevens and Schaller 2011). More-generous unemployment insurance (UI) benefits can mitigate the negative effects on children, for example by (slightly) reducing the likelihood that children in the affected families have to repeat a grade (Regmi 2019). A study using Canadian data found that children whose fathers lost their job when the children were young grow up to earn less themselves, especially for those from low-income families (Oreopoulos, Page, and Stevens 2008).

Overall, studies find positive long-run benefits of having additional resources in childhood, with lasting improvements in both health and economic productivity in adulthood. These studies underscore the importance of alleviating poverty and protecting children from the family's income losses when parents lose their jobs. Fortunately, there are many policies that can be deployed to invest in children that will provide benefits in both the short run and the long run.

III. Policy Priorities

Many American children do not have the resources they need to thrive. Boosting family resources, especially for children living below or near poverty, will

alleviate hardship in the short run, and will be expected to meaningfully improve children's lives in the long run. We need policies that will increase resources for children overall, but especially for young children and those from the poorest families.

A. Enhance Returns to Work through the Earned Income Tax Credit

Broad-based economic growth is a key driver of family income, and a fundamental role of good government is to promote such growth. But there are also smart, targeted approaches to increasing family incomes. One approach our working group supports is to increase the value of the EITC, a proven pro-work and antipoverty program. A 10 percent across-the-board increase would provide an immediate income boost to the 44 percent of families with children who currently receive the EITC, raising the typical recipient family's payment by $250. Almost all (97 percent) of the increase would go to families with incomes below 300 percent of the poverty threshold (Hoynes, Rothstein, and Ruffini 2017).

B. Improved Targeting to Low-Income Families with Children

The working group supports increasing the resources available to low-income families with children through changes to the CTC and SNAP. Given the importance of caregiving relationships to early development, we recommend policies to support and enhance opportunities for high-quality caregiving relationships. Our working group members recognize the importance of supporting parental caregiving as well as supporting affordable, high-quality child-care options for working parents, but differ in policy preferences on how to achieve these goals.

Under current law, households must have $2,500 of income to be eligible for the refundable portion of the CTC, which itself is capped at $1,400 per child. The working group supports eliminating the income eligibility threshold so that all low-income households are eligible for the refundable portion of the CTC. In the absence of refundability, the poorest 10 percent of children receive no benefit from the CTC (Goldin and Michelmore 2020). Recent estimates suggest that making the CTC fully refundable would meaningfully reduce child poverty.

Given the research evidence on the benefits of increased income to the lowest-income children, we support eliminating the income eligibility threshold for the CTC. This could be done while still maintaining work incentives in the CTC, which some members of the group support. If the amount of

the credit were to increase with household income—as it does under current law—then this would encourage work, even in the absence of an income eligibility threshold. Other members of the group support offering the maximum amount of the CTC to all low-income households, without reference to household income. Some in the group are also in favor of reducing the size of the benefit offered to higher-income households in order to rebalance the focus of the credit and shift it away from being a benefit available to higher-income families while retaining it for middle- and working-class families.

Most members of the working group favor a child tax credit paid monthly. A monthly disbursement can be more nimble in serving to support parental caregiving for example, by providing resources that can be used to access child care, though members differ on the precise structure of such a policy. Stevens and Weidinger (2021) propose allowing parents to borrow against future child tax credits, which could provide resources to enable parents who choose to do so to stay home with young children, or better to afford child care, which tends to be more expensive for young children. Other members prefer that the credit be paid annually as a form of quasi-savings and to assist households with purchasing durable goods.

Another well-targeted, straightforward reform would be to increase SNAP benefits for families with children ages 5 and younger by 20 percent, as proposed by Hoynes and Schanzenbach (2020). The working group supports this change. Such an approach would be targeted both to the youngest children and to low-income families, would meaningfully *increase* monthly resources available to households with children, and would improve food and nutrition security.

There has been a push from some quarters to make receipt of programs like SNAP and Medicaid conditional on consistent employment. The working group believes it would be a grave mistake to extend such policies to families with children. SNAP and Medicaid provide vital resources to millions of children, helping families in the short run and improving children's life chances in the long run. To protect children, support from these programs should increase, not decrease, when families are unable to find employment. Denying children access to these programs when their parents are not working steadily is the opposite of what a safety net should do.

When family incomes drop during recessions, the damage to children can be long-lasting. Children suffer larger increases in poverty during recessions, with poverty rates among young children rising the most. This suggests a need to insulate children from economic downturns, especially when their parents are unemployed. The United States primarily has a work-based safety net for families with children, and as a result there are fewer protections during economic downturns when jobs are not available. For example, since the EITC is conditioned on work, if a parent is involuntarily unemployed for a long enough period, the EITC may not pay adequately. And many low-income workers either are not eligible for UI benefits, or their UI payments do

not provide enough for their families. The research therefore suggests that, to improve child outcomes, the safety net overall should be strengthened during economic downturns.

It is vital to develop policies to improve support for out-of-work parents, especially those who are not well served by the UI system. One approach would be to use the UI system to replace some of the lost EITC payments when parents lose their jobs. Currently, UI benefits replace only a portion of lost earnings, but, since the EITC is such a consequential part of income for many families, its value should be replaced as well. For example, UI replacement rates could be increased for job losers who would have been expected to qualify for the EITC.

This is not of course an exhaustive list of reforms; instead, it reflects our views of current law, not enhancements or changes made during the economic policy response to the COVID-19 pandemic. There are certainly other safety-net programs in need of reform as well. For example, federal spending on housing assistance is less than $20 billion per year, leaving tremendous unmet need. Similarly, federal spending on child care is low, which works against promoting both the goal of increasing employment and the goal of improving child development.

CHAPTER 2

Family Structure and Family Stability

Our working group agrees that the research evidence indicates that, on average, children who have (a) two parents who are committed to one another, (b) a stable home life, (c) more economic resources, and (d) the advantage of being intended or welcomed by their parents are more likely to flourish. In general, we believe that evidence suggests that marriage is the best path to the favorable outcomes highlighted above. Marriage is of course not the only path that allows children to succeed; many children raised by single parents and cohabiting parents thrive in life. Even so, in the United States marriage continues to be the institution most likely to combine the four benefits outlined above for the sake of children.

Marriage matters to children. Having married parents typically means that children live in families with more resources, including more time with their parents, and with greater stability. While these factors in themselves point to a range of improved outcomes for children, the benefits of growing up in a family with married parents is more than a sum of these parts. Yet a long, steady decline in marriage rates over the past five decades means that more children are growing up in single-parent families. Today about one in four children ages 0–12 does not have married parents. While the decline in marriage has occurred across all demographics, more than one in three children whose mother has an education level of less than a college degree does not have married parents.[1]

Of course, marriage does not guarantee an environment in which children get what they most need—a secure and stable environment with engaged and nurturing caregivers. But, in our review of the evidence, the working group concludes that marriage offers the most reliable way to promote these ends.

1. It is convention to refer to the characteristics of the mother when describing the attributes of parents. These analyses would not meaningfully differ if we were to refer to fathers.

We underline that the differences in outcomes we have been discussing are primarily the rates at which children experience adversities; most children from single, step, and cohabiting families do well or average on most outcomes (D'Onofrio and Emery 2019; Eggebeen and Licher 1991; Hetherington and Kelly 2002). In other words, many children from nonintact families thrive.

There are roles for both policy and civil society in promoting and supporting marriage, including targeted reductions of marriage tax penalties, improved economic opportunities that will in turn promote marriage, and communication of clear public messages about the importance of marriage for children.

I. Family Structure and Stability in the US Context

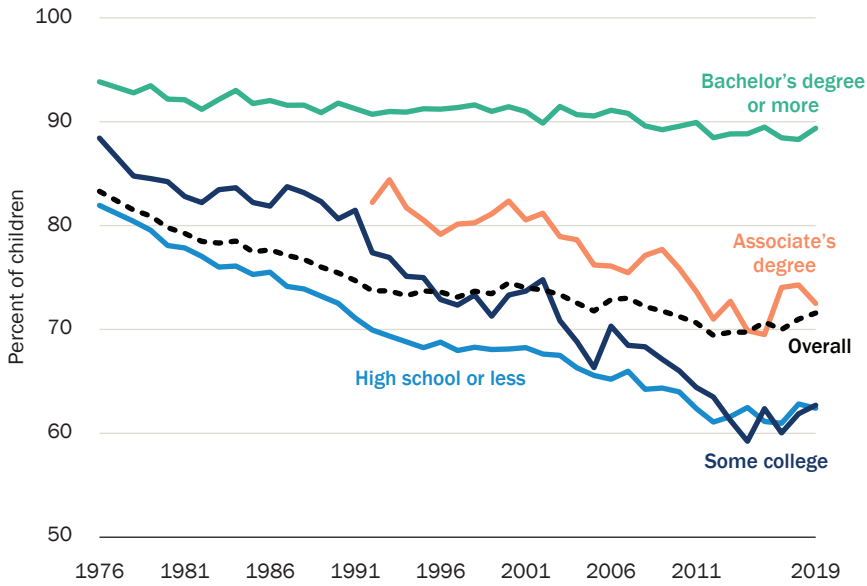
Over the past half century, marriage has become less likely to anchor the lives of American families, leaving more and more children to experience family instability and single parenthood. As shown in figure 2.1, the percentage of children (ages 12 and under) living in households with married parents (with spouse present) declined from 83 percent in the mid-1970s to 71 percent in 2019. This decline in children living with two parents was accompanied by a steady increase in the percentage of children living with only their mother. This trend was entirely driven by a rise in the share of children living with never-married mothers, which increased from 3 percent in 1976 to 18 percent in 2019. The share of children living with divorced mothers held relatively steady over this period at 6 percent (Cherlin 2009; Cohen 2019).

Changes in family life have not affected all children equally. Children with less-educated parents and Black and Hispanic children have been disproportionately affected. Over the past 40 years nonmarital childbearing rose the most for families in these two groups (Cherlin 2009; Wilcox and Marquardt 2010). As shown in figure 2.1, two-thirds of children ages 12 and younger with mothers with less than a college degree had married parents in 2019, down from more than 80 percent in 1976. The decline in marriage has been much less steep for college-educated mothers, dropping from 93 percent in 1976 to about 90 percent in 2019. Among mothers with a college degree, 14 percent of the decline in marriage rates is explained by an increase in divorce, 75 percent is explained by an increase in never-married mothers, and the remainder is explained by an increase in the small share of mothers that are separated or widowed.

Today, when it comes to both socioeconomic status and race, American family life is deeply unequal (figure 2.2). Much of the difference across racial and ethnic groups likely reflects group differences in economic conditions, including differences in wages and employment opportunities (Sawhill 2013),

FIGURE 2.1

Percent of Children 12 and Under in Households with Married Parents, by Mother's Education Level



Source: Bureau of Labor Statistics Current Population Survey (n.d.)

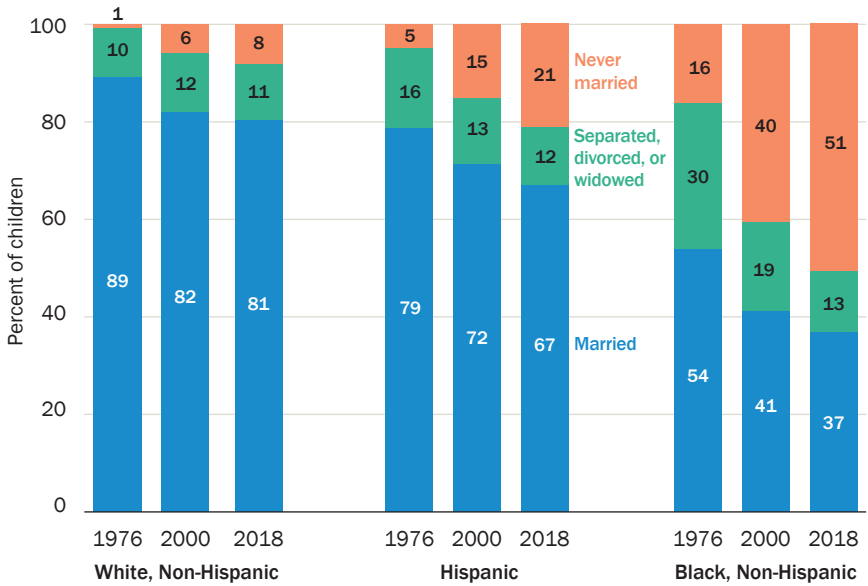
AEI BROOKINGS

differences in wealth including home ownership rates (Schneider 2011), as well as differences in educational attainment (figure 2.1). An increasing share of children across all groups lived with a never-married mother in 2018. In 2018 more Black children lived with never-married mothers than with married parents. Fewer than two in five Black children lived with married parents in 2018, compared with two in three Hispanic children and 82 percent of white children. After rising for most groups between 1976 and 2000, the proportion of children living with separated, divorced, or widowed parents in 2019 is about the same as it was in 1976: 6 percent of Hispanic children and 6 percent of white children, and 8 percent of Black children ages 12 and under.

Since the Great Recession, declines in marriage rates have halted—at least from the perspective of children. Divorce has fallen by more than 20 percent since the onset of the Great Recession, nearly returning to 1970 levels (Payne 2018). The share of children living with married parents has edged up by a percentage point since 2011, driven by a decline in the share living with divorced parents; in addition, nonmarital childbearing declined by a percentage point since 2009 (Centers for Disease Control and Prevention [CDC] 2019). Especially striking about this modest reversal is that it has been largest for Black and Hispanic children. In other words, in recent years

FIGURE 2.2

Percent of Children 12 and Under, by Marital Status and Race/Ethnicity



Source: Bureau of Labor Statistics Current Population Survey (n.d.).

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Note: Assignments are based on the race/ethnicity of the child. Some columns may add to more than 100 due to rounding.

the share of children in married-parent families is rising faster for Black and Hispanic children than it is for white children, though the gaps in levels remain large. So even though stark inequalities still exist, American families have become somewhat less unequal in the past decade.

II. Evidence That Family Structure and Stability Matter for Children

The family divide in America has many roots, but it has been largely driven by changes in our economy and in our culture that have made marriage less attainable and less required for poor and working-class Americans (Cherlin 2009; Ellwood and Jencks 2004; Wilcox, Wolfinger, and Stokes 2015; Wilson 1987). Nevertheless, this divide matters because children are, on average, more likely to thrive when they are raised in a stable, two-parent home.

BOX 2.1

Children in Foster Care

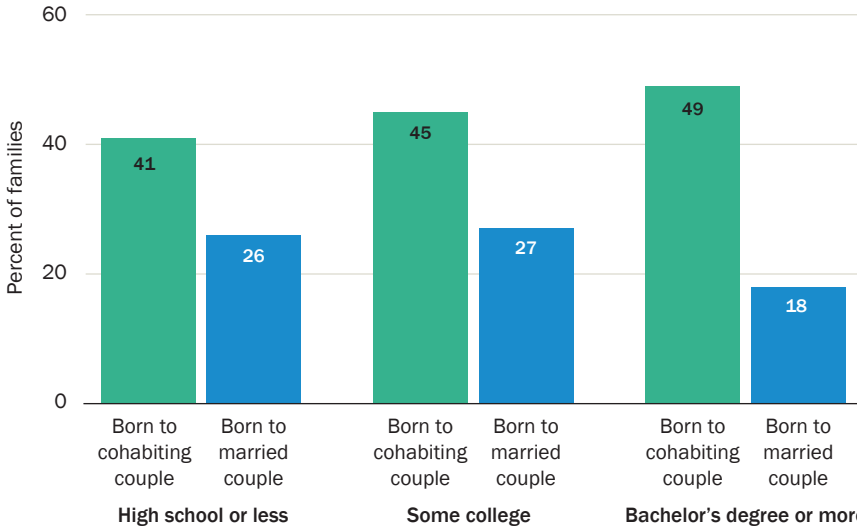
One consequence of growing family instability, as well as a consequence of the ongoing opioid crisis, has been the removal of more children from their biological or adoptive parents and their home. After declining steadily from 1999 through 2012, the foster care caseload began to increase, rising from 5.4 foster children per 1,000 children ages 17 and under to a rate of 6.0 per 1,000, with a total of 443,000 children in foster care (Child Trends n.d.). In addition, the share of foster children staying in the home of a relative (i.e., kinship care) has increased steadily over the past decade.

Decades of research on the well-being of children in foster care shows that these children are more likely to fail in school and drop out, are more likely to become involved in the juvenile justice system, are more likely to experience homelessness, and are more likely to encounter low wages and high unemployment as adults. In recent years, there has been a growing consensus in the field of child welfare that removing children from their families often does more harm than good. As a result, reforms of federal and state child welfare programs have aimed to help families avoid child neglect or abuse. The Family First Prevention Services Act of 2018 attempts to help at-risk families raise their children without removing them from their homes and placing them in foster care or institutions. The state child welfare programs are being carefully evaluated, so we will soon know whether focusing on helping to keep struggling families together can improve their child raising and, as a result, whether it can improve the outcomes for their child. Some experts are skeptical that these programs can work and think that child welfare agencies should move more quickly to remove children from troubled families, terminate parental rights, and place children for adoption, especially in light of the opioid crisis (Riley 2018). Evaluations of these new programs will be instrumental in determining which approach is best for children.

Compared to cohabitation, for instance, marriage in the United States is markedly more likely to bundle commitment, nonviolence, and stability (Kenney and McLanahan 2006; Musick and Michelmore 2018; Nock 1998; Wilcox and DeRose 2017). Figure 2.3, which displays the likelihood that children will see their parents break up before age 12 by parental education and marital status, shows a big gap between cohabiting and married parents (Wilcox and DeRose 2017). Other research indicates that children born to cohabiting couples who never marry are almost twice as likely to see their parents break up, compared to children whose parents are married, even after controlling for a range of confounding factors, such as parental education, race, and income (Musick and Michelmore 2018).

FIGURE 2.3

Probability of Family Dissolution before Age 12, by Parents' Marital Status and Education (2006–2010)



Source: Wilcox and Rose (2017).

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There are many reasons why children raised by married parents are more likely to flourish compared to children raised in single-parent families. For example, children in married-parent families have access to higher levels of income and assets, more involvement by fathers, better physical and mental health among both parents, more family stability, and many other factors (Ribar 2015). Most of these individual factors have been shown to have a positive impact on children's well-being. David Ribar's recent study of the impacts of marriage on children investigated the effects of these specific mechanisms. Even after accounting for these factors that are correlated with marriage, he finds that children with married parents have better outcomes. This means that, even given equal levels of parental attention, income, family stability, and other factors, children in married-parent families tend to end up better off than those living in other types of family arrangements. The advantages of being raised in a married-parent family appear to be more than the sum of the inputs. As Ribar concludes, "The advantages of marriage for children's wellbeing are likely to be hard to replicate through policy interventions other than those that bolster marriage itself" (Ribar 2015, 11).

We will not attempt to summarize the voluminous literature on family structure and child well-being, but outcomes related to education, economic security, and health suggest links between stable families and children's well-being. For example, children raised in stable, married-parent families are

more likely to excel in school, and generally earn higher grade point averages (Harker 2007). The effects of family structure are even stronger for social and behavioral outcomes related to schooling, such as school suspensions, whether a school contacts parents about a child's behavior, and whether a child drops out of high school (Autor et al. 2016; Kearney and Levine 2017; McLanahan and Sandefur 1994). Children who live in homes with married parents are more likely to attend and graduate from college (Kearney and Levine 2017; Lerman and Wilcox 2014). Research from Melissa Kearney and Phillip Levine indicates that the effects of marriage on high school and college completion are larger for children from less-educated homes than for children from homes with college-educated parents (Kearney and Levine 2017). In other words, children are more likely to acquire the human capital they need to later flourish in adulthood when they are raised in stable, married-parent families. We note that the effects of family structure vary by outcome, race, and financial status. Some of the effects of family structure are modest, such as on academic test scores; other effects of family structure seem larger, such as high school graduation rates (McLanahan, Tach, and Schneider 2013).

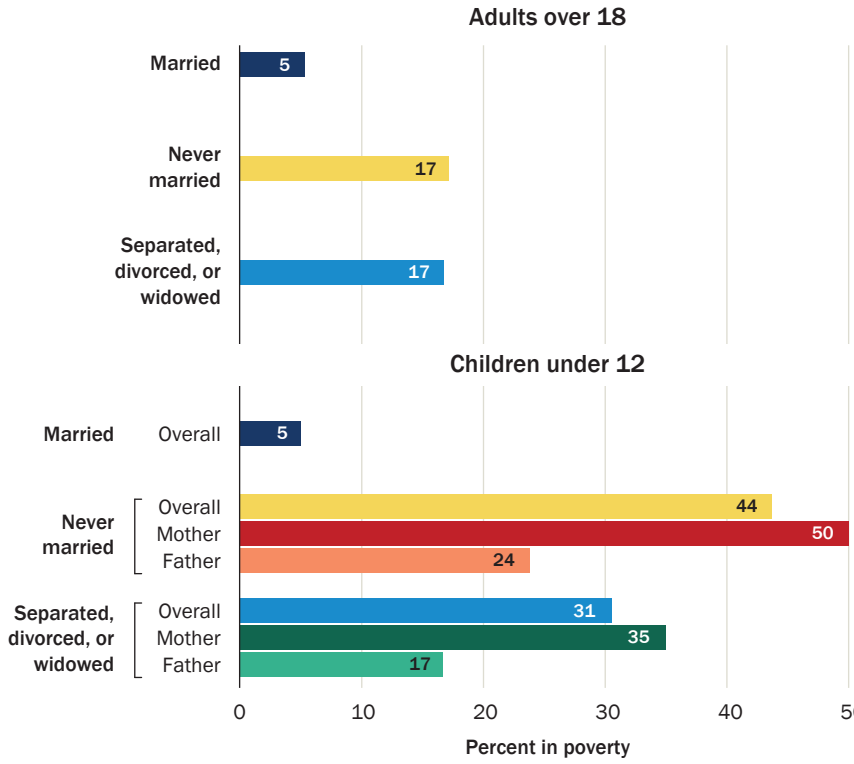
Because families that have two parents are more likely to have two earners, children in stable, married-parent families enjoy markedly higher income and lower risks of poverty and material deprivation (Lerman, Price, and Wilcox 2017). Figure 2.4 shows that children under age 12 living in single-parent homes are much more likely to be in poverty than children in married-parent families. Child poverty would be markedly reduced if the marriage rate was the same as it was in 1970 (Lerman 1996; Thomas and Sawhill 2005).

Obviously, much of the association between family structure and family income is about selection: married parents tend to be better educated and to be employed in better-paying jobs, even before they marry (Cherlin 2018). But part of the employment effect seems to be causal, as well. That is, marriage increases the odds that families have access to two earners, reduces the odds that households go through costly family transitions such as a divorce, engenders more support from kin, and fosters habits of financial prudence, including more savings (Eggebeen 2005; Lerman 2002).

The links between family structure and children's economic well-being also extend over the life course. A recent study by Richard Reeves and Chris Pulliam found that upward economic mobility is much higher for the children of married parents. Among those who were in the bottom income quintile as children, four out of five who were raised by married parents throughout their childhood rose out of the bottom quintile when they reached adulthood. In contrast, those raised by a single parent throughout childhood had a 50 percent chance of remaining in the bottom income quintile (Reeves and Pulliam 2020). Another study, this one by Raj Chetty and coauthors, found sharp differences in upward mobility across geographic areas (Chetty et al. 2014); the strongest single predictor of rates of upward mobility in a particular area was the share of single-parent families. This factor was much

FIGURE 2.4

Percent of Individuals in Poverty, by Marital Status (2018)



Source: Bureau of Labor Statistics Current Population Survey (n.d.).

Note: Children under 12 are grouped based on their primary parent's marital status and the gender of their primary parent.

more predictive than other measures tied to economic well-being, such as parents' education levels, income, or race. To be sure, these studies report correlations and do not necessarily reflect the causal impact of marriage. But study after study shows a strong correlation between marriage and a wide array of positive outcomes, and also shows that the benefits of marriage are larger than would be predicted by economic factors alone.

Furthermore, regarding race, family structure can have a larger effect on some outcomes for white children than for Black children (Dunifon and Kowaleski-Jones 2002; Manning and Brown 2006). This differential impact across races and ethnicities may reflect greater support from kin or community organizations, such as churches, for Black and Hispanic children when they experience adversity related to family instability (Brown 2010; Putnam 2015). On the other hand, Black children are more likely to face other

challenges, such as poverty, that compound disadvantages and increase the relative impact of family instability for them (Iceland 2019).

We also acknowledge that the quality of family life is crucial for the well-being of children, and not just the structure and stability of their family lives. Children do better when they receive high levels of affection, attention, and consistent discipline from their parents (Baumrind 2012). By contrast, children exposed to authoritarian and abusive parenting, or to high levels of conflict between their parents, are more likely to suffer, regardless of their family structure (Morrison and Coiro 1999). Indeed, the evidence suggests that parental separation is better for children in cases where high levels of conflict characterize a marriage (Amato and Booth 2000; Jekielek 1998). On the other hand, divorces involving children when there are low levels of conflict—perhaps one parent is depressed, the parents have grown apart, or one of the parents has had an affair—are more likely to make children worse off (Amato and Booth 2000).

III. Policy Priorities

After decades of decline, the share of children today being raised by married parents has stabilized and recently increased slightly. That's the good news. The bad news is that a large share of children do not have married parents—especially those from lower-income backgrounds and Black and Hispanic children. To bridge this divide and to strengthen family environments for all children, we propose the following public policy and civic measures to strengthen and stabilize marriage and family life in the United States.

A. Reduce Marriage Penalties in Means-Tested Programs

Currently, means-tested programs such as Medicaid, the Earned Income Tax Credit (EITC), and the Supplemental Nutrition Assistance Program (SNAP) penalize low-income couples who choose to marry (Carasso and Steuerle 2005) including working-class Americans, with one study showing that more than 70 percent of American families with young children and incomes in the second and third income quintiles face marriage penalties related to Medicaid, cash welfare, or SNAP receipt (Wilcox, Gersten, and Regier 2020; Wilcox, Price, and Rachidi 2016). These penalties can reduce the odds that lower-income couples will marry; one survey found that almost one-third of Americans ages 18 to 60 report they personally know someone who has not married for fear of losing means-tested benefits (Wilcox, Gersten, and Regier 2020; Wilcox, Price, and Rachidi 2016).

We recommend that Congress consider minimizing marriage penalties by (a) increasing thresholds for means-tested programs for married-parent families, especially those with young children; (b) experimenting with waivers that would allow state and local governments to try innovative approaches to reducing marriage penalties; or (c) passing a secondary earner deduction for low- to moderate-income families that would ease the financial impact of such penalties for two-earner families (Kearney and Turner 2013).

B. Strengthen Career and Technical Education and Apprenticeships

One reason marriage is fragile in many poor and working-class communities is that job stability and income are inadequate, especially for workers without a college degree. We acknowledge that better jobs and greater income are not a silver bullet. New research finds, for example, that better-paying jobs associated with fracking did not boost the share of children being raised in married-parent families (Kearney and Wilson 2018). But insofar as stable, decent-paying jobs remain a key ingredient for young adults considering marriage, steps should be taken to scale up vocational education and apprenticeship programs (Cass 2018; Lerman 2014; Sawhill 2018). We endorse recent initiatives to increase apprenticeships and shorter training programs. Congress should do more to expand access to apprenticeships and career and technical education and to support students in the completion of their degrees.

C. Encourage Young Adults to be Prepared before Having Children

Social marketing and relationship education on behalf of marriage could also prove helpful. Campaigns against smoking and teenage pregnancy have taught us that sustained efforts to change behavior can work. We would like to see a civic campaign organized around what Brookings Institution scholars Ron Haskins and Isabel Sawhill have called the success sequence, in which young adults are encouraged to pursue education, work, marriage, and parenthood, in that order (Haskins and Sawhill 2009; see also Wilcox and Wang 2017). Today, 97 percent of young adults who follow this sequence are not poor in midlife (Wilcox and Wang 2017). While the sequence has not been proven to exercise a casual role in adults' economic lives, an extensive body of research indicates that each step—that is, education, work, and marriage—is associated with better economic outcomes for families with children (Lerman and Wilcox 2014; Wang and Wilcox 2020).

A campaign organized around this sequence—with hopefully widespread support from educational, civic, media, pop cultural, and religious

institutions—might meet with the same level of success as the recent campaign to prevent teen pregnancy, a campaign that helped drive down the teen pregnancy rate by more than 65 percent since the 1990s (CDC 2015, 2016, 2017; Kearney and Levine 2014). All aspects of society should encourage young adults to plan and be mentally, financially, and relationally prepared for parenthood before starting a family.

CHAPTER 3

Foundations for Strong Early Development

The first three years of life are a particularly consequential period of rapid development, laying the foundation for lifelong health, intellectual ability, emotional well-being, and social functioning. This development starts before birth: in fewer than 300 days, a single fertilized cell becomes a newborn infant. After birth, development continues at an extraordinary pace, as a newborn transforms over the first three years of life into a running, jumping, climbing, preschooler with the ability to speak, reason, and love. As scientists across disciplines now understand, and the working group affirms, the stakes for this earliest period are especially high because, although growth and development continue across the lifespan, essential aspects of development unfold within early, time-specific windows that gradually close.

During this time of dynamic brain development, children are acutely sensitive to inputs from their biological, social, and physical environments. Patterns of responses and behaviors are established, which are increasingly difficult to alter as children grow through primary school age, adolescence, and adulthood. To make sure children begin life on the right track, it is crucial to take advantage of this early period of development. The working group finds that both private and public investments are critical and have substantial payoffs in three interdependent key contexts of development: the womb, the home, and, for many children, nonparental care.

I. The State of Early Development in the United States

Over the past several decades, the United States has made great improvements in several areas of early well-being, but challenges and gaps in health and the care environment experienced by young children remain.

A. Prenatal Environment

The prenatal environment impacts the fetus, and adequate prenatal care starting early in pregnancy can help to improve its healthy development. Yet a substantial share of mothers do not obtain timely prenatal care, again with striking gaps by race/ethnicity and socioeconomic status. In 2018, 83 percent of white mothers, 88 percent of mothers with a bachelor's degree or higher, and 87 percent of privately insured mothers received prenatal care beginning in the first trimester. Rates were substantially lower among Black mothers (67 percent), mothers with only a high school diploma (73 percent), and mothers covered by Medicaid (68 percent). Only 5 percent of white mothers, 3 percent of mothers with a bachelor's degree or higher, and 2.7 percent of privately insured mothers received late (starting in the third trimester) or no prenatal care, compared to 10 percent of Black mothers, 7 percent of mothers with only a high school diploma, and 8.6 percent of mothers covered by Medicaid. Women who self-pay for childbirth (i.e., who do not use either private insurance or Medicaid) received especially inadequate prenatal care: just 55 percent obtained care beginning in the first trimester and 20 percent received late or no prenatal care. Fathers' support during pregnancy has also been tied to improved prenatal health care, and more-subsequent positive engagement with their children, as well.

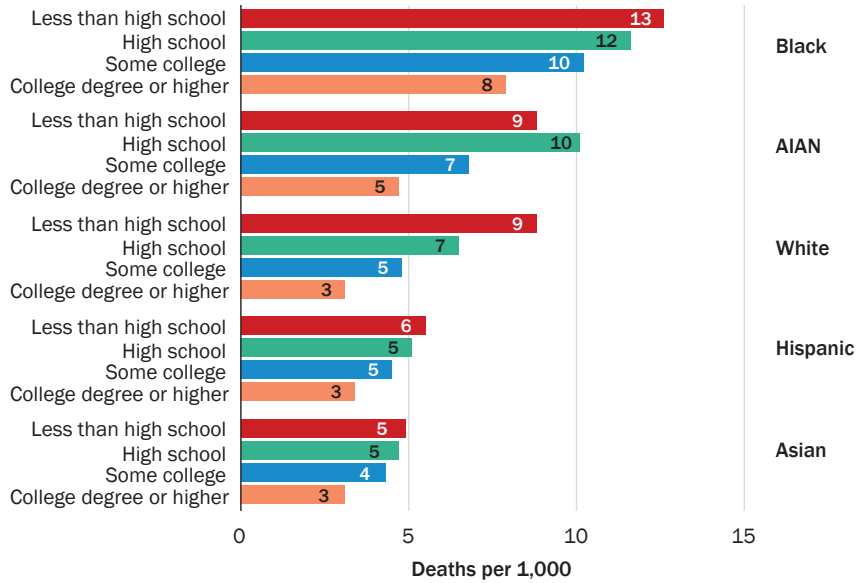
Perhaps one of the most remarkable public health accomplishments of the past several decades is the reduction of mothers' smoking during pregnancy. In 1968, 40 percent of married white women and 33 percent of married Black women smoked during pregnancy. By 2018 smoking during pregnancy had declined steeply to an average of 6.5 percent among all women: 9.5 percent of white women, 5.2 percent of Black women, and 1.7 percent of Hispanic women. Smoking during pregnancy has been linked to a range of negative infant and child outcomes, including low birth weight and increased rates of preterm births and birth defects (Drake, Driscoll, and Mathews 2018).

Infant mortality rates have also declined steadily in the United States. In 1915, 100 of every 1,000 babies born died before their first birthday; by 1990 mortality had fallen to 9.6 per 1,000 births. Today, infant mortality is just 5.7 per 1,000 live births. There are, however, disparities by race and maternal education level, as figure 3.1 shows. Infant mortality rates in 2018 ranged from approximately 3 per 1,000 live births for white women with a bachelor's degree or higher to about 13 for Black women without a high school diploma. Due in large part to these inequalities, the United States has the highest infant mortality rate among developed nations, ranking 33rd among 36 OECD countries, with a rate lower than only Chile, Mexico, and Turkey (America's Health Rankings 2018).

Preterm birth (37 weeks or less of gestation) and low birth weight (less than 5.5 pounds) are strongly associated with a range of adverse short- and long-term outcomes. Rates of preterm birth and low birth weight have been

FIGURE 3.1

Infant Mortality, by Mother's Race/Ethnicity and Education (2018)



Source: CDC Wonder, Linked Birth / Infant Death Records, 2017–2018 Expanded Results.

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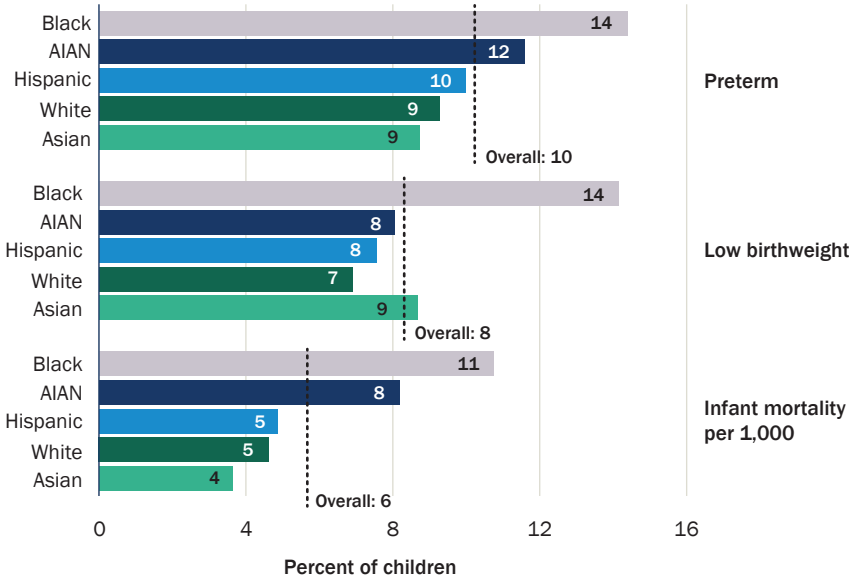
Note: AIAN = American Indian or Alaskan Native. Respondents are considered AIAN, Asian, Black, or White if they reported being that race alone and not Hispanic or Latino. Respondents are considered Hispanic if they reported being Hispanic or Latino and any race.

relatively stable in recent decades, but, as figure 3.2 shows, the rates vary significantly by race and ethnicity. In 2019 the rate of preterm births was 14 percent for Black women compared to 10 percent for Hispanic women and 9 percent for white and Asian women. Similarly, 14 percent of babies born to Black women were low birth weight, nearly twice the rate for babies born to white, Hispanic, and Asian women.

Progress on maternal mortality has stalled. After falling from 608 maternal deaths per 100,000 live births in 1915 to a low of 7.2 per 100,000 live births in 1987, the rate has increased again to 17.4 per 100,000 live births in 2018 (America's Health Rankings 2018). Here, too, there are considerable disparities by race, with the maternal mortality rate for Black women two and a half times the rate for white women and more than three times the rate for Hispanic women. The Centers for Disease Control and Prevention (CDC) says that the majority of mothers' lives lost could be saved with access to better medical care (Solly 2019).

FIGURE 3.2

Rates of Preterm and Low Birthweight Births and Infant Mortality in the U.S., by Race/Ethnicity (2019)



Source: National Vital Statistics Reports, Vol. 70, No. 2, March 23, 2021, Table 13.

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Note: AIAN = American Indian or Alaskan Native. Respondents are considered AIAN, Asian, Black, or White if they reported being that race alone and not Hispanic or Latino. Respondents are considered Hispanic if they reported being Hispanic or Latino and any race.

B. Infant and Toddler Years

Promoting healthy development among infants and toddlers relies heavily on regular doctor visits—where health-care workers can screen and monitor health and development milestones, provide immunization, educate parents, and intervene promptly with additional supportive services when necessary. The American Academy of Pediatrics (AAP) recommends 15 well-child checkups from birth through age 5, but many children receive far fewer than that. The "National Survey of Children's Health 2018" (US Census Bureau 2019) found that 22 percent of children from birth to age 6 had received no well-child checkups in the past year and 20 percent had received no medical care at all. These findings are consistent with a recent study examining well-child visit attendance from 2011 to 2016 within two large health networks serving disproportionate numbers of lower-income families across 20 states. The researchers found that, on average, families missed more than half of recommended well-child visits from birth to age 6, including more than

BOX 3.1

Child Maltreatment

Child maltreatment remains a serious problem in the United States, especially for children under age 3. Parents with certain characteristics are substantially more likely to maltreat their children. Major—often interrelated—risk factors include family isolation, poor parental mental health, and intimate-partner violence. Parental substance dependence is especially associated with child neglect (Euser et al. 2015; Scott 2008). Child maltreatment can have devastating, long-lasting effects on a child (Child Welfare Information Gateway 2019; Lancet 2008). Physical and emotional abuse and neglect during early childhood compromises brain development and is associated with an increased risk of a wide range of health, psychological, and behavioral problems into adulthood.[1]

Child maltreatment is overwhelmingly perpetuated by parents: 92 percent of child victims were maltreated by one or both parents, while just 8 percent were maltreated by a non-parent (e.g., a relative, child-care worker, foster parent, or neighbor) with no parent present. Infants are by far the most likely to be maltreated, with the official rate of substantiated child maltreatment in 2018 at 26.7 per 1,000 for infants; the rate for 1- and 2-year-olds was much lower, at 11.8 and 11.0 per 1,000, respectively. Rates sharply decrease as children age, averaging 9.2 per 1,000 children from birth to age 18. Almost three-quarters of the approximately 1,800 children who die due to maltreatment each year are under age 3 and nearly half are under age 1.

Experts further believe that official agency statistics account for just a fraction of child maltreatment, both due to large variation in state legal definitions and reporting systems and because most child maltreatment goes undetected and/or unreported.2 Surveys of children, adolescents, and parents suggest a much higher frequency of maltreatment than is reported to officials, and studies have found that health and education professionals routinely under-report children they suspect of being maltreated to child protection agencies (Gilbert, Kemp, et al. 2008).3 Actual rates of child matreatment are estimated to be from 10 to 25 percent of children (Finkelhor et al. 2015; Gilbert, Kemp, et al. 2008; Lancet 2008).

1. In one recent study, children who had been exposed to moderate abuse/neglect were two times more likely to have ADHD; children exposed to severe abuse neglect were 2.78 times more likely to have ADHD (Stern et al. 2018).
2. Of the 2.8 million cases that were undetected and/or unreported, almost 1 million (952,000) received post-response services and more than 60,000 received foster care services.
3. Reasons for not reporting include lack of awareness of the signs of child maltreatment, uncertainty about the degree of maltreatment, relationship to perpetrator, unfamiliarity with reporting processes, concern that reporting to government child-protection agencies may do more harm than good, and the view that addressing the maltreatment would be better handled through other means.

(BOX 3.1 CONTINUED)

By far the most common type of maltreatment is neglect, which can have worse physical, cognitive, and social-emotional effects, especially for very young children, than even physical and emotional abuse (Gilbert, Widom, et al. 2008). Researchers estimate that as many as 15 percent of younger children today are neglected.[4] While rates of physical and sexual abuse have declined over the past several years, rates of neglect have not (Committee on Maltreatment 2014). Under circumstances of neglect, a young child's rapidly growing brain is deprived of crucial nurture and interaction, compromising the development of neural circuitry, and delaying or even permanently impairing multiple domains of development that depend on ongoing interaction to develop normally (Earls 2010). Adverse effects of neglect occur very early in a child's life in some areas of development. For example, research has shown that children who have experienced serious conditions of neglect from birth to age 2 are unlikely to recover normal levels of intelligence after that point, even with intervention (Nelson et al. 2007). Similarly, children who experience severe neglect from birth to around 15 months of age often never recover typical language ability, even after being placed in an improved environment.

4. Another 15 percent involve more than one type of maltreatment, usually neglect and physical abuse.

one-third of 2-month, 4-month, and 6-month visits, and almost two-thirds of 15-month and 18-month visits (Wolf et al. 2018). One barrier to regular pediatric care is lack of health insurance. On this dimension there has been great progress in recent years, as detailed in chapter 4.

Supporting healthy development through adequate nutrition across the early years is a primary responsibility of parents. This starts with breastfeeding. There is a strong association between breastfeeding and a wide range of improved short- and long-term health outcomes for children, though the extent to which this relationship is causal is subject to some debate.[1] For mothers, breastfeeding is associated with lower rates of maternal depression, decreased likelihood of child maltreatment, and increased spacing between child births. Women who breastfeed are more likely to have other characteristics associated with positive child outcomes, however, such as higher income and higher levels of education, making it difficult to establish the

1. For example, compared to infants who are exclusively breastfed for the first six months, infants who are exclusively fed formula have a 100 percent greater risk of acute ear infection, a 178 percent greater risk of diarrhea and vomiting, and a 250 percent greater risk of hospitalization for lower respiratory tract infections in their first year (CDC 2011).

direct effect of breastfeeding on children's well-being. On the other hand studies have shown clear short- and long-term benefits of breastfeeding rather than feeding formula to preterm infants in neonatal intensive care (Vohr et al. 2006; Vohr et al. 2007; World Health Organization 2011). Taken together, these findings have yielded a research and policy consensus that babies should be exclusively breastfed for a minimum of six months, with continued breastfeeding, along with the gradual introduction of solid foods, until at least 1 year of age.

The percentage of infants who have ever been breastfed has increased substantially in recent years, and by 2018 84 percent of infants had been breastfed (Feltner 2018). Rates of current breastfeeding drop off with infant age so that, at six months, just over half are still being breastfed and only a quarter are being breastfed exclusively. There is substantial variation by race/ethnicity, education, and marital status. More than four out of five white and Hispanic women begin breastfeeding after childbirth compared to around three-quarters of Black women. The disparities are also large by education level and marital status.

Participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)—a program in which families are provided nutritious foods including infant formula—is associated with a range of improved outcomes, both by improving access to nutrition and through services available at WIC clinics. About half of pregnant eligible women participate in WIC, and participation increases after childbirth: most infants who are eligible for WIC benefits get them. Rates of WIC participation drop off sharply as children get older even though children remain eligible to age 5 (US Department of Agriculture [USDA] 2019). Given high rates of food insecurity among low-income families with young children and the demonstrated importance of adequate nutrition, increasing WIC participation rates is vital for children's healthy development.

The dramatic decline over the past few decades in young children's exposure to lead is another exceptional public health achievement. With greater awareness of the serious adverse effects of lead exposure on young children, the United States has eliminated or reduced detectable amounts of lead from gasoline, household paint, food and drink cans, and plumbing systems. Consequently, the percentage of children under age 5 with blood lead levels exceeding 10 µg/dl fell from 88 percent in the late 1970s to just 0.4 percent in 2018 (CDC 2019). The percentage of children with blood lead levels above 5 µg/dl—the new reference level set by the federal government in 2012—has declined from 9.9 percent in 2000 to 3 percent in 2020 (US Environmental Protection Agency [EPA] n.d.).

Although children's blood lead levels have fallen dramatically over the past several decades, the latest medical research shows that significant neurodevelopmental damage to children can occur at lower levels of exposure than previously thought. This includes both cognitive impairment and behavioral

problems, such as impulsivity, hyperactivity, and attention-deficit disorders (Bellinger 2008; Council on Environmental Health 2016; Gould 2009; Pew Charitable Trusts 2017). The prevalence of elevated blood lead levels is likely much higher than official reports suggest: a recent national study found that rates of elevated blood lead levels in children from ages 1 to 5 were double the rate reported by the CDC, almost certainly because of under-testing by pediatric care providers and underreporting by many states (Roberts et al. 2017).

C. Parenting Characteristics

Early parenting quality has a profound impact on child outcomes. The quality of early parenting varies greatly, is driven by parental knowledge and capacity, and is correlated with other factors including income, race/ethnicity, education, and marital status. Variation in parental investments—both time and money—contribute to mobility gaps (Duncan et al. 2019; Kornrich and Furstenberg 2013). For children under age 3, crucial parental characteristics include stable, consistent, and ongoing nurturing care and engagement.

A crucial determinant of parenting quality is parents' mental health. Researchers increasingly consider a mother's emotional well-being from the prenatal period to age 3 to be the single greatest environmental influence on child outcomes, with powerful impacts on children's physical, social, emotional, and cognitive development (Meany 2018). In particular, a growing body of research has established that maternal distress—depression, anxiety, and chronic stress from pregnancy through the first year after childbirth—can adversely affect both the developing fetus and the child, leading to a range of short- and long-term adverse child outcomes, impairment of the mother-child relationship, and increased costs of medical care.

Maternal distress is more prevalent than often realized, affecting up to 15 percent of perinatal women overall, and twice as many (about 30 percent) low-income and minority women (Earls et al. 2019).[2] Recent research has also found that the much larger proportion of postnatal women who experience high but subclinical levels of depressive symptoms often differ little from clinically depressed mothers in impairments of parenting and adverse influences on child neurodevelopment (Atkinson et al. 2019). Postnatal depression is especially pervasive among low-income mothers: researchers have estimated

2. In general, women are more likely to experience depression than men, and lower-income women are much more likely to experience depression than higher-income women. One in five women (19.8 percent) below 100 percent of the federal poverty level (FPL) experiences depression—more than twice the rate of women (9.4 percent) from 200–400 percent FPL and more than four times the rate of women (4.8 percent) over 400 percent FPL. About 80 percent of depressed women reported at least some difficulty with work, home, or social activities due to depression.

that 11 percent of infants in families below 100 percent of the federal poverty line live with a mother who is severely depressed and more than half with a mother who has high subclinical depressive symptoms (Wachino 2016). Mothers with a history of emotional problems, anxiety, sexual abuse, and stressful life events are also more vulnerable to poor mental health.

The influence of maternal mental health on child well-being begins in the prenatal period, months before a baby is born. Maternal depression, anxiety, and chronic stress during pregnancy can alter development of the rapidly growing, highly vulnerable fetal brain (Buss et al. 2010; Davis and Sandman et al. 2010; Marečková et al. 2018). After birth, those babies are more likely to have more reactive, "difficult" temperaments—which, in turn, increases the likelihood of postpartum maternal anxiety and depression. Depression, in particular, influences child outcomes by diminishing the quality of the mother's interactions with her child. A mother experiencing depressive symptoms is often less sensitive and attuned to her child, more irritable and hostile, and more likely to have a distorted perception of the child's behavior. Depressed mothers are likely to be either more withdrawn and disengaged, or intrusive and over-stimulating (Goodman 2019).

In addition, depressed mothers are less likely to breastfeed, to follow safety recommendations for infants, or to take their child to well-baby visits (Goodman 2019; Meany 2018). The disruption of mother-infant interactions leads to impairment of the mother-child relationship, which, in turn, adversely influences a wide range of child outcomes including socioemotional development, executive function, and academic achievement, and increases the risk for psychopathology (Meany 2018; Murray and Cooper 1997). The adverse impact of postnatal maternal emotional health on children's outcomes has been found to persist through childhood into adulthood (Dale et al. 2011; Earls et al. 2019; Kim et al. 2014; Meany 2018; Netsi et al. 2018; Wachino 2016).

While early life exposure to maternal depressive symptoms is a serious risk to children's neurodevelopmental outcomes, effects on children's development vary by the severity and persistence of symptoms (Netsi et al. 2018). Both higher rates of maternal depression and greater negative effects on children are much more likely to occur in the context of social, economic, and personal adversity (Meany 2018; Murray and Cooper 1997). In these contexts, even milder, subclinical symptoms often diminish the quality of parenting and therefore adversely affect child neurodevelopment (Goodman 2019).

Fathers' mental health also factors into child well-being: fathers who are depressed, violent, or absent have a profound negative effect on children and on mothers' parenting. Fathers, too, can experience postpartum depression, although this typically is reported at much lower rates than mothers: 8 percent of fathers are estimated to experience postpartum depression, with higher rates when the mother is depressed (AAP and Bright Futures 2019). Paternal postpartum depression is more likely to result in substance abuse and domestic violence than in sadness and withdrawal, and has been linked

to compromised child behavioral, social, and emotional development, independent of maternal depression. If both parents are depressed, the negative effects of maternal depression on the infant are exacerbated. On the other hand, nondepressed fathers can mitigate some negative effects of maternal depression through sensitive and involved fathering (Priel et al. 2019).

II. Why "Early" Matters

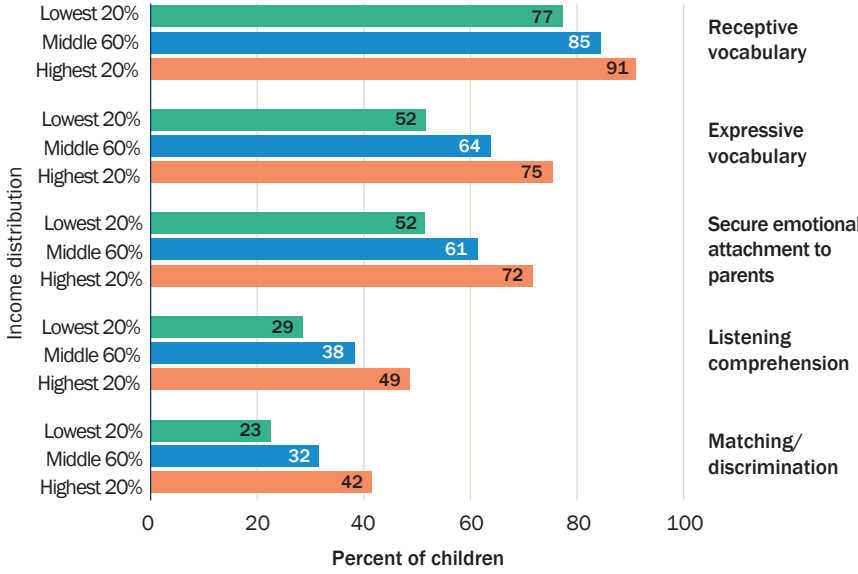
The brain begins developing in utero, growing rapidly to about 100 billion brain cells within nine months. At the time of birth, the infant brain has roughly the same number of brain cells—called neurons—as an adult brain, but with many fewer connections linking them. Starting in the first months of life, the brain's neural network expands exponentially as the number of connections per neuron increases from roughly 2,500 at birth to an average of 15,000 by age 3. Those trillions of new connections wire the structure of a young child's brain for growth and learning. The growing brain is an integrated organ: cognitive, social, emotional, and physical capacities are interconnected and interdependent. These capacities begin developing immediately after birth, building over time into critical determinants of success in school, work, and life.

At each step along the way, development is profoundly influenced by children's early environments and relationships. While there are surely a range of environments and experiences, most children in this country are in environments well suited to optimal development, with access to prenatal care and parents with adequate resources—including education and income—to provide high-quality early environments. Yet there are many infants and toddlers who are not so fortunate. Many parents struggle with providing for their children's basic physical and emotional needs. Lower-income parents are more likely than higher-income parents to report a lack of prenatal care, harsher and less-responsive parenting, and poorer-quality child-care arrangements. These differences suggest that a substantial group of children start life at a big disadvantage.

Development is cumulative and dependent on gains in previous periods of development, as more-complex neural connections build on earlier ones. As a result, early skills form the foundation for acquiring additional skills at later points in the life cycle: skill attainment at one point of development enables higher levels of skill attainment at later points in life. On the flip side, gaps in early skill formation can impede subsequent development and can dramatically increase the costs of later intervention.

FIGURE 3.3

Percentage of 2-Year-Olds Demonstrating Specific Cognitive Skills and Secure Emotional Attachment, by Socioeconomic Status 2003–04



Source: National Center for Education Statistics Table 220.20.

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A. Gaps Emerge Early and Persist

Developmental gaps between children emerge very early and can persist into adulthood. The quality of children's early experiences correlates strongly and consistently with children's development in all domains: physical, cognitive, social, and emotional. By age 2, children from lower-income families can already be behind their higher-income peers in language development (see figure 3.3). If left unaddressed, these differences, in turn, predict a range of subsequent outcomes including academic achievement, aspects of behavior, and even brain structure. Between ages 2 and 3, on average, children raised in lower-income homes already lag months behind their higher-income peers in oral language, cognitive processing, and steady attachment to a caring adult (Halle et al. 2009). Fewer than half of low-income 5-year-olds enter school ready to learn, with some up to two years behind their more advantaged peers. Many also suffer from physical disabilities and poor mental health, which makes it difficult for public school systems to meet their educational and social needs. Disparities during the early years result in unequal rates

BOX 3.2

Risk and Resilience

Children have the capacity to adapt to a broad range of individual, family, and community circumstances, and do not require an ideal early childhood to develop well. Indeed, many children experience some degree of serious adversity without substantial long-term detrimental effects, especially when there are other supportive, positive factors in the child's environment. But chronic stress in early childhood can be toxic to the developing brain.

Home environments lacking adequate parenting and cognitive stimulation for young children lead to lifelong negative outcomes, while supportive and nurturing early environments predict greater flourishing in later life (Heckman 2006). Major risks to children's development include children's poor health or disability; poor parental mental health; family instability, conflict, and violence; harsh and inconsistent parenting; and early abuse or neglect. The effect of these negative factors depends on their number, level of intensity, and duration. That effect also depends greatly on the presence or absence of protective factors that can mitigate the negative effects of stressful or traumatic conditions. The consistent presence of at least one trusted, responsive, and nurturing caregiver can be a particularly consequential protective factor against some types of risk. Other factors that affect early development include the reliable presence of other caring adults and older children, cognitively stimulating and language-rich interactions, predictable routines, and support in exploration and play. When the accumulation of sustained, significant adverse conditions is too great, and sufficiently buffering and protective factors are absent, however, children experience what neuroscientists have called toxic stress: high, sustained levels of stress that impair normal development of the body's neurological, endocrine, and immune systems, with long-term physical, social, and emotional effects.

of early growth across all groups, but impact Black and Hispanic children most severely (Reardon and Portilla 2016). These early gaps widen over time, yielding disparate outcomes on average throughout childhood and beyond: in education achievement, earnings, social behavior, and physical and mental health.

B. Key Developmental Contexts

The hour-to-hour and day-to-day early experiences of babies and toddlers have a profound, lasting impact on the rest of their lives, shaping the rapidly growing brain in enduring ways that lay the foundation for all future development and aptitude for learning (Als et al. 2004). An adequately and predictably responsive, supportive, and nurturing environment during this crucial early period is essential to children's healthy development and future success. Conversely, when children's early environments are unpredictable, insufficiently supportive, or overtly damaging, the repercussions can persist for decades, compromising children's developmental trajectories and limiting their long-term capacity for success in school, work, and life.

1. Prenatal Development

The first, foundational environment of human development is the womb. Over the past 20 years, scientists have established that a pregnant woman's physical and psychological health affect the environment the fetus is growing in, thus influencing development through the fetus's adaptive responses to cues from the intrauterine environment, with lasting effects from infancy well into adulthood. The rapidly developing fetal brain is highly responsive—and thus acutely vulnerable—to this earliest environment, which impacts fetal brain development in enduring ways.

The fetus experiences and is shaped by the life of the mother. Sustained, chronic anxiety and depression during pregnancy have potentially long-term impacts on the future child's brain structure and behavior. Fetal development can also be impacted by a range of factors in the mother's life, including nutrition, health, environmental factors, lack of social support, and use of cigarettes, alcohol, and drugs during pregnancy.[3] Fathers' involvement is also linked to better health outcomes for mothers and babies.

2. Parents and the Home Environment

Throughout infancy and the toddler years, rapid foundational development continues, driven by the cumulative and interactive effects of a child's genes and environment. Parents and the home environment are by far the most influential forces in children's early development. Children's cognitive, social, and emotional development is driven by close, nurturing relationships with

3. For example, fetal exposure to high levels of air pollution, heavy metals, and certain easily metabolized chemicals leads to increased likelihood of preterm birth, low birth weight, and a range of developmental delays. Similarly, a recent study found that the risk of sudden infant death syndrome (SIDS) is 12 times greater for babies born to mothers who both drank and smoked beyond the first trimester of pregnancy.

the caregivers in their lives. Young children rely on relationships to learn and develop, and the nature of those early relationships influences the brain architecture that serves as a foundation for future learning, behavior, and health (National Scientific Council on the Developing Child 2004). From birth, most children intensely seek engagement with those caring for them through cooing, crying, babbling, making facial expressions, gesturing, and, eventually, using words. Early brain development depends on consistent back-and-forth engagement with trusted, loving caregivers: the infant brain grows in direct response to these recurring patterns of social stimulation (Newman et al. 2016). If caregiver responses are unreliable, inappropriate, or absent, developing brain circuits can be disrupted, impairing subsequent learning, behavior, and even physical health.

Thus, the nature of the caring relationships in a child's life is a primary driver of development, shaping a child's abilities and determining their aptitude to learn. Stable, nurturing, responsive relationships, provided in a context of adequate physical resources, are the active ingredient of young children's healthy development (Als et al. 2004). For young children, ongoing engagement in serve-and-return interactions with loving adults are key. Older children need relationships with caregivers who support and encourage their efforts to connect to and learn about the universe around them. Indeed, an essential and unique characteristic of children's first three years is that the process of learning occurs overwhelmingly in the context of social interactions. In every aspect of early development, supportive and responsive interactions with the people around them are what drives a young child's learning.[4]

3. Child-Care Environments

Millions of young children today spend a substantial portion of their earliest years in the care of people other than their parents. In 2016 47 percent of babies under 1 year of age and 54 percent of toddlers between ages 1 and 2 spent some time every week in nonparental care. Research has established that parents and children's early home environment play by far the most influential roles in children's early development, even for children in child care. But for children who spend long hours in nonparental care, the quality of that care also influences development. High-quality care may be especially protective for children whose early home experiences are not optimal; for these children, high-quality child care can mitigate risk, as well as promote development.

High-quality child care does exactly what good parenting does: it providing a sense of security and the responsive, stimulating, and supportive

4. The quality of early caregiving is particularly consequential in driving language development, which, in turn, is fundamental to crucial development in multiple domains (Levitt and Eagleson 2018).

one-on-one interactions that young children require to thrive. Just as in the home, high-quality nonparental child care is interaction-driven, occurring through consistent, back-and-forth engagement with warm, responsive, and trusted caregivers. The working group will address child care in great depth in chapter 5 on education.

III. Policy Priorities

The policy priorities stated above with regard to household resources, caregiver relationships, and stability are particularly consequential for the youngest children and are reaffirmed here.

We also recognize the importance of parents' mental health as a key ingredient of children's healthy development, and call on both government and the nonprofit sector to build more evidence on programs to take care of the caregivers. Promising avenues include community classes, public campaigns, and access to local mental health resources.

Working group members recognize the importance of access to health care, and the value of public health insurance for children. These gains must be preserved even as progress is necessary to increase participation in prenatal care, well-child visits, and testing for blood lead levels in at-risk areas. Each of these could be improved with public awareness campaigns and outreach, and may be more effective if coupled with state-level benchmarks or incentives.

CHAPTER 4

Child Health

Child health is valuable in its own right, and also lays the foundation for subsequent adult health and later-life economic security. Access to health care matters for promoting good health, of course, but family, community, and environmental factors are also critical determinants for health in childhood and later in life. The working group agrees that there is strong evidence that children's health can be improved with interventions at the individual, family, community, and national levels.

In this chapter, we pick up after the discussion of health in the prior chapter and focus on the health of 4- to 12-year-olds, though due to data availability we may at times broaden the scope. Children in this age range typically experience some of the healthiest years of their lives. But gaps by race and socioeconomic status are large and new threats have emerged that require policy interventions to address root causes of childhood health disadvantages.

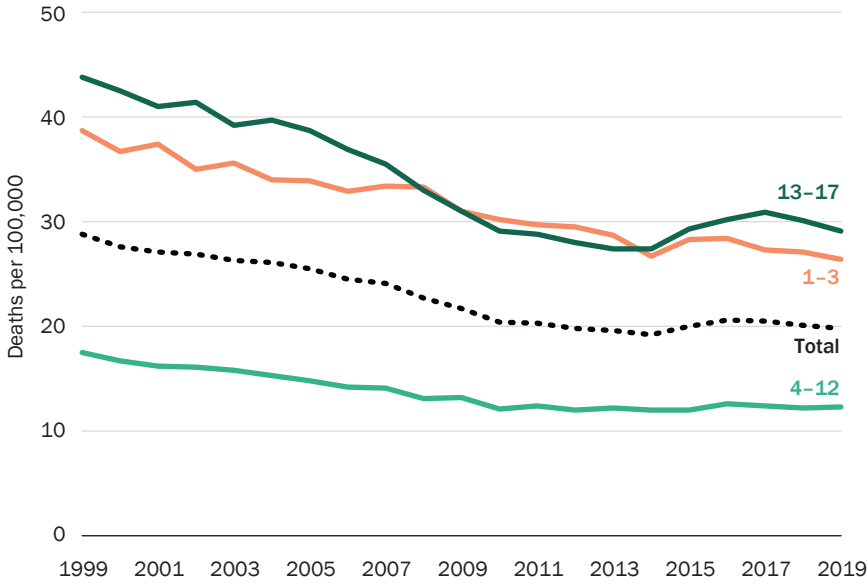
I. Child Health in the US Context

In recent years there have been improvements along several dimensions: mortality rates have declined—especially those due to traffic accidents—and more children are covered by health insurance. On the other hand, childhood obesity rates have been steadily increasing. It is more difficult to definitively assess trends in some illness and medical conditions due to changes in diagnostic practices over time, but, as shown in this chapter, children face high rates of asthma and poor mental health conditions.

Figure 4.1 shows all-cause mortality for children between the ages of 1 and 17 from 1999 to 2019. Across all age groups, children's mortality generally has declined, particularly among children living in high-poverty areas (Currie and Schwandt 2016). While mortality rates among infants ages 0–1 (not shown) and among those ages 1–3 have also continued to decline, mortality rates have leveled out for children ages 4–12, and have remained elevated over

FIGURE 4.1

Child Deaths Per 100,000, by Age Group



Source: CDC Wonder, Underlying Cause of Death, 1999–2019. AEI BROOKINGS

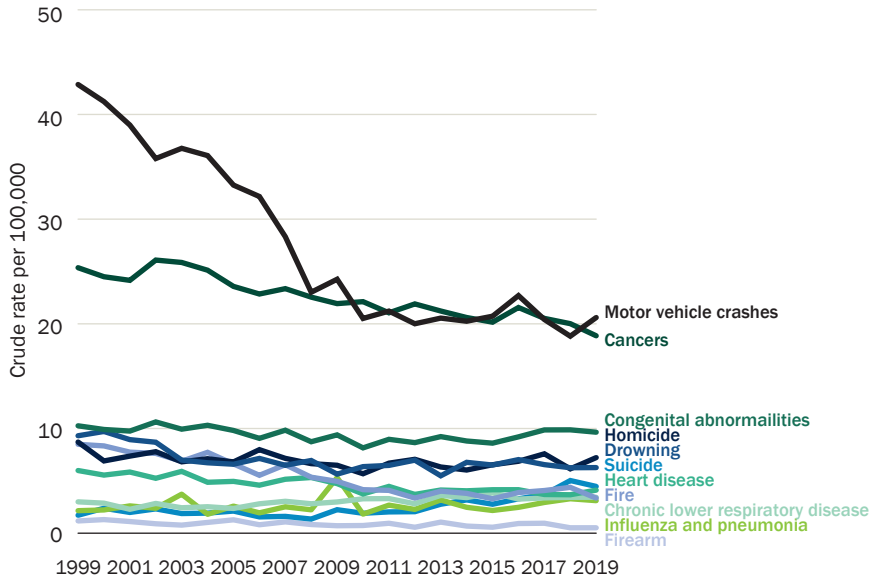
a 2014 low for children ages 13–17. One reason that mortality rate progress has stalled for children between the age of 4 and 12 is because mortality rates among Black children have increased since 2010.

Moving to specific causes of death among children, figure 4.2 highlights the importance of social and environmental risks. Injury (shades of blue) rather than disease (shades of green), is the leading cause of death among US children (Advisory Board 2018). Motor vehicle crashes make up approximately half of all injury-related deaths among children before the age of 12, although the rate has fallen by more than half between 1999 and 2019. Drowning, which used to be the fourth-highest cause of death, has also declined. Both motor vehicle crashes and drownings have declined in part because of public health measures, such as improved car safety features and child seat restraints, and water safety measures and training. The second-most common cause of death is cancer, but cancer-related deaths in children have also declined substantially, by 25 percent from 1989 to 2019. Overall, deaths from infectious disease and cancer have declined in the United States, due in part to better medical treatment, including early diagnosis, vaccinations, and the use of antibiotics.

The second-leading cause of child mortality for children of all ages (though not for those ages 12 and under) in the United States is firearms,

FIGURE 4.2

Leading Causes of Death among 4–12-Year-Olds, 1999–2019



Source: CDC Wonder (n.d.).

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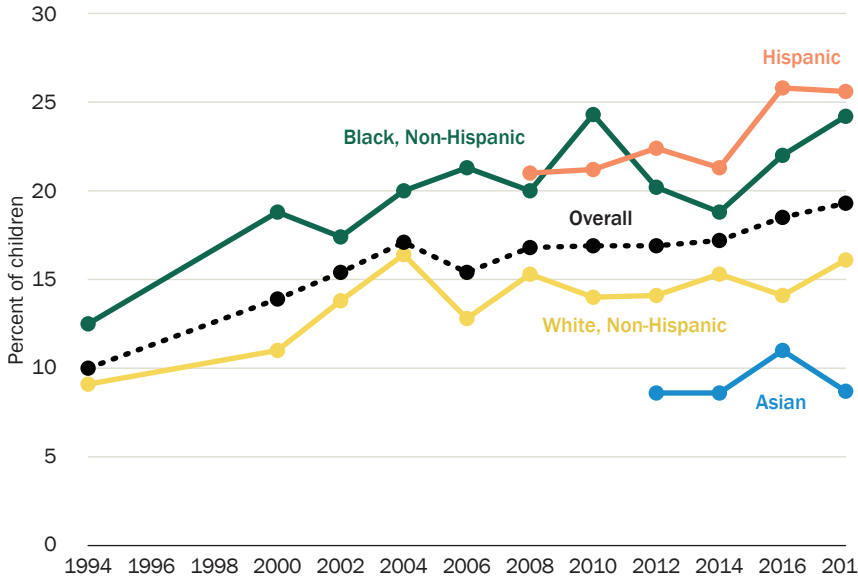
Note: "Motor-vehicle crashes" include data from the International Classification of Diseases, 10th Revision (ICD-10) subcategory of "Transport Accidents" (V01-V99, Y85).

including unintentional firearm deaths, homicides, and suicides. On average during 2015–19 firearms caused fewer than 0.7 per 100,000 deaths among those under 12. But rates of firearm deaths per 100,000 increase steadily as children reach their teenage years, growing from 3.6 among 13-year-olds to 12.5 among 17-year-olds. The time trends also vary dramatically between age groups. Among those ages 4–12, the rate of firearm deaths has held steady over the past 20 years. Among those ages 13–17, the rate of firearm deaths per 100,000 fell from 7.4 in 1999 to 5.2 in 2003. It then remained relatively steady through 2014, but started climbing again back to an average rate of 7.0 in 2017–19. Researchers have found that the odds of a child being killed by a firearm are 36 times greater in America than the odds in other high-income nations (Grinshteyn and Hemenway 2019).

Moving from mortality to morbidity, there is mixed news, with progress being made in some areas and ongoing challenges in others. Childhood obesity has been recognized as a serious problem for years, and there has been limited success in addressing this challenge. As shown in figure 4.3, rates have nearly doubled since the early 1990s and there are large differences in prevalence and trends across racial and ethnic groups, with particularly

FIGURE 4.3

Prevalence of Obesity among 2–19 Year Olds, by Race and Ethnicity



Source: National Center for Health Statistics, Prevalence of Overweight, Obesity, and Severe Obesity Among Children and Adolescents Aged 2–19 Years: United States, 1963–1965 through 2017–2018.

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high and faster-rising rates among Black and Hispanic children. Rates of child obesity are somewhat lower among younger children, with 13 percent of those ages 2–5 obese in 2017–18, compared with 20 percent of those ages 6–11 and 21 percent of those ages 12–19 (Fryar, Carroll, and Afful 2020). This is consistent with evidence that childhood obesity patterns follow a clear social gradient: children in low-income households have the highest obesity rates, followed by children in middle-income households, while children in high-income households have the lowest obesity rates (Centers for Disease Control and Prevention [CDC] 2018b).

Both food intake and physical activity play roles in obesity. The US Department of Health and Human Services (HHS) reports that only one in three American children is physically active on a daily basis—an outcome likely related to the fact that only one in five homes in America has a park or recreation center within a half-mile (HHS n.d.). Studies also show that access to public park space is significantly associated with greater mental well-being (Wood et al. 2017). Furthermore, studies have demonstrated that, among children 0–13 years old, the risks of suboptimal general health are

lower among children in areas containing greater public green space (Feng and Astell-Burt 2017).

Figure 4.4 shows the prevalence of selected noncommunicable mental and physical diagnoses for children ages 4–12, by sex (figure 4.4a) and by household income (figure 4.4b). In this age range, boys experience higher rates than girls of poor mental and physical conditions. Mental health diagnoses are quite prevalent, with more than 8 percent of children diagnosed with anxiety and 2.5 percent diagnosed with depression. Autism and developmental delays are also common, more so among boys. More than 10 percent of children have been diagnosed with asthma, while 2 percent of children live with a primary caregiver who is in poor health, which may also influence child health.

Children from lower-income households have higher rates of health problems. They are 50 percent more likely to have been diagnosed with anxiety or asthma, and twice as likely to have depression as are children from higher-income families. Lower-income children are also more likely to have been diagnosed with autism or developmental delays, and 4 percent of lower-income children have a primary caregiver in poor health. Job loss and poor macroeconomic conditions such as high unemployment rates are associated with poor physical and mental health outcomes for children (Courtemanche, Tchernis, and Zhou 2017; Page, Schaller, and Simon 2019; Schaller and Zerpa 2015). Better labor market outcomes for parents, including wage gains such as increases in the minimum wage, are associated with improved outcomes at birth (Mocan, Raschke, and Unel 2013; Dave, Kaestner, and Wehby 2018).

Changes in diagnosis patterns and measurement techniques make it difficult to compare these rates over time. However, investigators have shown that disparities in diagnoses, developmental trajectories, health statuses, and whether a family is able to afford and treat what ails a child are influenced by access not only to health insurance and care, but also to various social determinants of health.

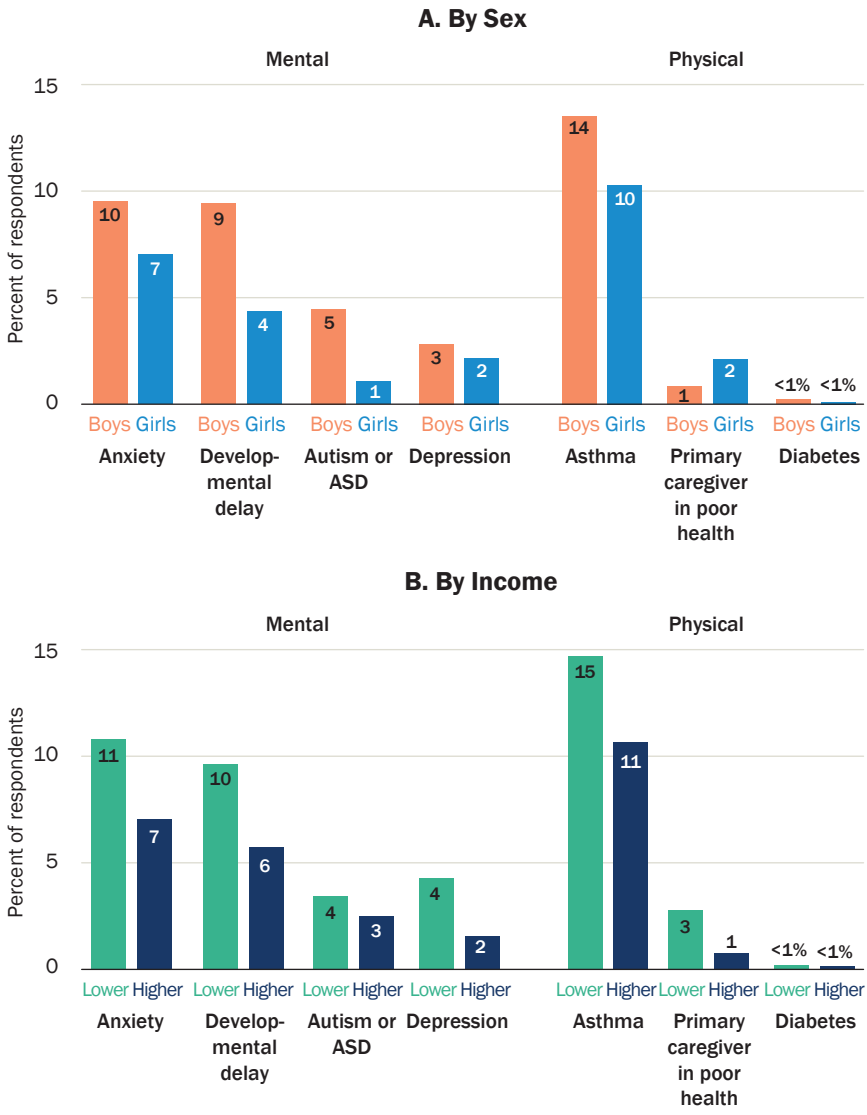
II. Evidence that Health Matters for Children

A. Health Insurance Coverage among Children in the United States

Child health insurance coverage rates have improved in recent decades (Gruber and Simon 2008). As of 2019 more than 90 percent of children ages 4–12 are covered by health insurance. The working group notes and applauds this progress.

FIGURE 4.4

Health Indicators of 4–12 Year-Olds, by Sex and Income (2019)



Source: U.S. Census Bureau National Survey of Children's Health (2020).

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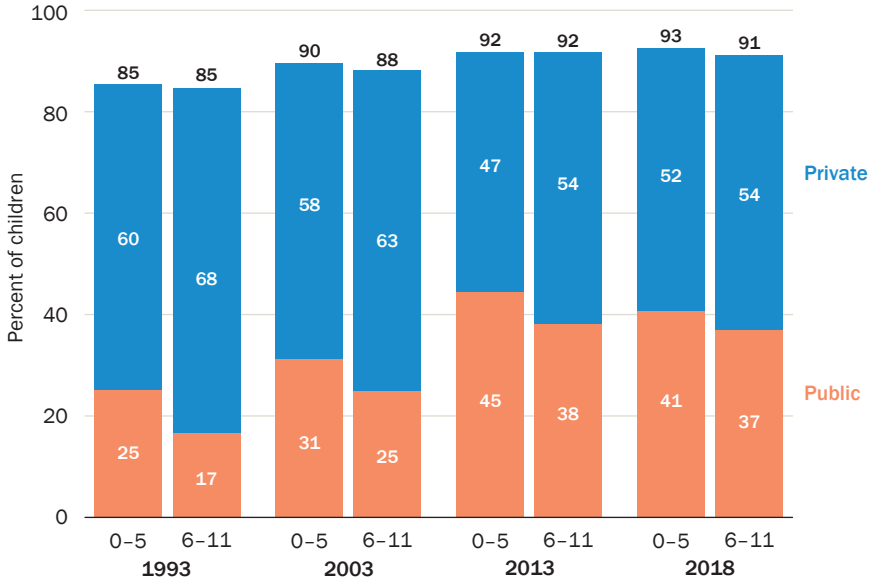
Note: Respondents who reported being free or reduced lunch eligible are considered lower income.

FIGURE 4.5

Insurance Coverage, by Age Range and Coverage Type



Source: National Health Interview Survey (NHIS).

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Health coverage matters because costs of health insurance and health-care services can be prohibitively expensive for those paying out of pocket, including low-income families. When received in a timely manner, health care can reduce many threats to children's physical, mental, and behavioral health. Medicaid eligibility lowers the probability of going without a doctor's visit by 13 percent (Currie and Gruber 1996). In short, health insurance matters for children's health, human capital, and future economic prospects.

From its inception in 1965, the Medicaid program (extended in 1997 to include the Children's Health Insurance Program, or CHIP) has gradually expanded eligibility for children. CHIP is operated by the federal government in partnership with state governments and provides health-care coverage to children from birth until their 19th birthday. States may also elect to allow legal immigrants, refugees, and asylees who are children to receive CHIP after a waiting period. The share of those who are eligible and are enrolled in CHIP is higher than for any other social insurance program, including Social Security (Barnes et al. 2021). The share of children insured through public health insurance coverage has risen (figure 4.5). There are still gaps in coverage, though, with nearly 1 in 10 Hispanic children uninsured, compared with approximately 4 percent of non-Hispanic Black and white children. In

BOX 4.1

Childhood Trauma and Health

The working group believes that childhood trauma, including the instability that children experience when they live with a parent or caregiver who has a substance use disorder, is a public health crisis. The CDC–Kaiser Permanente Adverse Childhood Experiences (ACEs) Study found in 1998 that at least one in seven children experience an incident of child abuse or neglect annually (Felitti et al. 1998). In 1999 HHS reported that an estimated 8.3 million—11 percent of all children in the United States—lived in households with a parent or caregiver who has a serious alcohol or drug use problem (HHS 1999). In 2016, the American Academy of Pediatrics published a clinical report estimating that 20 percent of children grow up in a home in which an adult uses drugs or misuses alcohol (Smith and Wilson 2016). There is substantial evidence that links early childhood trauma to poor health and social outcomes, including in employment (Liu et al. 2013).

The US opioid crisis has had devastating impacts on children and families. Opioid abuse and overdose deaths have been increasing for the past two decades. Although it is not known how many opioid abusers are parents or have children living at home, it is likely that many are parents since the age ranges of adults most likely to misuse and overdose coincide with typical childrearing ages. Studies show that children whose parents or caregivers abuse alcohol or drugs, or who distribute, manufacture, or cultivate illicit substances, have a significantly higher risk of physical and behavioral health problems. The rising incidence of children living with substance-dependent adults harms children not only because it increases a child's exposure to substance use, thus increasing the likelihood of multigenerational addiction, but also because the adults in their lives are less able to provide for the child's physical, psychological, and emotional needs. For example, a recent study showed that 23 percent of children whose mothers were substance users were not accessing routine child health services during the first two years of life, and that fathers' poor mental health has been associated with adverse impacts on young children's cognitive development (Vallotton et al. 2016).

fact, between 2017 and 2019 the uninsured rate among Hispanic children (all ages) increased by 1.3 percentage points (Alker and Corcoran 2020).

Despite gaps in coverage, our current system of public health insurance for low-income children appears to be cost-effective and to generate positive spillovers into other areas. For example, expanded health insurance coverage for low-income children increases the rate of both high school completion and college completion, and also results in higher standardized test scores

(Cohodes et al. 2016; Levine and Schanzenbach 2009). A recent study found that those who received more years of Medicaid health insurance coverage as children were less likely to be hospitalized as adults (Wherry et al. 2018), saving enough money in a single year to offset 3–5 percent of the Medicaid expenditure on them as children. Children who received Medicaid were also more likely to work and less likely to receive disability insurance benefits as an adult (Goodman-Bacon 2016). They also earn more as adults and thus pay more taxes, enough to recoup more than half of public expenditures on their Medicaid during childhood (Brown, Kowalski, and Lurie 2020). A recent study also shows that Medicaid coverage during childhood improves subsequent birth outcomes in the next generation (East et al. 2021).

B. Social Determinants of Health

Humans are social creatures. When our relationships suffer, so does our health. Children's health begins at home with safe, nurturing, and protective relationships with adults. It also begins in the community, with neighborhoods that are safe from violence, opportunities to play and exercise, good schools, and a clean environment.

The working group agrees that children's health, like that of adults, is predominantly determined by the social and environmental risks that they face. It has been estimated that the social determinants of health—what some have called the causes of the causes—account for up to 40 percent of adverse health outcomes for children (Tarlov 1999; Victorino and Gauthier 2009). In this section we examine evidence regarding five social determinants of health: socioeconomic status, parental characteristics, residential segregation, housing, and environmental health.

1. Socioeconomic Status

Socioeconomic status is the most frequently assessed social determinant of child health. The relationship between family income and child health is apparent early and becomes stronger as children age (Case, Lubotsky, and Paxson 2002; Fletcher and Wolfe 2012). Families with higher incomes have the resources to protect against adverse health outcomes. Families with greater economic resources are also more able to furnish fundamental inputs into their young children's healthy development, such as consistent nutrition, stimulating home learning environments, high-quality child care, and safe neighborhood environments (Duncan and Magnuson 2013). Such inputs make up the social determinants of health, and childhood access to them is a significant predictor of long-run health outcomes.

Most studies show that children in lower-income households are more likely to have poor health. For example, a large study of children ages 0–17

found that the likelihood of a child having asthma, severe headaches, or ear infections decreases as household income increases (Victorino and Gauthier 2009). Studies have also shown that income differences drive racial disparities in the incidence of childhood asthma; African American children are at greater risk for asthma among low-income children, but higher-income white and Black children suffer equally.

There is also evidence that assistance to low-income families improves children's health. Using variation in eligibility for Supplemental Security Income (SSI; disability cash payments to low-income families) researchers find that a higher income reduces chronic conditions in early life by 15 percent, that the higher payments are more than offset by lower Medicaid spending later, and that the additional income allows some families with children to move to better neighborhoods (Ko, Howland, and Glied 2020). Additional income through the Earned Income Tax Credit (EITC) has also been shown to cause children's health to improve (Hoynes, Miller, and Simon 2015; Markowitz et al. 2017).

2. Parental Characteristics

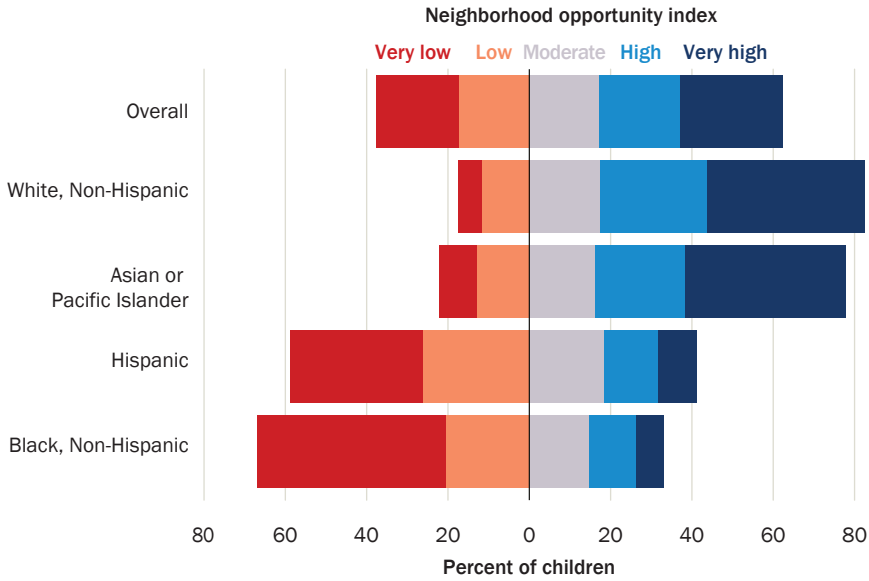
There are a range of parent and family characteristics associated with children's physical and mental health. In some cases, it is difficult to disentangle factors such as family structure and parental employment from income, but there is evidence that some parental factors have a direct influence on children's health, independent of income effects. Parental unemployment is associated with an increased prevalence of chronic illness, infections, and poor nutrition in children. Particularly among children from low-income families, paternal job loss is harmful to child physical and mental health (Schaller and Zerpa 2019). In terms of family structure, children in families with stepmothers are less likely to have routine doctor and dentist visits (Case and Paxson 2001). Research shows that children with an incarcerated parent are more than three times as likely to experience behavioral problems or depression, and more than two times as likely to suffer from learning disabilities, attention-deficit disorder (ADD) or attention-deficit/hyperactivity disorder (ADHD), and anxiety than similar children without an incarcerated parent.

3. Residential Segregation

The lives and life chances of American children are affected by neighborhood inequality, especially given that racial residential segregation remains high, and income segregation is increasing (Frey 2018). Children are more economically segregated than adults, with increases in household income segregation having occurred predominantly among families with children (McArdle and Acevedo-Garcia 2017). Residential segregation is also more damaging for children than it is for adults, because of the resulting lack of opportunities

FIGURE 4.6

Percent of Children Living in Each Neighborhood Opportunity Category, by Race/Ethnicity (2015)



Source: data.diversitydatakids.org, COI 2.0 Index Data and Child Population Data.

Note: Data are for the 100 largest metropolitan areas combined.

and resources for many children. A child's neighborhood influences access to quality education, healthy food availability, social networks, and exposure to violence and trauma. In turn, these factors impact health in the short and long terms. In short, place matters.

Figure 4.6 shows the share of children, by race and ethnicity, living in neighborhoods with very low opportunity (bottom 20th percentile of Census tracts) to very high opportunity (top 20th percentile of Census tracts).[1] This opportunity measure, which combines 29 education, health, and environmental factors into a single score, is distinct from poverty. About three in five Black and Hispanic children live in a Census tract with low or very low opportunity, compared with fewer than one in five white children. Access to very high opportunity is concentrated among white and Asian children;

1. The Child Opportunity Index produces a single score out of 29 factors across education, health, and environment domains to characterize the relative extent of opportunity for a child at the Census tract level. This score is nationally normed and Census tracts are arrayed in quintiles from the bottom fifth (very low opportunity) to top fifth (very high opportunity). For additional technical documentation see Noelke et al. (2020).

fewer than 10 percent of Black or Hispanic children live in a neighborhood with very high opportunity.

Black and Hispanic children are more likely both to experience poverty themselves and to live in a high-poverty neighborhood. This combination can be thought of as double jeopardy, which structurally constrains opportunity for a lifetime. In a study of 100 metropolitan areas in the United States, researchers found that Black and Hispanic children live in neighborhoods that are more disadvantaged than neighborhoods where white children live, even those who are from low-income households. The average white child resides in a neighborhood where 7 percent of the population lives in poverty, while the average Black child lives in a neighborhood where 21 percent of the population lives in poverty. These neighborhood differences are not explained by differences in the household's own income alone. Even among low-income families, exposure to neighborhood-level poverty differs widely by race and ethnicity: the average white child whose family is low income lives in a neighborhood with a poverty rate of 14 percent, compared to a neighborhood poverty rate of 74 percent for the average Black and Hispanic child from a low-income family.

Studies have shown that neighborhood advantages such as higher income, home ownership, and education, together with individual-level factors such as household stability, contribute to lower obesity levels, lower prevalence of the leading causes of childhood death including chronic disease, and resilience in the face of trauma. Moreover, the adverse effects of early childhood deficiencies in neighborhood resources last a lifetime.

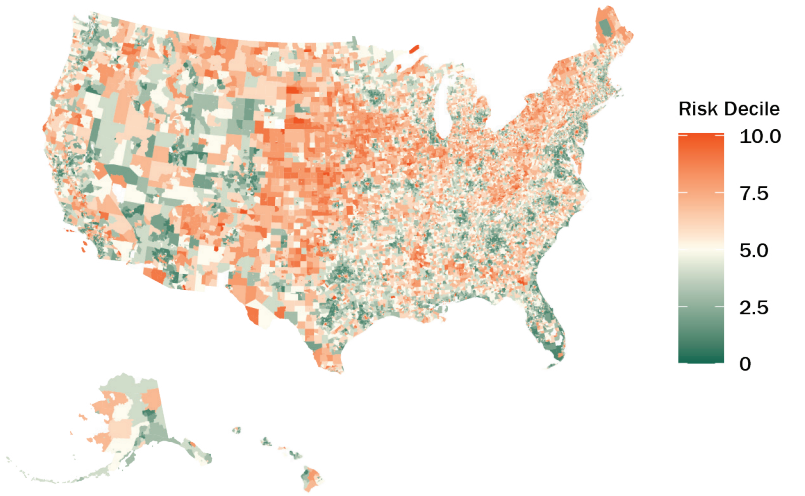
4. Housing

Some of the strongest evidence linking structural inequities to child health outcomes is related to housing. Substandard housing conditions are associated with several health conditions that affect young children in the United States; pest infestation, dirty carpeting, mold, and exposure to other allergens are associated with increased risk for serious asthma. Inadequate heat and dampness are also associated with increased asthma morbidity in children.

Housing affordability has also been closely linked to child health outcomes. A study of low-income households suggests that healthy child development is compromised when families must devote too large a share of their incomes (more than 30 percent) to housing, or by contrast when families devote too small a share of their incomes to housing, thereby exposing children to substandard conditions (Newman and Holupka 2015). When families of children from low- and modest-income families receive housing subsidies, the children show increased physical development and improved nutrition.

FIGURE 4.7

Lead Risk by Census Tract



Source: Census Bureau's American Community Survey (ACS) 5 Year Estimates (2019); calculations from Frostenson and Kliff (2016).

Note: Census tracts left in pure white are those with missing data. 4.7

5. Environmental Health

Children suffer more from exposure to environmental toxins than adults, since toxins affect child development (Lanphear, Vorhees, and Bellinger 2005). Lead, one of the most developmentally debilitating substances for children, is reported to be present at elevated levels in up to 6.5 percent of children in 31 states that have reported these data as of 2019 (Almendrala 2019). One million young children in the United States have levels of lead in their blood high enough to adversely affect their intelligence and behavior (Krieger and Higgins 2002). As figure 4.7 shows, the risks of lead exposure are widely distributed across the United States.

Policies that had led to the reduction and elimination of lead in transportation fuel, in household paint, and various other household items have reduced blood lead levels by 80 percent (Pirkle et al. 1998). Using these results, Grosse et al. (2002) estimate the economic benefit of the reduced lead to be $110 billion–$319 billion for every birth cohort that is exposed to less lead as a result of these policies, due to the causal connections between lead, IQ scores of children, and their future productivity as adult workers. Housing interventions to abate lead in paint, dust, and soil are a well-trod path, but have shown inconsistent effectiveness in reducing blood lead levels (Gerberding

et al. 2004; Sandel et al. 2004). Although the stock of houses with lead will continue to fall as new houses are built without lead paint and plumbing, it continues to have detrimental effects on children. Recent studies of the water crisis in Flint, Michigan, shows lower academic achievement for children whose water contains lead (Hollingsworth et al. 2021; Sorenson et al. 2019).

Ambient pollution is also detrimental to child health. Air pollution (operationalized as particulate matter [PM] 2.5, or fine and inhalable particulate matter less than 2.5 micrometers) increases school absence and behavioral incidents such as the probability of school suspension (Aizer and Currie 2017; Aizer et al. 2018; Hales et al. 2016; Heisel, Persico, and Simon 2019), as well as lowering scores on standardized tests (Austin, Heutel, and Kreisman 2019; Heisel, Persico, and Simon 2019; Marcotte 2016).

Policies that affect the environment have direct and indirect effects on child health. Evidence from Sweden shows that asthma attacks among children are reduced when taxes induce reductions in pollution (Simeonova et al. 2019). Urban afforestation efforts in New York City improved infant health outcomes (Jones and Goodkind 2019). Policy-related exposure to toxins, such as military exercises and fracking, negatively affect child health (Bobonis, Stabile, and Tovar 2016; Currie, Greenstone, and Meckel 2017); mitigating or reversing such policies, through initiatives like Superfund cleanups, improve child health (Currie, Greenstone, and Moretti 2011).

III. Policy Priorities

There have been policy successes on the health front in recent years. Expanded health insurance coverage for children has improved health (Currie and Gruber 1996; Meyer and Wherry 2012). Environmental improvements such as reduced use of lead in gasoline and other products and other policies that have resulted in cleaner air have had strong impacts. These gains should be protected. But health insurance is not enough: the working group supports policies that promote children having affordable access to doctors, preventive care, and acute care. And further progress needs to be made to protect children from the lifetime consequences of early exposure to lead and other environmental toxins.

Recognizing the social determinants of health point to several areas for focused policy attention and policies that the working group has endorsed throughout this volume that will have health spillovers. Going forward, the most powerful way policymakers can improve the health of children is to improve the social and environmental conditions in which they live. Reducing social and economic inequality is therefore key to improving children's health. For example, although the research is still emerging, several studies indicate that access to high-quality, stable early childhood education and child-care

programs promote not only academic readiness, but also better child health outcomes (Morrissey 2019), including for children in vulnerable population groups such as immigrants (Karoly and Gonzalez 2011). These benefits appear to persist in the long run, with reduced smoking and improved cardiovascular and metabolic health in adulthood. More research is needed to understand these pathways, which could include increased access to screenings and preventive health care, improved nutrition, and/or increased opportunities for parental employment and earnings.

To achieve a broader impact, policies to support child health at home must develop into a "system of psychosocial care for families" (Haskins et al. 2019, p. 1). This approach could include regular, universal home visits by trained nurses, so that families are provided with resources from the moment they become parents, combined with community alignment to connect families to the resources available around them.

CHAPTER 5

Education

Education is a powerful means to advance opportunity and well-being. The skills developed in schools and colleges—both skills measured by standardized tests as well as a broader range of social and emotional skills including persistence, sociability, creativity, and motivation—influence a child's later economic outcomes and health status, as well as the likelihood they will marry and own a home.

A strong education system that works for all children is fundamental to providing opportunities for children to acquire and build the skills they need to thrive. The stakes have become higher: for example, the gap in earnings between those with a high school diploma and those with a college degree has more than doubled over the past three decades (Autor 2014). Much of the association between education and life outcomes is captured through the total years of education completed, and on this front there has been steady but slowing progress. High school graduation rates have risen, as have rates of college enrollment and completion.

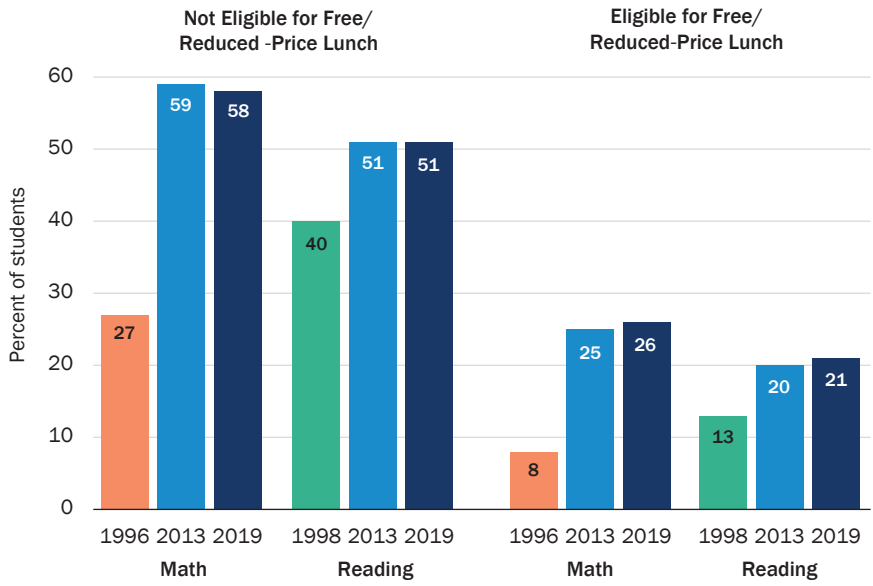
Here we focus on outcomes for children between the ages of 5 and 12. The working group agrees that there are two areas that stand out as being in need of attention and improvement. First, making sure that time in school is used productively so that children can gain the range of tools they will need to thrive in adulthood. Second, ensuring access to high-quality early education, so that children from all backgrounds come to kindergarten on track and ready to learn.

I. Education in the US Context

Across a range of metrics from school enrollment to achievement, progress in the US education system stalled in the years leading up to the pandemic; substantial disparities across income and racial/ethnic lines persist. The most comprehensive metric of math and reading skills at a point in time and over

FIGURE 5.1

Percent of 4th Grade Students Scoring above Proficient on NAEP, by Subject and Free/Reduced-Price Lunch Eligibility



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2013, and 2019 Mathematics Assessments; 1998, 2013, and 2019 Reading Assessments.

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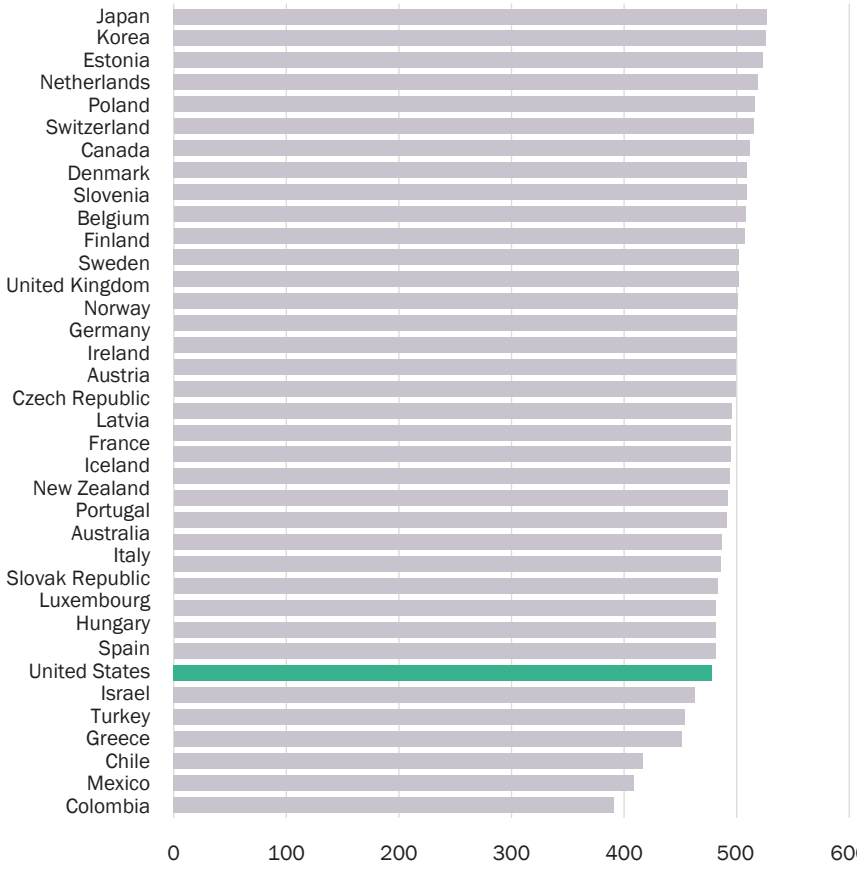
time comes from the Nation's Report Card (National Assessment of Education Progress, or NAEP) tests that are given to a nationally representative group of students in Grades 4 and 8 approximately every other year. Average math and reading scores among fourth-grade students are higher today than they were 20 years ago, though test scores have not increased over the past decade. Achievement differences—which are noteworthy because they translate into disparate economic outcomes—have been narrowing somewhat across groups, as measured by both income and race. Gains have been weaker among eighth-grade students, for whom reading scores have been essentially stagnant. Math scores improved by less than they did for younger students.

Another way to look at test score data is by the share of students who score above the threshold for proficiency, as shown in figure 5.1. The data are broken out by year and by income status, defined here by eligibility for a free or reduced-price lunch. Between 1996 and 2013 math proficiency rates more than doubled for higher-income students and more than tripled for lower-income students. Gains in reading proficiency have been more modest, with an 11 percentage-point increase for higher-income students and a 7- to 8-percentage-point increase for lower-income students. But the gains

FIGURE 5.2

Average Math Scores of 15-year-olds, by Country (2018)



Source: Programme for International Student Assessment (PISA), PISA Education GPS, PISA 2018: Highlight Indicators.

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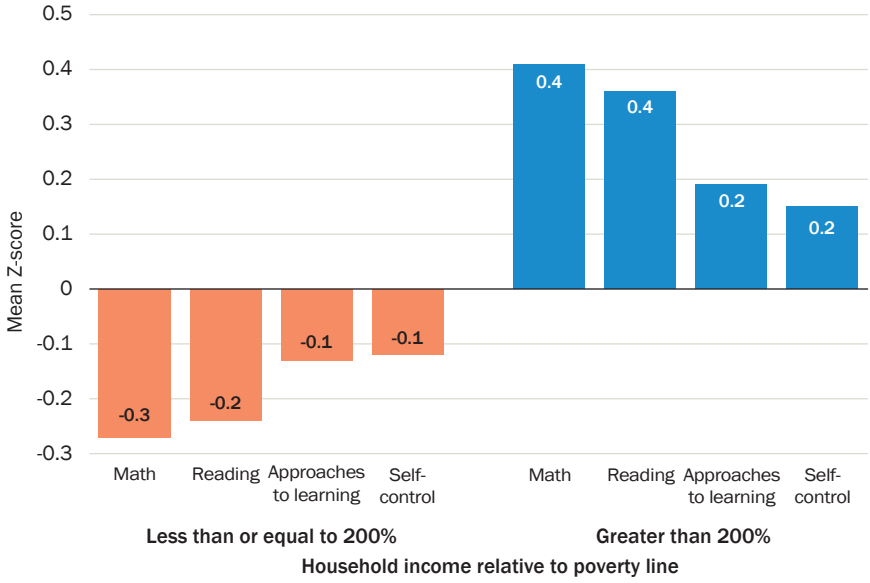
experienced in the 2000s have stalled in recent years, and proficiency rates were essentially unchanged between 2013 and 2019 in both reading and math. Despite the gains, it is worth underscoring that only a minority of students were proficient in math (41 percent) and reading (35 percent) in fourth grade in 2019. And the differences in proficiency rates by income are large, with higher-income students more than twice as likely to be proficient compared with lower-income students.

Compared with other nations, the United States performs poorly in math but strongly in reading. Figure 5.2 shows average math scores in 2018 across countries among 15-year-olds on the tests carried out by the Programme for International Student Assessment (PISA). US 15-year-olds' average test

FIGURE 5.3

Kindergarten Entry Score, by Income-to-Poverty Ratio (2011)



Source: Authors' calculations from U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Studies Program Kindergarten Class of 2010-2011 (ECLS-K:2011).

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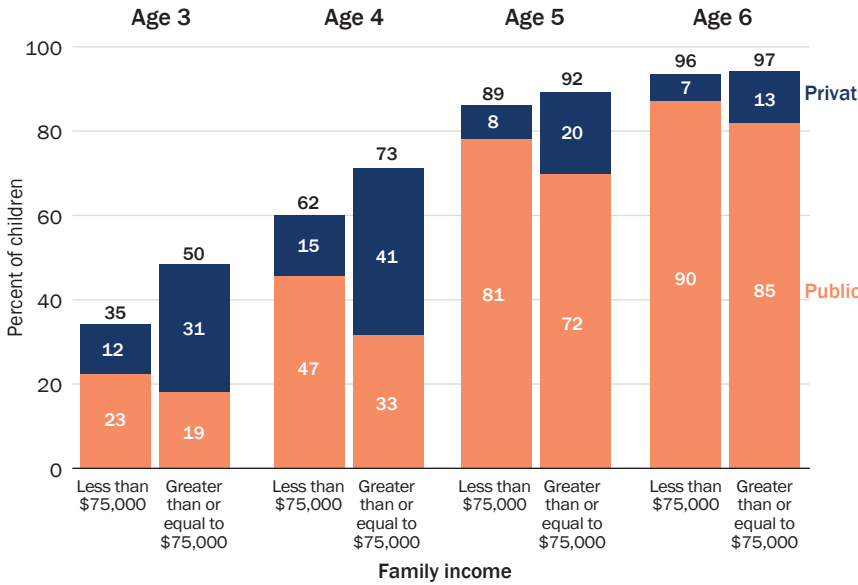
scores rank in math are in the bottom quartile of PISA-participating countries, ranking 31st out of 37 participating countries. The US average score in reading is substantially better, with the United States in the top quartile, ranking 9th out of 37 countries.

The United States ranks relatively high among OECD countries in terms of the percentage of adults 25 to 34 years old who have completed high school, with a 93 percent high school completion rate compared to the OECD average of 85 percent. On the other hand, the United States is at about the OECD average of 40 percent of adults 25 to 34 years old for college completion rates.

Inequality in test scores starts early, with sizable disparities in math and reading scores already present when children enter kindergarten. These gaps tend to stay constant or grow larger as students age (Fryer and Levitt 2004). As shown in figure 5.3, children who are eligible for free or reduced-price lunch have kindergarten entry test scores more than half a standard deviation lower than ineligible students in both reading and math. Lower-income children also score lower on a range of teacher-reported behavioral skills such as self-control and on an approaches-to-learning scale that measures the student's attention, adaptability, persistence, and work skills in the classroom setting. There is some evidence, however, that gaps in all these measures narrowed between 1998 and 2010 (Reardon and Portilla 2016).

FIGURE 5.4

Public and Private School Enrollment, by Age of Child and Family Income (Pooled 2016–19)



Source: Bureau of Labor Statistics Current Population Survey (n.d.).

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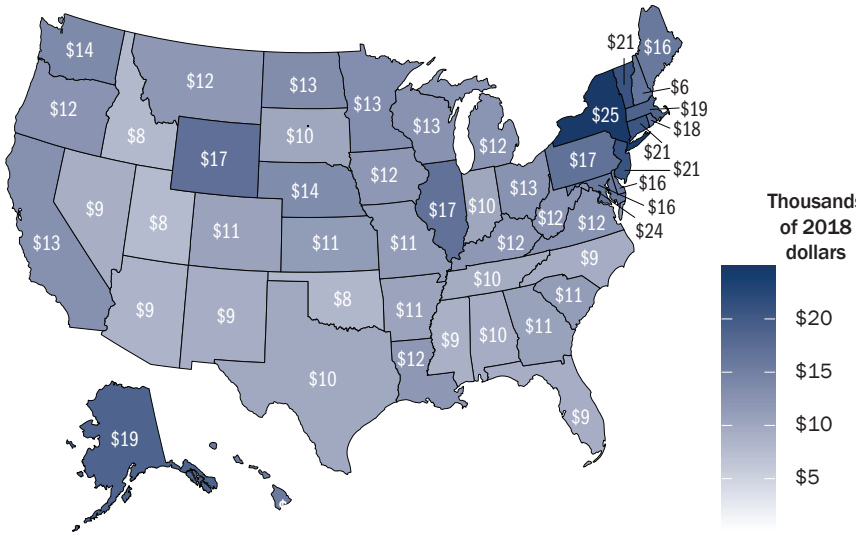
There is also evidence that preschool attendance can help improve kindergarten readiness (Puma et al. 2010), although to be sure it is no panacea and impacts vary by program characteristics. Many children are not enrolled in preschool at ages 3 or 4, and low-income children are substantially less likely to be enrolled, as shown in figure 5.4. Only about one-third of low-income 3-year-olds are enrolled in preschool; by age 4 the share increases to 60 percent. Among higher-income 3-year-olds, just over half are enrolled in preschool at age 3, and three-quarters are enrolled by age 4. Note that low-income children are much more likely to be enrolled in a public preschool, whereas higher-income children are split nearly equally between public and private preschool. The share of children attending preschool has increased in recent years as states and cities have increased their investments in preschool programs (Cascio and Schanzenbach 2013), but there is still a long way to go.

School spending is another consequential part of the education picture. Spending had been increasing in real terms in the early 2000s, driven in large part by teacher salaries, special education costs, and administration. Spending dipped in the wake of the Great Recession but has recently recovered its previous level. Classrooms and children were somewhat insulated from this downturn, though, because current spending, which includes only

FIGURE 5.5

Per-Pupil Expenditures, by State, 2017–18 School Year



Source: National Public Education Financial Survey Data, v.1a—Provisional.

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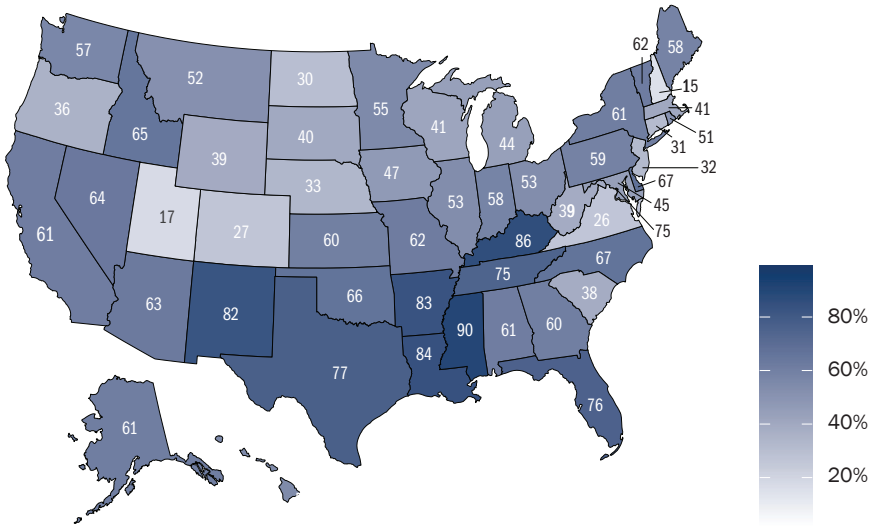
instructional expenses, declined by less than total spending, which includes capital expenses.

The overall trends obscure wide differences across and within states, because most school funding is done at the state and local levels. Figure 5.5 shows average spending per public school student by state. Schools in the Northeast tend to spend the most per student, even after adjusting for differences in cost of living. Schools in the Midwest come in second, and spending is typically lower in the South and lowest in the western part of the country, excluding the West Coast. High-spending states spend twice as much or more as low-spending states (Schanzenbach, Mumford, and Bauer 2016). Federal education spending, which makes up only a small share of total education spending, is one lever to reduce funding differences across states.

Within states, school spending is typically heavily reliant on local property taxes. Since higher-income families tend to live in areas with higher housing values, which results in higher tax bases and more revenues for local schools, their children usually attend schools in districts with higher per-pupil spending. Many states have acted to offset local spending differences, reforming their school finance systems to provide more resources to districts with low property values. On average, in states that have reformed their school finance systems, high- and low-property value school districts spend the same per student (Lafortune, Rothstein, and Schanzenbach 2018). Researchers have

FIGURE 5.6

Percent of Students Attending High Poverty Schools, 2018–19 School Year



Source: Author's calculations using U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 2016–17 v.2a, 2017–18 v.1a, 2018–19 v.1a, 2019–20 v.1a.

Note: Note: High poverty schools are those with school-wide Title I eligibility.

studied these reforms, which typically boost school spending, and found that increased spending improves test scores and other educational outcomes (Jackson, Johnson, and Persico 2016; Lafortune, Rothstein, and Schanzenbach 2018).

A large share of students attend "high-poverty" schools, defined as a school that is eligible for schoolwide Title I. In 2017–18 56 percent of students nationwide attended a high-poverty school, up from 51 percent a decade earlier. The percentage of children attending a "high-poverty" school varies substantially across states, as shown in figure 5.6. In five states (Arkansas, Kentucky, Louisiana, Mississippi, and New Mexico) more than 80 percent of children attend "high-poverty" schools. In New Hampshire and Utah, fewer than 20 percent do.

High-poverty concentrations are a strong predictor of low school achievement, and students attending these schools are more likely to struggle and require additional support. High concentrations of low-income students are more expensive to educate on a per-pupil basis, in part because of higher teacher attrition rates and higher student turnover (Duncombe and Yinger 2004; Murnane and Steele 2007). Federal Title I provides funding assistance

to high-poverty schools, and is the primary mechanism for the federal government to provide education financing to states. Benefits are allocated by a complex formula, and range from $900 to $2,700 per eligible child per year. Counterintuitively, Title I funding per low-income child is lower in states with higher levels of poverty and higher in states with lower levels of poverty, largely because the program is chronically underfunded (Gordon 2016). For example, to fully fund Title I's Basic Grants portion in 2015 would have required $50 billion, but Congress appropriated only $6.5 billion.

II. Evidence that Education Matters for Children

The working group agrees that there is strong evidence that many different education policy changes, programs, and investments improve student outcomes. This body of research can indicate which policies are most likely to have a strong return on investment in the form of improved learning for children, even as outcomes are likely to differ by place, circumstance, and student. These include policies on school spending, instructional quality, wraparound services, school choice, and pre-kindergarten education.

A. School Spending

Education policy discussions often start from the premise that we cannot just "throw money at the problem." For decades, research on school spending tended to show no strong relationship to student outcomes (Hanushek 1986). In recent years, though, new research methods have been adopted that allow researchers to disentangle causal relationships from simple correlations. These new approaches tend to look at changes or sharp differences in school spending across places or over time. The modern studies tend to show that boosting school spending does improve student outcomes, especially in low-income school districts. It is not clear precisely how spending influences outcomes, but the working group agrees that, on the whole and in light of evidence based on methodological improvements, money does matter.

One strand of evidence comes from school finance reforms. Historically, most states have had school finance systems that are primarily reliant on local funding based on property taxes, with a smaller share from state sources and a very small share from the federal government. Because low-income children tend to live in districts with lower property values, which thus generate less in tax revenue to fund schools, the traditional funding system results in fewer resources available to schools serving needier students. A number of states

have made dramatic changes to their finance systems—sometimes initiated by the legislature and sometimes ordered by courts—to boost spending in low-income districts. Researchers have documented these spending changes and traced their impacts on a range of student outcomes.

An early wave of school finance reforms in the 1970s and 1980s focused on providing equitable resources to higher- and lower-income school districts. These reforms substantially increased spending in lower-spending school districts. As a result, students in those districts completed more years of education, earned higher wages, and were less likely to be living in poverty as adults (Jackson, Johnson, and Persico 2016). The finance reforms also improved SAT scores, which were the only nationally representative test scores available during this era (Card and Payne 2002).

A second wave of school finance reforms started in 1989 in Kentucky, this time focusing on the goal of ensuring an adequate level of funding in low-income districts, regardless of the funding levels in high-income districts. Over the following 20 years, states that implemented reforms along these lines saw low-income districts go from spending 9 percent less per student than high-income districts to spending 8 percent more per student. Researchers have used the timing of these state finance changes to measure how school performance changed in districts that received larger spending boosts. Ten years after a reform, test scores in low-income districts had sizably improved relative to those in high-income districts (Lafortune, Rothstein, and Schanzenbach 2018). Subsequent research shows that these gains also translated into increased high school completion and college attendance and higher earnings in early adulthood (Rothstein and Schanzenbach 2021).

When school spending decreases, student performance follows. A recent study documents the impacts of school funding cuts after the Great Recession in 2008. The recession harmed state budgets, as tax revenues dropped and spending on state-funded services such as Medicaid and Unemployment Insurance rose. In response, many states cut their education budgets, which led to a decline over the next several years in total school spending. In turn, test scores and college-going rates declined, especially for low-income and Black students (Jackson, Wigger, and Xiong 2020).

B. Instructional Quality

Research confirms what many already know intuitively: teachers have large and lasting impacts on their students. For example, teachers who can successfully increase their students' standardized test scores also improve a range of other outcomes such as whether their students have children as teenagers or attend college and the salaries they earn as adults (Chetty, Friedman, and Rockoff 2014a, 2014b). Of course, the ability to improve test scores captures only a small fraction of the impact of a good teacher. Teachers who improve

student behaviors, measured by outcomes such as absence rates, suspension rates, and grades also raise students' likelihood of graduating from high school and going on to college—even after accounting for teachers' impacts on test scores (Jackson 2018).

Given the way that children's brains function and grow, it is no surprise that they thrive in the safe, supportive environments that strong teachers can help provide. In addition, consistent, warm, and strong relationships between adults and children in school can help to prime children's brains for learning. Good teachers personalize their approach to different students as necessary because they know children develop at different rates (Sovde et al. 2019). It is vital to improve our systems for developing skills and improving instruction so that more children have access to excellent classroom teachers. Professional evaluation of mid-career teachers can improve teacher skill, effort, or both, in lasting ways that persist in the long run (Taylor and Tyler 2012). Highly skilled teachers also influence their peers' performance: research shows that teachers' ability to increase their students' test scores improves when they work in a school with high-performing teachers (Jackson and Bruegmann 2009).

Quality school leadership factors into children's learning, as well. Research shows that principals, especially those skilled at management, can improve students' achievement, teachers' instructional practices, and teachers' well-being (Branch, Hanushek, and Rivkin 2013; Grissom and Loeb 2011; Liebowitz and Porter 2019).

C. Wraparound Services

Meeting students where they are—academically but also in terms of their health and other needs—is a critical component of education policy. The evidence is clear that one size does not fit all for children. There are many ways that schools can differentiate learning outside of the regular classroom environment in order to support or accelerate students with knowledge, learning styles, or rates of learning that are substantially different from the rest of their class. There are also many ways in which the school can be used as a place to deliver services for those children who have a specific need. A variety of approaches have been shown to be flexible, implementable, cost-effective, and effective.

One promising method for differentiated instruction involves small-group tutoring to students who are below grade level in math. Falling behind in math can dramatically impede future learning, especially since subsequent grades build on the prior concepts (e.g., multiplication builds on addition, algebra builds on arithmetic, etc.). In a large study in the Chicago Public Schools, students who were below grade level in math received intensive tutoring for one period of the school day in addition to their regular math class, with the tutoring phased out when a student's performance had returned to the

appropriate grade level. The tutoring was highly individualized, with only two students working with a tutor at one time, which allowed students to progress according to their own pace. The study found that students were able to learn an additional one to two years of math content above the usual rate of learning. In addition, students who had tutors improved their attendance and were less likely to fail math and other classes.

The key to making small-group tutoring a cost-effective program is the use of tutors who are performing a service year—that is, recent college graduates who are enthusiastic and educated, but who typically lack the specialized training and skills (and thus salaries) of regular classroom teachers. Using this labor force, costs per student average between $2,500 and $3,800. Eventual economic benefits to students who participate in the tutoring program are estimated to be as much as five to ten times larger than the costs (Ander, Guryan, and Ludwig 2016).

Another successful wraparound approach was adopted in Lawrence, Massachusetts, as part of a multipronged turnaround effort in the school district. Struggling students were selected to attend week-long Acceleration Academies during breaks for school vacations. During the week students received approximately 25 hours of additional instruction in math or reading, depending on their needs. Students were taught in small groups of roughly ten students by a specially selected classroom teacher. Research shows that the additional time and attention enabled students to make strong achievement gains in the subject taught (Schueler 2020; Schueler, Goodman, and Deming 2017).

Another potentially promising path is the effective use of computerized instruction for differentiation. This is different from remote or online learning as experienced during the COVID-19 pandemic. School districts are estimated to spend between $13 billion and $36 billion per year on technology. While not all of these investments are productive, some certainly are. A recent research review concluded that computer-assisted learning programs that were designed to meet students at their appropriate skill level and to develop targeted skills have often been shown to be successful, particularly in mathematics (Escueta et al. 2020).

Not all wraparound services are academic in nature. Increasingly, students receive medical care at school. Across the nation, there are nearly 2,600 school-based health centers serving students in a range of geographic areas, with just under half in urban areas and more than a third in rural areas. These health centers offer primary care services, and many also offer access to behavioral health professionals such as alcohol and drug counselors, therapists, or psychologists. Almost half of them have an expanded care team, often including providers of dental and vision health care who can help resolve common problems that interfere with student learning. Recent studies have found that access to school-based health centers reduce teen pregnancy rates, reduce students' depressive episodes and suicide risks, and improve academic measures such as grade point averages, attendance rates, and suspensions (Love et al. 2018; Lovenheim, Reback, and Wedenoja 2016).

D. School Choice

The working group agrees that another approach to improving student learning is providing school choice options. School choice can improve educational outcomes in several ways, including allowing parents to find schools that may be better matches for their children than their neighborhood public school, and by encouraging schools to improve as they compete for students. Though their benefits vary widely, school choice policies clearly have the potential to improve educational outcomes. Some students are served very well by charter schools and voucher programs instead of traditional public schools.

One popular approach to enhancing school choice is through expanding charter schools that are publicly funded but that have more freedom than public schools to control their own curriculum, instruction, and operations. Most states allow charter schools, and more than 3 million students, around 5 percent of public-school students, attend charter schools (Schanzenbach, Mumford, and Bauer 2016). A robust research literature has developed to measure the impacts of charter schools on performance. Some studies use methods that follow student growth after they transfer to a charter school, while others compare those who won or lost random assignment lotteries for charter school entry. On average, student performance is no different in charter schools from their performance in traditional public schools. There are wide differences in impacts across schools and students, however, with some schools having quite large and positive impacts. There is generally more evidence of positive effects for urban and low-income students; for recent reviews see Cohodes and Parham (2021) and Zimmer et al. (2019). The research also finds little support for the criticism that charters perform better than traditional public schools by cream-skimming the best students or by pushing out low-performing students.

Another avenue for increasing school choice is through voucher programs, which differ from charter schools because they provide funds for education that families can use to pay tuition at private schools. Here, too, the research evidence is mixed. On average, recent studies of voucher programs in Indiana, Louisiana, Ohio, and Washington, DC, have found that students see a moderate decline in test scores in the short and medium terms (Figlio and Karbownik 2016; Mills and Wolf 2019; Waddington and Berends 2018; Webber et al. 2007). This stands in contrast with earlier studies that tended to show test score improvements for voucher holders. The difference in findings over time may be due to improvements in the public schools that voucher students otherwise would have attended; research shows that competition caused by voucher programs leads public schools to improve (Epple, Romano, and Urquiola 2017). Student outcomes tend to be improved in the longer run, however, with voucher students more likely to graduate high school and enroll in college (Cowen et al. 2013; Figlio, Hart, and Karbownik 2020; Wolf et al. 2010). Furthermore, voucher students are less likely to be absent from school, and parent and student satisfaction is higher under voucher programs.

E. Pre-Kindergarten Education

There is evidence that preschool programs improve kindergarten readiness, subsequent school achievement, and other non-scholastic benefits. Based on the strength of the evidence, increasing enrollment rates in affordable high-quality preschool programs can improve outcomes for children 5–12 years old and for their lifetimes.

Many lower-income children attend preschool through the Head Start program. Head Start has been shown to have substantial long-term impacts on its participants, including raising high school graduation rates and college attendance (Bauer and Schanzenbach 2016; Deming 2009; Garces, Thomas, and Currie 2002; Ludwig and Miller 2007). More recently, the randomized control trial of Head Start showed that the program improves language and literacy, especially for children who would not attend preschool in the absence of Head Start (Kline and Walters 2016; Puma et al. 2010). While the recent experimental study has failed to find that the initial test score boosts from Head Start persist over time (Puma et al. 2012), reevaluations of the experimental evidence that more carefully identify treatment groups do find longer-term effects (Bauer 2019). Some studies have shown that interventions, especially those in early childhood, can have long-term effects on outcomes even if test score impacts fade away, potentially due to their impacts on social, behavioral, and emotional skills (Chetty et al. 2011; Heckman 2006).

States have also made large investments in expanding access to public preschool programs. These expansions have been shown to improve attendance in preschool as well as in subsequent student performance (Cascio 2021; Cascio and Schanzenbach 2013; Gormley and Gayer 2005). But there are also some examples of programs with negligible or even negative impacts in the longer run (Phillips et al. 2017; Wells 2019). Nonetheless, many studies have showed that public investments on large-scale preschool programs are both cost-effective and impactful.

III. Policy Priorities

Based on recent trends in the data, and on the existing research literature, the working group recommends the following priorities for education policy.

A. School Funding That Consistently Invests in All Kids

First, there is a strong case to be made for investing more in schools, especially in areas that are heavily reliant on local funding, and in schools with high concentrations of poverty. Second, school spending be protected during

economic downturns. Letting school spending fall in recessions, and in turn harming children's education, reflects misaligned budgetary priorities.

There are many policies at the federal, state, and local levels that can assist in this goal. States are encouraged to adopt school finance programs that are not regressive with respect to incomes in school districts. Local areas can ensure that their budgets reflect the importance of education. We recommend that federal policies increase Title I funding in a way that allows it to provide more resources per low-income child to states with higher levels of need, and helps to protect education budgets during recessions.

B. Differentiation to Meet All Kids' Needs

Education resources can be used efficiently. Recognizing the importance of teachers on students' learning, and that teacher salaries account for a large share of total spending, we need to improve our systems for developing skills and improving instruction so that more children have access to excellent classroom teachers. There are many paths to this end. We recommend support for programs providing targeted instruction to struggling students. We also recommend expanding school choice options so that parents can find opportunities that are good matches for their children, and to reap the benefits of competition.

C. Access to High-Quality Preschool

Finally, we recommend investing public funds to increase access of disadvantaged 3- and 4-year-olds to high-quality preschool programs. The goal should be increasing access: using a mixed delivery system of public schools, private schools, and child-care centers can help build capacity quickly and allow room for innovation and improvement. As we stated in prior chapters and affirm here, the working group differs on the details but agrees that families should have access to high-quality and affordable early childhood education.

CHAPTER 6

Keeping Teenagers on Track

While this report has primarily focused on children through age 12, this chapter briefly describes some areas particularly relevant to teenagers that merit policy attention and public investment. Many dimensions of teen risk have their roots earlier in childhood, so investments at younger ages can help keep teens on a healthy path. But keeping teens on track in contemporary society also means treating the adolescent period of development a little differently.

First, emerging brain science points to the promise of adolescence as a period of harnessing new opportunities for positive investment, and not just a period of reducing harm. Moving forward, policies and programs directed toward teens can benefit from new research in neuroscience on the developing teen brain. Early childhood has long been understood as a period of high plasticity, meaning that children's brains and bodies are rapidly developing and are highly sensitive to their environments (see chapter 3 of this volume; see also National Academies of Sciences, Engineering, and Medicine [NASEM] 2019; and Noble, McCandliss, and Farah 2007). Scientists are now learning more about how brain development continues throughout childhood with many additional windows of sensitivity and plasticity in brain growth and functioning as children age that nearly mirrors the rapid brain development of early childhood (NASEM 2019). As a result, adolescence presents an opportunity—just as rewarding as children's earlier years—for continued investments to support ongoing development. It also offers a second chance for reducing the negative impacts of past adversities (NASEM 2019). As one example, the Strong African American Families Program, an intervention that promotes positive racial identity and ways for parents to learn to support youths' goals and independence, has demonstrated short- and long-term psychological, physiological, and neurobiological improvements irrespective of children's early life experiences (Brody et al. 2017; Yau et al. 2012).

BOX 6.1

Adolescent Brain Development

Changes to the brain that occur during adolescence represent a new and independent window for learning. Biologically, puberty marks the beginning of two neurological processes among teens: the development of the prefrontal cortex, which is involved in executive functioning and impulse control (Crone and Steinbeis 2017; Steinberg 2005) and increased interconnectivity within and between the outer (cortical) and inner (subcortical) regions of the brain (NASEM 2019, 51). The development of subcortical brain regions also reflects teens' enhanced capabilities. Developmental changes during adolescence that heighten sensitivity to reward, the willingness to take risk, and the salience of social status are as much risk factors as they are opportunities for learning, exploring new environments, and forming relationships (NASEM 2019).

Indeed, heightened activity in the hippocampus and differential reward processing explain teens' increased sensitivity to rewards, capacity for learning, and habit formation when they are incentivized by positive outcomes (Davidow et al. 2016; Sturman and Moghaddam 2012). Third, adolescent behavior, particularly increased risk taking and difficulty with self-control, can be attributed to the asynchronous development of the cortical region of the brain that drives emotion and the subcortical region that is the control center for long-term planning and regulation of behavior (Galván 2010; Galván et al. 2006; Mueller et al. 2017; Steinbeis and Crone 2016). Elements of the social brain, such as the medial prefrontal cortex, also show significant development during adolescence that in combination with these other aspects of brain networks work to reinforce susceptibility to social influences and prosocial learning, including contributing and giving to others (Fuligni 2018; Telzer et al. 2017).

Youths naturally face a great deal of stress during the tumultuous adolescent period because of simultaneous brain, emotional, and physical changes. Keeping on track also implies developing the resilience and coping skills necessary to productively deal with stress and failure. Statistics point to worsening teen mental health, and teens today are growing up in the context of an information-saturated digital age that is moving faster than science's understanding on best practices to support healthy teen development. Policy can acknowledge and reduce the damage of bad stress while allowing for experiences of good stress, or tolerable stress, as an ingredient to emotional development.

Some types of risk-taking—risks that are socially acceptable and constructive, such as striving to win a competitive race or participating in a peaceful protest—are a necessary and inevitable part of healthy teen development.

Keeping teens on track thus involves balancing risks: encouraging appropriate risk-taking while also minimizing risk taking when the consequences come at a high cost to future well-being. Striking this balance is challenging. It requires environments that are supportive and that foster emotional well-being, including identity development, independence, and accessibility to expressive outlets. It also requires environments that meet medical, housing, nutritional, and psychological needs, as well as systems (e.g., families, schools, clubs) that promote development and facilitate striking a balance of risks, convey clear boundaries, and are safe and stable.

Policies and programs can help reduce risky behaviors that can hinder teens' successful transition to young adulthood—including dropping out of high school, becoming a teen parent, engaging in crime and being incarcerated, and using and abusing substances. Adolescent well-being has improved across a number of these dimensions since the 1990s. There have been substantial declines in teen child-bearing and substance use, and increased rates of school enrollment (NASEM 2019). Like the picture for early to middle childhood, the science on adolescent development points to the importance of both socio-emotional and cognitive development as well as behavioral and physical health on teen well-being.

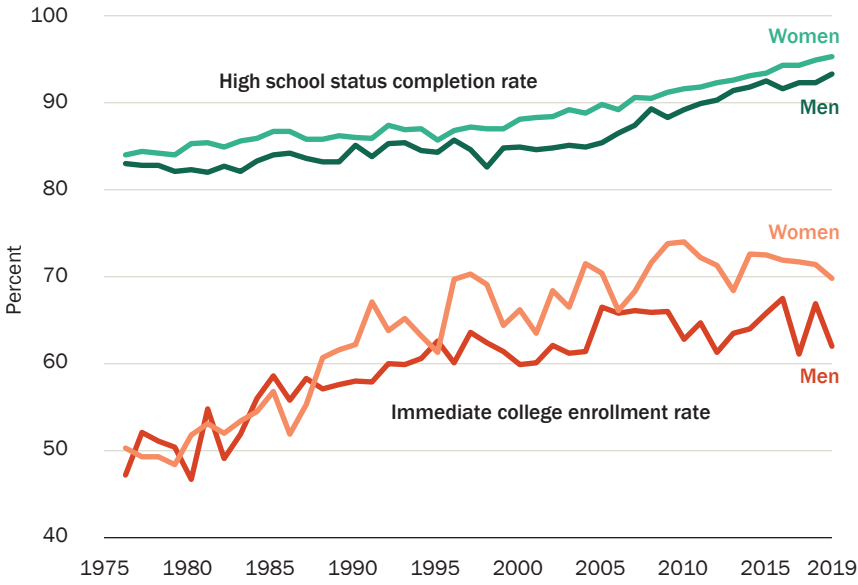
Policy can also reduce the negative impact and stress associated with systemic issues that magnify social stress, such as racism, which hits certain populations of adolescents particularly hard. Although racial and ethnic disparities in teen education and health are narrowing (Centers for Disease Control and Prevention [CDC] 2018; McFarland et al. 2018), Black, Hispanic, and teens across various underrepresented groups—groups that are projected to grow in population size—face outsized and systemic barriers to educational opportunities (Chetty et al. 2018).

I. The State of America's Teenagers

There is both good and bad news regarding the state of America's teenagers. To start with some good news: teens are getting and completing more education. Fewer students end their education before attaining a high school diploma—a crucial trend, since dropping out of high school is a decision with dire economic consequences. The share of students graduating from high school on time is the highest on record, as shown in figure 6.1. More high school graduates are enrolling in college right after high school graduation, too, although here there are substantial gaps between men and women. Policies ranging from improving access to college counselors to increasing families' incomes through an expanded Earned Income Tax Credit (EITC) have been shown to improve teens' immediate college enrollment rates.

FIGURE 6.1

High School Completion and Immediate College Enrollment



Source: NCES Digest of Education Statistics, 2018, Table 219.65 and NCES Digest of Education Statistics, 2019, Table 302.10.

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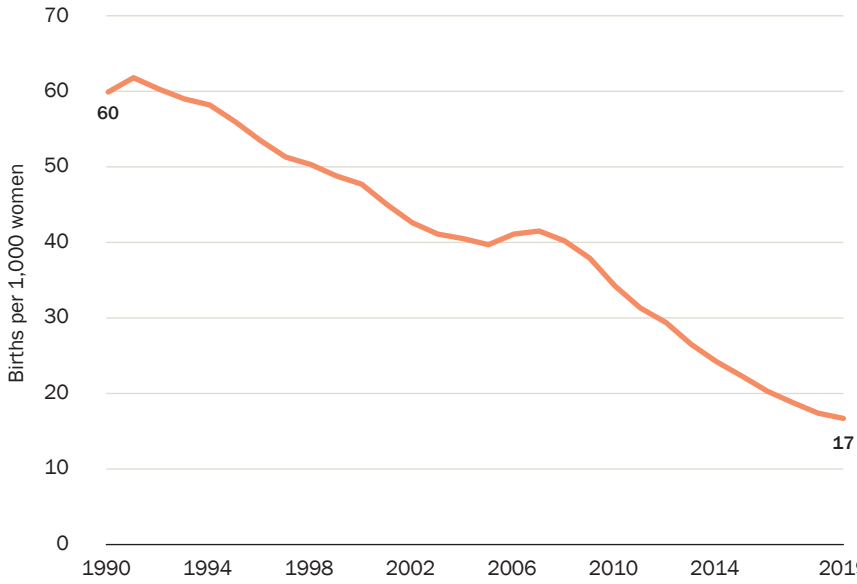
Note: High School Status Completion Rate is given as a percentage of 18–24-year-olds not enrolled in High School. Immediate College Enrollment Rate is given as a percentage of recent high school completers.

The improvements in educational attainment are tempered with some troubling statistics. High absence rates reduce the effectiveness of the public investments we make in students and their educations, and about one in five high school students is chronically absent from school, meaning that they miss more than 10 percent of school days. In addition, 4 percent of teenagers report being afraid of attack or harm at school, a number that has declined by two-thirds over the past 20 years, but is still too high.

Over the past two decades fewer teens have held jobs, a trend that holds both during the academic year and over the summers. This could be problematic, depending on how teens are spending their time instead, since part-time employment can build skills that pay off later. Some evidence suggests that teens are replacing employment with more school. During the school year, fewer teens are dropping out of school and working, and fewer teens are combining work with school. During summers, fewer teens are working, but the decrease in employment is matched by increased enrollment in school during the summer. On net, there has been no change in the likelihood that

FIGURE 6.2

Births Per 1,000 Females Aged 15–19 (1990–2019)



Source: Hamilton BE, Lu L, Chong Y, et al. Natality trends in the United States, 1909–2018. National Center for Health Statistics. 2020. and National Center for Health Statistics, National Vital Statistics System, Births: Final Data for 2019, Table 8.

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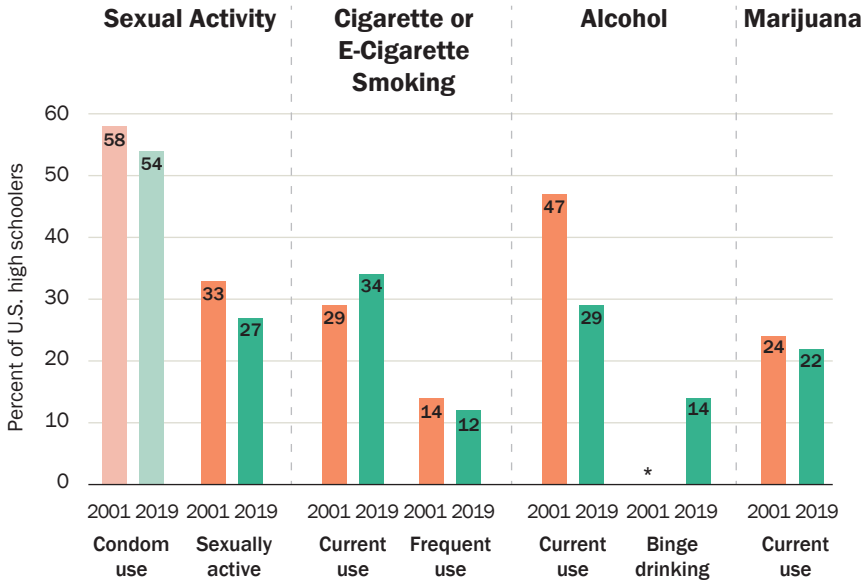
a teen is disconnected—that is, not in employment, education, or training. Instead, the mix of activity has shifted toward education (Bauer et al. 2019).

In terms of teens' time outside of school or work, time spent in sports has held steady over the prior decade and time spent sleeping has slightly increased (Livingston 2019). Sleep is a health resource for teens; recent studies, in part based on emerging research in adolescent brain development, show that delaying secondary school start times can be particularly beneficial to supporting sleep among teens (Widome et al. 2020). On the other hand, time spent socializing that is not screen time, such as in-person time in extracurricular activities, parties, and related entertainment, has decreased among teens (Livingston 2019). In-person socializing and extracurricular activities can support teen social and emotional development (Eccles et al. 2003; Oberle et al. 2020).

A truly remarkable trend is the sharp decline in teen births over the past three decades, as shown in figure 6.2. In 1991 there were 62 births for every 1,000 women ages 15 to 19; in 2019 there were only 17 births per 1,000. Birth rates have fallen—not only across a period of decades, but also in each individual year in the past decade—for all groups of female teens, across

FIGURE 6.3

Risky Behaviors Among High School Students



Source: High School Youth Risk Behavior Surveillance System, 2001 and 2019.

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Note: * = No data was available for binge drinking in the year 2001.

race and ethnicity, and among both younger (ages 15–17) and older (ages 18–19) teens. Teen birth rates have declined to a new low each year since 2009 (US Department of Health and Human Services 2019). This trend has been attributed to a range of possible explanations—from public health campaigns, to reality television shows, to increased access to and use of contraception (Kearney and Levine 2017).

A number of measures of risky behaviors among high schoolers have shown improvements in recent years, as shown in figure 6.3, though the rates of risky behavior remain high. Fewer teens report being currently sexually active, decreasing from 33 percent in 2001 to 27 percent in 2019. But among those who are sexually active, 46 percent report they did not use a condom, and 12 percent report they did not use any method to prevent pregnancy, during their most recent sexual intercourse.

Alcohol is by far the most common substance used among teens. In 2019 29 percent report having consumed alcohol in the past 30 days, down substantially from 47 percent in 2001. Many teens are drinking alcohol to excess or engaging in risky behaviors: in 2019 14 percent report binge drinking (defined as four or more drinks of alcohol in a row for women and five

or more for men), and in 2019 17 percent report riding in a vehicle driven by someone who had been drinking alcohol (not shown in figure 6.3). Cigarette smoking is on the decline, but e-cigarette use is prevalent: while 9 percent of high school students report current cigarette use, 14 report current use of e-cigarettes, marijuana use has remained relatively stable over time.

Nearly 6 percent of teens report rarely or never wearing a seat belt when riding in a car driven by someone else. And among the 63 percent of students who drove, 39 percent had texted or e-mailed while driving a car or other vehicle on at least one day in the prior year. Nearly 16 percent of students carried a weapon (e.g., firearm, knife, or club) on at least one day in the prior year (Kann et al. 2018).

How teens are faring overall thus masks both some progress and some disturbing trends. There are also gaps by socioeconomic class and by race and ethnicity. Lower-income and Black children are more likely to be raised in environments early in life with higher levels of economic and social stress, and are also more likely to be exposed to threatening experiences as teens (Morsy and Rothstein 2019). While teen births, sexual activity, high school dropout rates, and some measures of school achievement show closing gaps over time by race, other indicators of teen well-being, such as those related to physical and mental health, show increasing disparities, with lower-income, Black, and Hispanic teens faring less well than higher-income or white peers. These disparities matter for the overall health of the economy, especially because the racial/ethnic mix of the future US population of young people is predicted to tip toward a non-white majority (US Census Bureau 2017).

II. Topics at the Forefront of the Well-Being of American Teenagers

Next we review the evidence on topics of particular concern to the working group: teens' internet use, mental health, and criminal activity.

A. Teenagers' Internet Use

Nearly all teens today (more than 95 percent) have access to or frequently use a smart phone, with no socioeconomic differences based on income or parent education. Furthermore, prior to the COVID-19 pandemic, 45 percent of youths said they were "constantly" on the internet. Teens report that most of their (non-school-directed) smart phone use is to pass time, connect with friends, or to look up and learn new information. Increased screen time raises several concerns. To the extent that screen time is replacing time that would

be spent doing activities more favorably associated with social development, such as in-person time with friends, physical activity, or doing homework, increased screen time may be harming their development. Furthermore, because teens' brains are naturally wired to seek immediate gratification, use of social media can be a mechanism to avoid or escape negative feelings; this strategy can backfire, however, by fueling those feelings instead. Cell phones are also being used to avoid social interactions, with girls more likely to report this behavior than boys. Avoiding negative feelings instead of learning coping skills to deal with them through lived in-person experiences can also have long-term emotional costs.

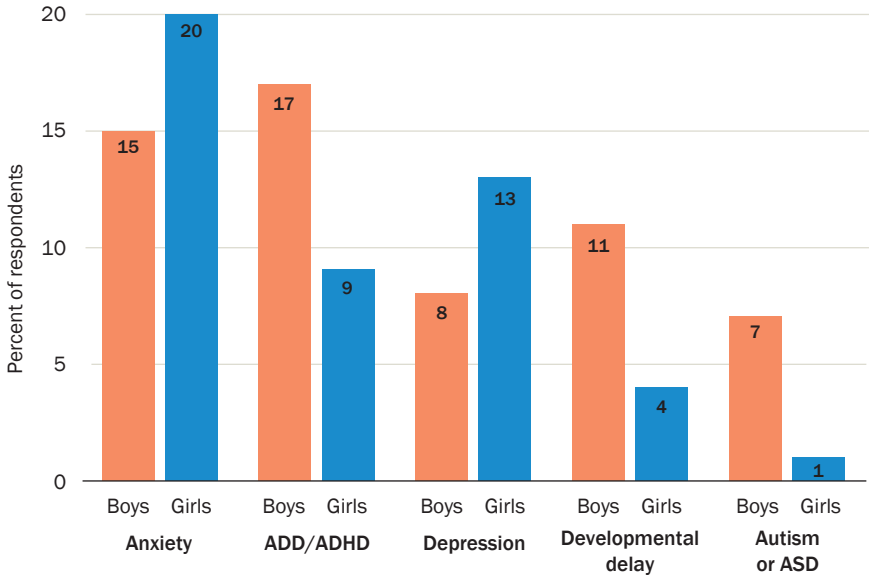
To be sure, teens' involvement in social media has some positive effects. The majority of teens report that social media has a positive or neutral effect on their lives, though one in five reports negative effects. Use of internet and social media overall is linked to stronger social ties, and teens report that it increases the likelihood of keeping in touch with close friends. Digital and social media use also increases civic mindedness and diversity of viewpoints that teens are exposed to, which increases feelings of inclusion and purpose. On the other hand, pressure to comment and get "likes" can easily become overwhelming for many teens. In 2019 16 percent of students reported being electronically bullied through texting, Instagram, Facebook, or other social media during the prior year (CDC 2019), with higher rates for women and whites.

Social media can offer possible productive and positive safe avenues for teen development by way of their identity development, offering an expressive outlet and fostering social connection and relationship development. With guidance, teens can also accumulate skills as technology evolves. To what extent different modes and formats across digital platforms may promote or negate these aspects is also not yet well understood. For example, visual bites from Snapchat may have different effects on how messages are internalized than photo montages on Instagram or longer portraits on Facebook. New technologies, such as immersive virtual reality, are also showing benefits to teens' development (Barbot et al. 2020; Barbot and Kaufman 2020).

In fact, the best studies so far that use advanced methods to summarize patterns across multiple data sets show negative but extremely small effects of technology use on teen well-being (Orben and Przybylski 2019). What is clearer from existing research is evolving best practices in realms of intentionality, actively controlling screen time, and being deliberate in shaping a digital identity and footprint (Burnell et al. 2019). Parents and caregivers can help teens navigate the digital world by monitoring but not policing their activities.

FIGURE 6.4

Percent of U.S. Youth Age 13–17 with Diagnosis (2019)



Source: United States Census Bureau, National Survey of Children's Health, 2019.

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B. Teenagers' Mental Health

Periodic feelings of anxiety, sadness, or being overwhelmed are emotions that are a natural aspect of positive adolescent development. Experiencing these emotions in a manner that interferes with everyday life, though, is a call for concern. One in five adolescents experiences a serious mental health disorder at some point (National Institute of Mental Health 2019), with the most common being anxiety; attention deficit disorder (ADD) or attention-deficit/hyperactivity disorder (ADHD); and depression (see figure 6.4). The onset of some mental health disorders, such as eating disorders, is most common during the teen years.

Suicidal ideation and suicide attempts among teens show trends pointing in very concerning directions over the prior decade. According to 2019 data, nearly one in five high school students reports suicidal ideation, and 16 percent report making a suicide plan, up from 14 percent and 11 percent, respectively, in 2009. Loss of life due to suicide is the most obvious tragic implication of teen mental health struggles. Among teens ages 15–19, the suicide rate has increased from 8 per 100,000 people in 2000 to 12 per 100,000 in 2017. The science on causes, and effective prevention, of suicide is relatively nascent (Fox et al. 2020). Depression, anxiety, and general psychological

BOX 6.2

Iceland Shifts Norms Surrounding Teenagers' Substance Use

Iceland has made tremendous strides in reducing teens' substance use by using community-based approaches (Heath 2020). Lessons from Iceland's campaign to prevent substance use and to shift the culture can be adapted to other communities and other challenges.

In the late 1990s substance use was rampant among Icelandic teens. Rates of intoxication were stunningly high, with 42 percent of youths 15–16 years old reporting having been drunk in the past month. One in four smoked cigarettes daily, and nearly one in five had tried cannabis. Iceland had among the highest rates in Europe of accidents and injuries related to alcohol.

Community leaders, including parents, teachers, coaches, and others, worked together to shift the culture so that drug and alcohol use was no longer seen as a normal part of youth culture. Research had identified risk factors that could be discouraged, including having friends who drink or smoke and having hours of unstructured, unsupervised time available to hang out with friends.

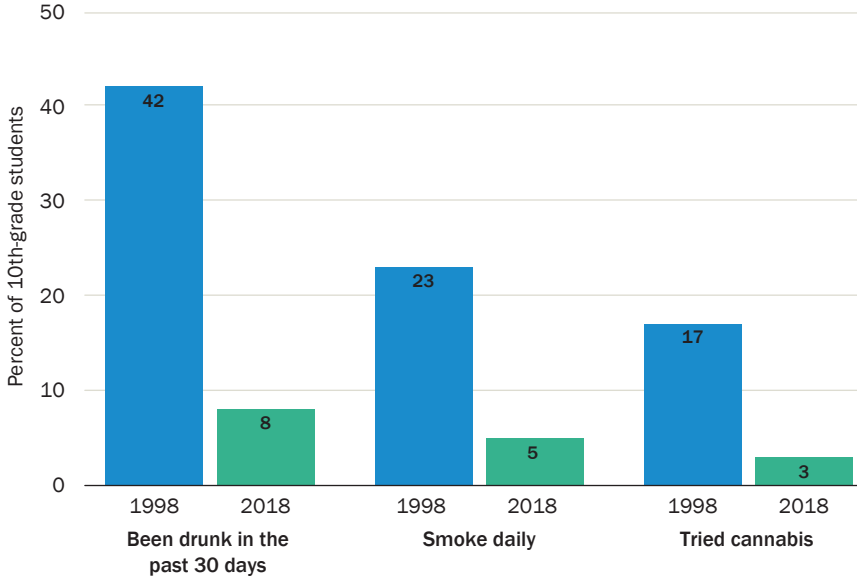
On the flip side, there were also protective factors that could be encouraged, mostly involving better ways that teens could spend their time. Increasing teens' participation in formal sports and extracurricular activities was key to the approach. Many of these activities involved teens experiencing "natural highs" in workouts, games, and performances that enabled them to take physical or emotional risks. Informal activities did not have the same impact.

Another key was engaging families to work toward a culture shift. Parents were encouraged to spend more time—not just quality time but quantity time—with their teens. They were also encouraged to enforce the "outside hours" restrictions for their teens, essentially a legal curfew that had long been on the books but had been largely ignored. To do so, the mayor and police chief of Reyjavik sent a letter to parents encouraging them to honor the curfews—and including a refrigerator magnet with outside hours information for easy reference.

Within just a few years, there was measurable success: teens were participating more in formal sports, spending more time with their parents, and had increased their compliance with outside hours restrictions. Reported substance use steadily declined (see figure 6.5). After 20 years, reported rates of substance use were around one-fifth the rate that they were when the campaign began.

FIGURE 6.5

Decline in Teen Substance Use in Iceland



Source: Heath 2020.

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distress, when untreated, also have negative spillovers to other areas of teen well-being by interrupting school performance, and by affecting physical well-being and overall emotional development. Suicide ideation and attempt may also be shaped by factors above and beyond teen mental health illnesses, potentially in response to societal conditions. For example, legalizing same-sex marriage is associated with a decline in suicide attempts among sexual minority adolescents (Button 2016; Raifman et al. 2017). To date, the evidence suggesting that social media and technology are to blame for poor mental health outcomes is weak.

It is hard to untangle how much of the increase in psychological distress and mood disorders among teens over time is because of improved awareness and better avenues for identifying and diagnosing problems, and how much is due to increases in underlying rates of problems.[1] There has been a rise in the number of teens seeking mental health treatment, with more than

1. Research in this area includes examining the role of trauma and toxic stress in the development of positive mental health and factors that promote resilience in the face of challenges; and interventions that include therapeutic or preventive approaches, such as mindfulness meditation. One example is the federally funded Adolescent Brain Cognitive Development (ABCD) study launched in 2016 that uses advanced brain imaging, interviews, and behavioral testing to examine how childhood experiences affect a child's changing biology, and vice versa.

40 percent of teens with a mental health challenge having spoken to a health professional. Psychological approaches to suicide prevention and treatment among teens are also improving, as is the science on the best practices and options for medication. Schools, both high schools and institutions of higher education, are investing in mental health resources and improving access to health professionals. Mobile-based approaches to support teen mental health are showing success. Financial barriers to seeking treatment have also been reduced, with the Mental Health Parity Act of 1996 prohibiting large group health plans from putting annual or lifetime dollar limits on mental health benefits, and with coverage of mental health treatment being expanded under the Affordable Care Act of 2010.

C. Teenagers' Criminal Activity

The working group is concerned with safety in school and safety in dating and peer relationships. In 2019 one in ten high school students (9 percent) reported not going to school because of safety concerns, 7 percent reported being threatened or injured by a weapon at school, and 20 percent reported being bullied on school property, with sexual minority youths reporting rates approximately 50 percent higher than these in all categories. Among high school students who reported having dated or gone out with someone in the past year, approximately 8 percent reported experiencing physical dating violence and 8 percent reported sexual dating violence, with higher reported rates among women. Thus, schools, peers, and intimate relationships have mixed or conflicting roles in the overall development of many teens.

Homicide is the third-leading cause of death among young people; most homicide victims, especially young Black men, are killed by firearms. In 2019 4 percent of high school students overall and 12 percent of Black men reported carrying a firearm at least one day in the prior year (not counting use for hunting or target shooting).

Teen participation in criminal activities is difficult to measure because not all crimes end up in an arrest. Data on juvenile arrests, however, show mostly good news. The number of juvenile (ages 17 or younger) arrests have fallen dramatically over the past 20 years, down 70 percent from their 1996 peak. (For comparison, arrests of adults fell 21 percent over the same period.) The declines are particularly large for offenses related to violent crime, and among men. Despite the correlations between acts of aggression including criminal violence and playing video games with explicit and violent content, there is still no convincing evidence showing a direct causal link between criminal violence and playing video games.

The arena of criminal justice represents perhaps the most dramatic reforms in response to the science of brain development, with Congress's reauthorization of the Juvenile Justice and Delinquency Prevention Act in 2018

as one example (NASEM 2019). Diversion and community-based programs are increasing as alternatives to prosecution, resulting in fewer youths being incarcerated (MacArthur Foundation 2015). Strides are also being made in the case of management reform, and there is newfound recognition that positive reinforcement, incentives, and decreased court time can productively reduce recidivism and support teen development.

III. Policy Priorities

New science on the adolescent brain points to the promise of investing in and nurturing teens. During adolescence the brain is developing along social dimensions, as well as in self-regulation and impulse control. There are opportunities for policy to work with the grain of these processes. For example, since skill development such as empathy and respect are heightened during the teen years, recognizing this fact can inform efforts to encourage teens' civic and societal engagement (Malti, Peplak, and Zhang 2020; Yeager, Dahl, and Dweck 2018). Policy reforms in juvenile justice taking into account brain development can positively support teens and reduce future societal costs.

Even though the natural path of adolescent development steers teens away from spending time at home with parents or caregivers and toward spending time with friends and other adults in different settings, family relationships remain key to healthy teen development. (Furstenberg, Rumbaut, and Settersten 2005). Indeed, stable families are a foundation to an opportunity society (Sawhill and Rodrigue 2016). As discussed in chapter 1, increasing family resources—both money and time spent together—are essential ingredients to teens' success.

Schools are key to fostering adolescent development and serving as sources of and gateways to support. Keeping teens engaged in school has the direct effect of reducing their likelihood to engage in risky behaviors such as substance use and criminal activity. Furthermore, schools are increasingly offering health and mental health support and services through school-based health centers—which have been shown to improve health and increase engagement in school, and should be a priority for further investment. Investments are also needed to improve physical safety in school as well as the quality of relationships between peers, and between students and teachers and other adult school workers.

There is a balance to be struck between legal sanctions and social norms in protecting teens. Laws help regulate and protect teens from alcohol, substances, and, more recently, from bullying. But broader societal norms matter, too. Teens respond to broader societal norms, and those norms can be shifted over time—especially when they are supported by policy and strong social messaging.

Families and educational institutions should also help inform and shape how teens navigate the evolving and expanding digital information age and their everyday use of technology. Evidence on best practices is starting to emerge, and efforts to amplify and normalize these practices can help promote healthy use of technology. Schools and communities can support this by enforcing cell phone–free zones in school and during sports and other teen activities. Best practices for families include limiting the presence of technology during routine times together such as at meals, and having an allocated place away from the bedroom to store technology during sleep time. Policymakers and providers of technology can assist these efforts by providing incentives to help manage the use of technology, especially by shifting defaults and adding frictions to cell phone use, to slow down natural teen impulses.

To promote healthy teen development, families, schools, policymakers, and communities all have roles to play. Building on insights into the developing teen brain and strong relationships, teens can be better supported to develop the skills needed that underlie healthy decisions.

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Diane Whitmore Schanzenbach is the Margaret Walker Alexander Professor in the School of Education and Social Policy and the Director of the Institute for Policy Research at Northwestern University. From 2015–17, she served as director of the Hamilton Project at the Brookings Institution in Washington, D.C. She is a research associate at the National Bureau of Economic Research, a nonresident senior fellow at the Brookings Institution, and a research associate at the Institute for Research on Poverty at the University of Wisconsin-Madison. She has testified before both the Senate and House of Representatives on her research and is an elected member of the National Academy of Education and the National Academy of Social Insurance.

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Center on Child and Family Policy

Katharine Stevens is founder and CEO of the Center on Child and Family Policy (CCFP). Prior to launching CCFP, she served for more than six years as a Resident Scholar at the American Enterprise Institute (AEI), directing AEI's early-childhood program. Before joining AEI, Dr. Stevens founded and led Teachers for Tomorrow, one of the first teacher-apprenticeship programs in the United States, which recruited and trained teachers for New York City's lowest-performing schools. Her publications include *Renewing Childhood's Promise: The History and Future of Federal Early Care and Education Policy*; *Does Pre-K Work?: The Research on Ten Early Childhood Programs—And What It Tells Us*; and *Still Left Behind: How America's Schools Keep Failing Our Children*; and she is a contributor to Robert Doar's edited volume, *A Safety Net That Works: Improving Federal Programs for Low-Income Americans*.

Michael R. Strain

American Enterprise Institute

Michael R. Strain is the Arthur F. Burns Scholar in Political Economy and the director of Economic Policy Studies at the American Enterprise Institute (AEI). Strain is the author of *The American Dream Is Not Dead: (But Populism Could Kill It)* as well as the editor or coeditor of three books: *What Has Happened to the American Working Class Since the Great Recession?*; *The US Labor Market: Questions and Challenges for Public Policy*; and *Economic Freedom and Human Flourishing: Perspectives from Political Philosophy*. He is a research fellow with the Institute for Labor Economics (IZA) in Bonn, a research affiliate with the Institute for Research on Poverty at the University of Wisconsin, Madison, and an elected member of the National Academy of Social Insurance. Before joining AEI, Strain worked in the Center for Economic Studies at the US Census Bureau and in the macroeconomics research group at the Federal Reserve Bank of New York.

Ryan Streeter

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Ryan Streeter is a Senior Fellow and Director of Domestic Policy Studies at the American Enterprise Institute (AEI). Before joining AEI, he was executive director of the Center for Politics and Governance at the University of Texas

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James Sullivan

University of Notre Dame

James Sullivan is a Professor of Economics at the University of Notre Dame and Co-Founder and Director of the Wilson Sheehan Lab for Economic Opportunities (LEO), which is a research center that works with service providers and policymakers to identify effective and scalable solutions to reduce poverty in America. He was recently appointed to the U.S. Commission on Social Impact Partnerships and he serves on the National Poverty Research Center Advisory Board. His research examines the effectiveness of anti-poverty programs at the national, state, and local level, as well as poverty and inequality measurement.

W. Bradford Wilcox

University of Virginia and American Enterprise Institute

W. Bradford Wilcox is Professor of Sociology and the Director of the National Marriage Project at the University of Virginia. He is Senior Fellow at the Institute for Family Studies and a Non-Resident Senior Fellow at the American Enterprise Institute. Wilcox is the author of *Soft Patriarchs, New Men: How Christianity Shapes Fathers and Husbands* and the co-author of *Whither the Child?: Causes and Consequences of Low Fertility* with Eric Kaufmann; *Gender and Parenthood: Biological and Social Scientific Perspectives* with Kathleen Kovner Kline; *Soul Mates: Religion, Sex, Love, and Marriage among African Americans and Latinos* with Nicholas Wolfinger; and *Unequal Family Lives: Causes and Consequences in Europe and the Americas* (with Naomi Cahn, June Carbone, and Laurie DeRose.)