Listening. Learning. Leading.®

Poverty and Education: Finding the Way Forward

THE ETS CENTER FOR
RESEARCH ON HUMAN CAPITAL AND EDUCATION

TABLE OF CONTENTS

This report was written by:

Richard J. Coley
Educational Testing Service

Bruce Baker
Rutgers University

Author contacts:
rcoley@ets.org
bruce.baker@gse.rutgers.edu

The views expressed in this report are those of the authors and do not necessarily reflect the views of the officers and trustees of Educational Testing Service. Copies can be downloaded from:
www.ets.org/research

Copyright © 2013 by
Educational Testing Service.
All rights reserved. ETS, the ETS logo, LISTENING. LEARNING. LEADING., GRE, TOEFL and TOEIC are registered trademarks of Educational Testing Service (ETS). THE PRAXIS SERIES is a trademark of ETS. All other trademarks are property of their respective owners.

July 2013
ETS Center for Research on
Human Capital and Education
Research and Development
Educational Testing Service
Rosedale Road
Princeton, NJ 08541-0001

PREFACE

As citizens, we should concern ourselves with the question of whether the current levels of poverty and inequality really matter. The answer is they matter a great deal. As noted in this report, poverty is a significant and growing problem for America — one that costs our economy hundreds of billions of dollars each year, and leaves poor families and individuals with a greatly reduced chance of achieving the American Dream. Children raised in poverty today will grow up in circumstances that, the data tell us, will give them a small, if not negligible, chance of following a path that will lead them to a markedly better place than where they began.

This report makes an important contribution to those who are interested in developing a broader and deeper understanding of the connections among poverty, education and outcomes. Information is provided that deals with issues such as home factors, food security, availability of health insurance and child care, and comparisons are made between poor and non-poor children. On the resource side, the authors provide analyses of programs and funding mechanisms intended to disrupt the effects of poverty on educational outcomes. The report also provides evidence of the increased levels of social and residential stratification in our schools and society, and considers not only how poverty is officially measured but several alternative measures that help to broaden our perspective.

In providing this information, this report gives us a more nuanced picture of poverty in America and the consequences it is having on our country. But the report does more than just provide a picture of poverty and how it is measured: it also presents strategies that may make a difference and are within the purview of education policymakers.

Irwin Kirsch
Director, Center for Global Assessment, ETS

ACKNOWLEDGMENTS

The authors wish to acknowledge the contributions of many individuals who played significant roles in the preparation of this report. First the authors wish to thank the following individuals who provided reviews of the report: Henry Braun, Lynch School of Education, Boston College; Cindy Brown, Center for American Progress; Margaret Goertz, Center for Policy Research in Education; Kathleen Short, U.S. Census Bureau; and Andy Sum, Center for Labor Market Studies, Northeastern University. While these reviewers provided valuable feedback, all errors of fact or interpretation are those of the authors.

We are also grateful for the editorial help provided by Kim Fryer, Larry Hanover, and Eileen Kerrigan of ETS. We also appreciate the production support provided by Marita Gray and William Petzinger.

EXECUTIVE SUMMARY AND HIGHLIGHTS*

More than one in five U.S. children live in "official" poverty today, with an even higher rate for Black and Hispanic children and for those in families headed by a single parent. Among the world's 35 richest countries, the United States holds the distinction of ranking second highest in child poverty. A large body of research continues to document the negative effects of poverty on children and their later life outcomes. Children growing up in poverty complete less schooling, work and earn less as adults, are more likely to receive public assistance, and have poorer health. Boys growing up in poverty are more likely to be arrested as adults and their female peers are more likely to give birth outside of marriage. Researchers have estimated that the costs associated with child poverty total about $500 billion per year, or 4 percent of Gross Domestic Product (GDP).

While education has been envisioned as the great equalizer, this promise has been more myth than reality. Today, the achievement gap between the poor and the non-poor is twice as large as the achievement gap between Black and White students. The tracking of differences in the cognitive performance of toddlers, elementary and middle school students, and college-bound seniors shows substantial differences by income and/or poverty status. These differences undoubtedly contribute to the increasing stratification in who attends and graduates from college, limiting economic and social mobility and serving to perpetuate the gap between rich and poor.

Given the strong connection between educational success and economic disadvantage, we might expect education policy to focus on ways to overcome the effects of poverty on children. Yet most of today's education policies have other foci. This is not to say that alleviating poverty should be the primary purpose of our public schools. The federal government addresses poverty through a variety of programs, services, and adjustments to tax regulations. Each of the 50 states differs widely in the extent to which it focuses on providing education and other services to children in poverty. Together, across all levels of government, scores of programs provide hundreds of billions of dollars to help the poor.

One aim of this report is to review the relationship between poverty and educational and other important life outcomes and to provide a clearer and more nuanced picture of poverty in America, as well as an understanding of how government attempts to address poverty — particularly from an educational perspective. Another aim is to consider the important issue of how poverty is officially measured in the United States and explore several additional aspects of income and poverty that broaden the perspective.

The official poverty rate, first adopted in 1969, identified 46.2 million Americans (15 percent of the population) in poverty in 2011. There was little change in the poverty rate from 2010, after three years of consecutive increases. Poverty rates for subgroups of the population differ widely.

- While White Americans comprise the largest number of people in poverty, the poverty **rate** for Hispanics and Blacks is significantly higher.
- Twenty-two percent of the nation's children are in poverty.
- While 6 percent of married-couple families were poor, the poverty rate for families headed by a single female was 31 percent.

Like most indicators, the official poverty rate is an incomplete and imperfect measure. Several other measures of poverty are presented and discussed, including the research supplemental poverty measure (SPM), the income-to-poverty ratio, a measure of extreme poverty, and an examination of

*References for all data included in the Executive Summary are provided in the full report that follows.

wealth in addition to income. Each of these measures provides a different perspective on the prevalence and degree of poverty.

- The **SPM**, which includes government spending directed at low-income families that is not included in the official poverty rate, identified about 3 million more Americans as poor. Differences are noted for subgroups.
- The **income-to-poverty ratio** reveals that more than 20 million Americans have incomes of less than half of the poverty threshold.
- About 1.5 million households with about 2.8 million children were classified as in **extreme poverty**, living on $2 or less of income per person per day in a given month.
- **International data** show that compared with other economically advanced countries, only Romania has a higher child poverty rate than the United States.
- Between 2007 and 2010, median **net worth** of Americans fell 39 percent and the mean fell 15 percent, driven mostly by collapsing housing prices. **Wealth** differences are much larger than income differences among subgroups. In 2010 the median net worth for White non-Hispanics was $130,600, compared to $20,400 for non-Whites. The mean family net worth for White non-Hispanics was $654,500, compared to $175,000 for non-Whites or Hispanics.
- Large differences in the income needed by three hypothetical families in different parts of the United States to meet basic needs are documented. For example, in the Fargo, North Dakota, area, two working parents with two young children need $38,808, while the same family in the Newark, New Jersey, area needs $57,445. The New Jersey parents, earning the state's minimum wage, each need to work 76 hours per week to meet their family's basic needs.

The manifestations of child poverty influence both the educational opportunities available to children and the educational outcomes that they will likely achieve. Data on family structure and behaviors, food security, parent employment, health insurance, exposure to toxins, and child care are provided and compared for poor and non-poor children. Some highlights of the data include the following:

- Only 12 percent of poor children are raised in two-parent families, compared to 60 percent of all children.
- Poor children are more likely to be exposed to tobacco smoke and lead.
- Even though the United States is one of the richest nations in the world, more than one in five children is food insecure.
- Nearly one-third of U.S. children are in a household where neither parent holds full-time, year-round employment.

The report also documents both the segregation and isolation that characterize the schools of many of our nation's children. Large differences in household incomes of children attending public versus private schools pose challenges to improving the educational and economic opportunities available to these public school students, and place extra burdens on public schools to provide interventions requiring additional resources.

- Minority students disproportionately attend schools that are segregated by race and income. For example, 38 and 43 percent of Black and Hispanic students, respectively, attend schools that have a student body that is composed of 90 to 100 percent minority students.
- Data comparing the household incomes of public and private school students show that in states with the highest gaps, household incomes of private school students are about double the household incomes of students in the public schools. In Louisiana, for example, the average household income for public school students is $56,428, compared to $113,773 for private school students.

While the primary focus of the report is on education, the broad array of non-education federal poverty programs is briefly described. U.S. anti-poverty policies frequently have been criticized in comparative research on their effectiveness in alleviating poverty, moderating income inequality, and promoting social mobility. Numerous authors note that while the United States has the highest income inequality among wealthy nations, in recent decades, public expenditures have shifted toward the disabled and elderly and away from those with the lowest incomes.

Three federal education programs that are designed to diminish the relationship between children's economic status and their education outcomes — Title I of the Elementary and Secondary Education Act (1965), Head Start, and the National School Lunch Program — are described. Title I provides the largest direct federal aid to local public schools. While important, Title I funds do little to counter-balance the inequities of state school finance systems. State education funding systems, which provide the bulk of elementary and secondary school funding, are described and evaluated on the basis of their effort and fairness. New Jersey and Ohio are identified as high-effort states with progressive funding distributions. By contrast, Missouri, Colorado, Virginia, and Florida are among those states with regressive and low-effort systems. Finally, state preschool programs, often focused on low-income children, are described briefly along with the research supporting the benefits of these programs.

The challenges illustrated in the report represent systemic and structural inequalities that are particularly challenging in the current economic climate. Yet these challenges point the way toward strategies for moderating the influence of poverty on educational outcomes. We offer strategies in seven areas that are within the purview of education policymakers.

Increasing awareness of the incidence of poverty and its consequences. Child poverty costs the United States hundreds of billions of dollars per year. Current poverty levels, combined with the growing wealth gap between those at the top and bottom of the distribution, threaten to destabilize our democracy and limit the upward mobility of children of future generations.

Equitably and adequately funding our schools. The economic downturn has taken a toll on state school funding and on targeted programs like preschool that can help disadvantaged children. There is a need for better coordination of federal and state education programs targeted at poverty.

Broadening access to high-quality preschool education. High-quality early childhood education programs improve the educational outcomes of all children, but particularly for low-income children. The administration's proposed major expansion of preschool programs across the country should be supported.

Reducing segregation and isolation. Many of the nation's schools are increasingly segregated by race/ethnicity and income. Each student should have the opportunity to attend schools with peers from diverse social and economic backgrounds.

Adopting effective school practices. School policies that have been documented by research and practice to be effective should be broadly adopted. Examples include class size reduction, longer school days and years, and tutoring.

Recognizing the importance of a high-quality teacher workforce. Attracting and keeping high-quality teachers in high-poverty classrooms should be of the utmost priority and may require special incentives.

Improving the measurement of poverty. The poverty rate is an important social and economic indicator that is used to allocate resources for scores of federal, state, and local programs. Work should continue to expand the official definition of income to include government spending directed at low-income families and to recognize cost-of-living differences across regions.

As the demographics of the U.S. public school population continue to change, it is critical that the U.S. public education system makes sure that all students are prepared to be successful in an increasingly competitive world.

INTRODUCTION

Education then, beyond all other devices of human origin, is the great equalizer of the conditions of men, the balance-wheel of the social machinery. — Horace Mann, 1848

More than one in five of all U.S. children live in poverty, and that percentage is substantially higher for some subgroups of the population. Internationally, the United States ranks second highest in child poverty among the world's "richest" 35 countries, surpassed only by Romania (UNICEF Innocenti Research Centre, 2012). The Great Recession of 2007 and its lingering effects have increased the challenges many poor children face at a time when literacy and numeracy skills and educational attainment have never been more important, both for the individual and for the country. The purpose of this report is to provide an overview of poverty in the United States, focusing particularly on the impact of poverty on children and on their educational achievement and on how government attempts to address that impact. The report also provides a "primer" on how poverty is "officially" defined and measured, on some alternative measures of poverty, and on how poverty and its associated conditions are distributed over the population. The remainder of this section provides a brief look at child poverty and disadvantage and documents the relationship between poverty and educational achievement and attainment.

The numbers shown in Table 1 and other numbers in this report have a profound impact on our society and economy. Study after study has documented the negative relationship between poverty and its associated conditions and a wide range of measures of educational achievement, educational attainment, and other important life outcomes. Adults who grew up in poverty are more likely to have low earnings, pay less in taxes, and exhibit negative behaviors and health outcomes that add a burden to the nation's economy. The costs to the U.S. economy associated with child poverty have been estimated to total about $500 billion per year, or the equivalent of nearly 4 percent of the Gross Domestic Product (Holzer, Schanzenbach, Duncan, & Ludwig, 2007).

TABLE 1

Overview of Childhood Poverty and Disadvantage in the United States

All children in poverty	22%
Black children in poverty	28%
Hispanic children in poverty	25%
Children in extreme poverty	4%
Households with children who are food insecure	21%
Children with unstable parent employment	32%

Sources: Data for overall, Black, and White children in poverty are from DeNavas-Walt, Proctor, and Smith (2012); extreme poverty data calculated by authors from data in Shaefer and Edin (2012); food insecure data, Coleman-Jensen, Nord, Andrews, and Carlson (2012); and unstable unemployment data, KIDS COUNT Data Center (2013).

The weight of the evidence from both experimental and non-experimental studies and research that attempt to isolate the impact on children's well-being of growing up in low-income families suggests that increases in income for poor families are causally (positively) related to children's outcomes. This research also discusses the consequences of growing up in a poor household. From an economic perspective, families with more income are better able to purchase inputs such as nutritious meals, safer neighborhoods, and better schools, thus positively influencing the development of their children. From a psychological or sociological perspective, the quality of family relationships and high-quality parental interactions with children that are associated with higher income aids in child development (Duncan & Magnuson, 2011).

These researchers also have been able to link family income early in a child's life to later adult outcomes using data from the Panel Study of Income Dynamics (PSID), which followed a nationally representative sample of U.S. families and their children since 1968. Duncan and Magnuson (2011) used PSID data on children born between 1968 and 1975 for whom adult outcomes were collected between ages 30 and 37. Income measures were available each year in a child's life from the prenatal period through age 15, enabling the researchers to observe the effects of poverty at several distinct age periods of childhood. Selected findings are shown in Table 2.

TABLE 2

Adult Outcomes by Poverty Status between the Prenatal Year and Age 5

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

Note: Figures given in the table are either the mean or a percentage.
Source: Duncan and Magnuson (2011).

Compared with children whose families had incomes of at least twice the poverty line during their early childhood, poor children completed two fewer years of school, earned less than half as much money, worked 451 fewer hours per year, received $826 per year more in food stamps, and were nearly three times as likely to have poor health. Poor males were twice as likely to get arrested and poor females were five times more likely to have a child out of wedlock. Even after controlling for a variety of background characteristics, Duncan and Magnuson (2011) suggested that a substantial portion of the simple correlation between childhood income and most adult outcomes can be accounted for by the negative conditions associated with birth into a low-income household.[1]

Education has been envisioned as the great equalizer, able to mitigate the effects of poverty on children by equipping them with the knowledge and skills they need to lead successful and productive lives. Unfortunately, this promise has been more myth than reality. Despite some periods of progress, the achievement gap between White and Black students remains substantial (Barton & Coley, 2010). Yet today, income has surpassed race/ethnicity as the great divider. Income-related achievement gaps have continued to grow as the gap between the richest and poorest American families has surged. As researcher Sean Reardon of Stanford University explained recently in *The New York Times*: "We have moved from a society in the 1950s and 1960s, in which race was more consequential than family income, to one today in which family income appears more determinative of educational success than race" (Tavernise, 2012, para 4).

[1] Other researchers are working to uncover and understand the ways that poverty affects achievement. See, for example, Evans, Brooks-Gunn, and Klebanov (2011).

Reardon's recent research found that "the gap in standardized test scores between affluent and low-income students had grown by about 40 percent since the 1960s and is now double the testing gap between Blacks and Whites" (Tavernise, 2012, para 4).[2] It is also the case that if we look across states or major metropolitan areas, those areas within the United States that have greater income gaps between high- and low-income families also tend to have greater achievement gaps between high- and low-income children (see Appendix A).

Given the growing influence of income and recognizing the widening gap between the rich and the poor, we begin by documenting and tracking the relationship between poverty and educational achievement and attainment at points along the education pipeline, beginning with 2-year-old children and ending with young adults who complete college.

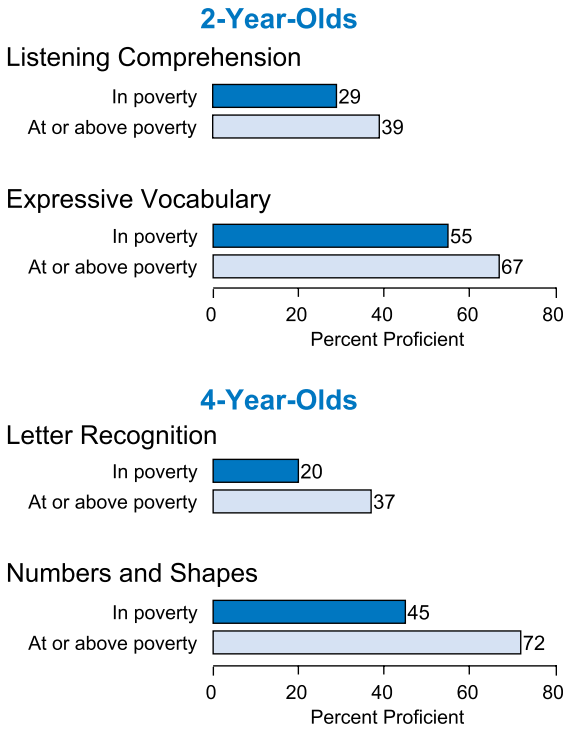
Figures 1–3 track the relationship between cognitive skills and poverty. As shown in Figure 1, data from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), have revealed significant differences in the cognitive skills measured for both toddlers (about two years old) and pre-schoolers (about four years old). For example, among the younger cohort, 67 percent of toddlers at or above poverty were found to be proficient in expressive vocabulary, compared to 55 percent of toddlers below poverty. A similar pattern is seen for preschoolers. Seventy-two percent of 4-year-olds at or above poverty were proficient in numbers and shapes, compared to only 45 percent of those below poverty (National Center for Education Statistics [NCES], 2009a).

Figure 2 uses data from the National Assessment of Educational Progress (NAEP) to gauge differences in reading achievement among fourth- and eighth-graders, grouped by whether or not they are eligible for free or reduced-price lunches, a measure used by NAEP as a measure of family income. Fourth-graders who were eligible for free lunch scored 29 points lower than those

[2] For more on Reardon's study, see Reardon (2011).

FIGURE 1

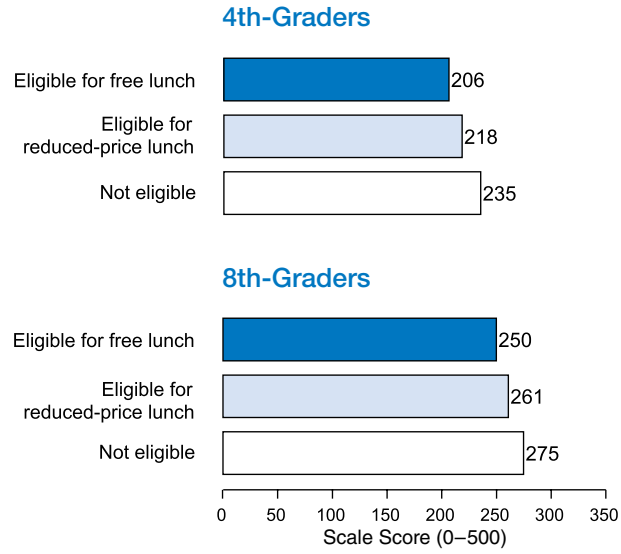
Percentage of Children Demonstrating Proficiency in Various Cognitive Skills by Poverty Status and Age, 2003–04 and 2005–06



Source: NCES (2009a). Data are from the Early Childhood Longitudinal Study, Birth Cohort.

FIGURE 2

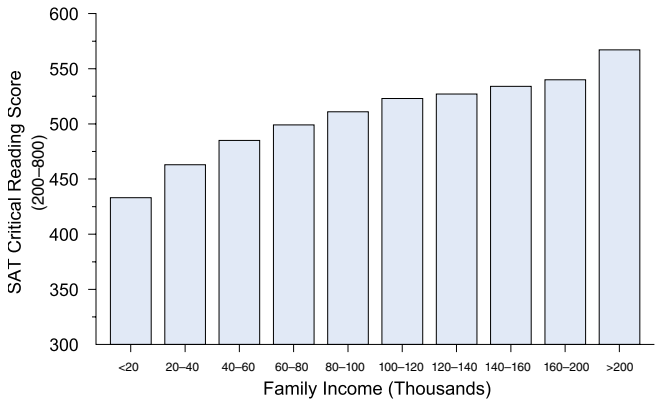
Average NAEP Reading Scores, by Eligibility for Free or Reduced-Price School Lunch, 2011



Source: NCES, 2011

FIGURE 3

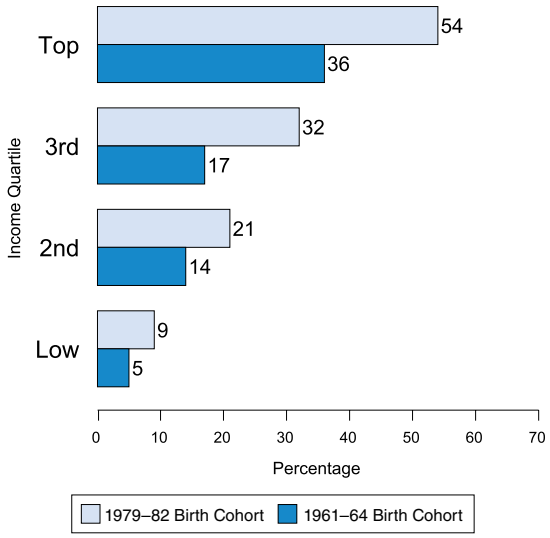
Relationship between SAT Critical Reading Scores and Family Income, 2012



Source: College Board (2012).

FIGURE 4

Percentage of Students Completing College, by Income Quartile and Birth Cohort



Source: Bailey and Dynarski (2011).

not eligible. A similar pattern is seen for eighth-graders (NCES, 2011).

Figure 3 tracks the relationship between family income levels and SAT® Critical Reading scores in 2012 for college-bound seniors (who took the SAT test). These data show a strong linear relationship between the two measures. Seniors at the lowest levels of family income scored about 100 points lower than those at the top (College Board®, 2012).

Further along the pipeline, there is increasing stratification in who attends and graduates from college. University of Michigan researchers have analyzed data from the U.S. Census and the 1979 and 1997 National Longitudinal Survey of Youth to describe changes in inequality in postsecondary education for two cohorts of youth, one born in the early 1960s and one born around 1980. As might be expected, there were increases in postsecondary attainment between the two periods and that attainment is associated with family income. The increases, however, were highly uneven. As shown in Figure 4, the largest attainment gains came at the top of the income distribution and the lowest rates at the bottom. The top income quartile gained 18 percentage points in completing college, while the bottom quartile gained by only four percentage points (Bailey & Dynarski, 2011). These data illustrate the fact that that the income inequality in college outcomes has increased during a time when economic benefits of educational attainment are rising.

Given this strong association between educational success and economic disadvantage, one might expect education policy to focus on ways to overcome the effects of poverty on children as a way to improve overall education outcomes. Yet, popular education policies focus on developing common curriculum standards, test-based accountability systems, using students' scores on standardized tests in teacher evaluations, and promoting competition among schools. These efforts are not likely to contribute much to raise student achievement or close achievement gaps because they disregard the educational challenges that are faced in the daily lives of disadvantaged children (Ladd, 2012).

This is not to suggest that alleviating poverty should be primarily a responsibility of our public education system. The federal government addresses poverty through a variety of direct subsidy programs, provision of social services, and adjustments to tax regulations. States provide programs as well. The 50 state systems vary widely in the extent to which they provide education and other interventions targeted to children in poverty. Together, across all levels of government, scores of programs provide billions of dollars to help the poor, albeit with limited and diminishing success.

The next section provides a basic primer on how poverty is measured in this country and how poverty is distributed over the nation's population. Alternative measures of poverty are presented and compared. The topics of extreme poverty and differences in family finances based on considerations of income and wealth also are discussed. The following section focuses on the correlates of child poverty, including family factors, exposure to toxins, food insecurity, parent employment, access to health care, and differences in child care. The next section documents the segregation and isolation that exist in many of the nation's schools, which can undermine the schools' effectiveness in various ways. We then examine the role of government programs in addressing poverty, with particular emphasis on policies and programs intended to disrupt the relationship between child poverty and educational outcomes. Finally, we draw on the work described here and elsewhere to suggest some strategies to better match programs and services to the needs of children and to ameliorate the strong links between child poverty and later outcomes.

PARSING THE POVERTY NUMBERS

Like many social and economic indicators, the "poverty rate" is, at best, an incomplete and imperfect measure. Yet it is an extremely important measure and indicator that is used to determine eligibility for dozens of federal, state, and local programs such as Head Start, the Supplemental Nutrition Assistance Program, and certain parts of Medicaid. Measuring poverty also allows us to identify those in need of assistance, track changes in poverty rates across the population, target interventions to help individuals and families escape poverty, and evaluate programs and policies implemented to address poverty. In this section we describe how poverty is measured officially, and we explore several additional aspects of income and poverty that broaden the perspective.

A handful of general alternatives for poverty measurement exist which fall into two classes — absolute poverty measurement and relative poverty measurement. Absolute measures of poverty seek to identify that level of income and/or wealth at which an individual, family, or household is living in poverty. Absolute measures attempt specifically to identify income thresholds to apply to varied family configurations as defining the poverty level. Official U.S. poverty rates are determined by absolute income thresholds. By contrast, relative poverty, or relative income measures, characterizes the income of low-income families by comparison to others in the income distribution, usually the median. This approach is often used in international comparisons. The reality, however, is that all measures of income and poverty are, at least to an extent, relative. The ability to afford adequate housing in New York versus El Paso, Texas, is relative to the housing markets in those locales, which are associated with income variation across those cities. As we discuss herein, even supposed absolute measures of poverty should eventually take into account these relative differences in income distribution and regional price variation.

The Poverty Rate

The "official" poverty rate, first adopted in 1969, is based on a list of income thresholds for families of different sizes; the thresholds are updated annually to recognize inflation. The definition used in this measure uses money income before taxes and tax credits and excludes capital gains and noncash benefits such as food stamps and housing assistance. While there are 48 thresholds, Table 3 may be useful as a summary that provides a sense of the poverty line. If a family's total money income is below the applicable threshold, then the family and every individual in it are considered to be in poverty.[3]

TABLE 3

Weighted Average Poverty Thresholds in 2011 by Size of Family

Number of people in family	*Dollars*
One	11,484
Two	14,657
Three	17,916
Four	23,021
Five	27,251
Six	30,847
Seven	35,085
Eight	39,064
Nine or more	46,572

Source: DeNavas-Walt et al. (2012).

[3] For more information on how the poverty rate is calculated, see Appendix B in DeNavas-Walt et al. (2012). All of the data in this section are from this report.

In 2011, 46.2 million Americans were in poverty using the official poverty rate. This represents 15 percent of the population, broken out as follows:

- 30.9 million White – 12.8 percent
- 19.2 million non-Hispanic White – 9.8 percent
- 13.2 million Hispanic (any race) – 25.3 percent
- 10.9 million Black – 27.6 percent
- 2 million Asian – 12.3 percent[4]

Although White Americans comprise the largest number of people in poverty in the United States, the poverty rate for Hispanics and Blacks is significantly higher. More than one-fourth of these populations meet the official definition of poverty.

Some other differences are noteworthy:

- 22 percent of the nation's children were in poverty.
- Although 6.2 percent of married-couple families were in poverty, the rate for families with a female householder and no husband present was 31.2 percent.
- Although the poverty rate for those working full time was 2.8 percent, the rate for workers working less than full time was 16.3 percent. Among those not working at least one week during the year, the poverty rate was 32.9 percent.
- The poverty rate for those with a disability was 28.8 percent.

After three consecutive years of increases, there was little change in these data between 2010 and 2011.

The Research Supplemental Poverty Measure[5]

Concerns about the adequacy of the official poverty measure have resulted in some Congressional action and efforts by the National Academy of Sciences (NAS) to develop a more accurate poverty measure. These concerns include:

- The current measure does not reflect government policies that alter families' resources, such as payroll taxes and food stamps.
- The current measure does not recognize expenses needed to get and hold a job, such as transportation and child care costs.
- The current measure does not recognize differences in medical costs that vary across groups.
- The current measure does not recognize changes in family situations, such as payments for child support and increasing cohabitation among unmarried couples.
- The current measure does not adjust for geographic differences in the cost of living.

To respond to these concerns, an NAS panel recommended changing how both the poverty thresholds and the family resources are defined. The goal was to produce a poverty measure that accounts for government spending directed at low-income families (e.g., food stamps and the Earned Income Tax Credit). Table 4 provides a summary comparison.

[4] Federal surveys allow respondents to report more than one race. See DeNavas-Walt et al. (2012) for more detail.

[5] The material on the Research Supplemental Poverty Measure provided in this section is drawn from Short (2012).

TABLE 4

Poverty Measure Concepts: Official and Supplemental

	Official poverty measure	*Supplemental poverty measure*
Measurement units	Families and unrelated individuals	All related individuals who live at the same address, including any coresident unrelated children who are cared for by the family (such as foster children) and any cohabitors and their relatives
Poverty threshold	Three times the cost of a minimum food diet in 1963	The 33rd percentile of expenditures on food, clothing, shelter, and utilities (FCSU) of consumer units with exactly two children multiplied by 1.2
Threshold adjustments	Vary by family size, composition, and age of the household	Geographic adjustments for differences in housing costs by tenure and a three-parameter equivalence scale for family size and composition
Updating thresholds	Consumer Price Index: all items	Five-year moving average of expenditures on FCSU
Resource measure	Gross before-tax cash income	Sum of cash income, plus in-kind benefits that families can use to meet their FCSU needs, minus taxes (or plus tax credits), minus work expenses, minus out-of-pocket medical expenses and child support paid to another household

Source: Short (2012).

Comparing the Two Measures

It should be noted that the research supplemental poverty measure (SPM) is not intended to replace the official measure, which is used to determine program eligibility. Rather, the SPM is designed to provide information on aggregate levels of economic need and should be considered an additional macroeconomic statistic that provides further understanding of economic conditions and trends.

The SPM yielded a national poverty rate of 16.1 percent for 2011, about one percentage point higher than the official rate. The SPM identifies 49.7 million poor, about 3 million more than the official rate. For most groups SPM rates were higher than the official rates; but there are differences. Table 5 provides comparisons of the two measures for selected subgroups of the population (see Short, 2012, for more details). The SPM identifies a larger percentage of foreign-born and older Americans, as well as a larger proportion of married couples, Asians, and Hispanics (any race). On the other hand, the SPM results in a lower estimate of poverty for children and Blacks, individuals with a disability, those living in the Midwest and outside of metropolitan areas, and those with only public health insurance.

Use of the SPM also results in different distributions of income-to-poverty threshold ratios. Using the SPM results in a smaller percentage of the population falling into the poorest category where their income is below half of their poverty threshold. A notable exception is for those 65 and older who show a higher percent below half the poverty line with the SPM — 4.3 compared to 2.3 percent. With the exception of Asians, the inclusion of targeted in-kind benefits in the SPM resulted in lower proportions of all other racial/ethnic groups being classified in the poorest category.

TABLE 5

Percentage of Population in Poverty by Different Poverty Measures, Selected Subgroups, 2011

	Official poverty rate	Supplementary poverty measure	Difference
Foreign-born	19	25.8	6.8
Age 65 and older	8.7	15.1	6.3
Asian	12.3	16.9	4.6
Hispanic (any race)	25.4	28	2.6
Married couples	7.4	10	2.5
Homeowner with mortgage	5.8	8.1	2.3
White	12.9	14.3	1.4
All	15.1	16.1	1
Disability	28.8	27.6	-1.2
Midwest	14.1	12.8	-1.3
Black	27.8	25.7	-2
Outside metro	17.1	13.5	-3.7
Under 18	22.3	18.1	-4.2
Public health insurance only	36.7	31.3	-5.4

Source: Short (2012).

How the United States Compares Internationally

The UNICEF Innocenti Research Centre monitors and compares the performance of economically advanced countries on measures of child well-being. Figure 5 shows the percentage of children age 17 or younger living in poverty in the 35 countries. Poverty is defined as living in a household whose income, when adjusted for family size and composition, is less that 50 percent of the median income for the country in which they live. The data show that the United States has a higher poverty rate than just one other "rich" country — Romania. The United States' child poverty rate of 23 percent is considerably higher than nearly all comparable countries and is twice the rate or more than 23 of the 34 other countries (UNICEF Innocenti Research Centre, 2012).

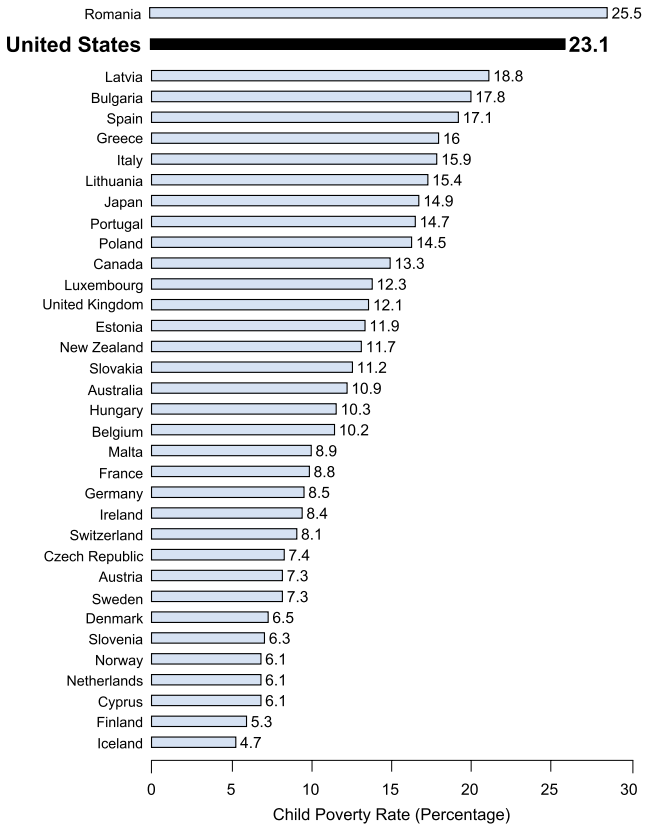
The Income-to-Poverty Ratio

While the official poverty rate categorizes someone as "in poverty" or "not in poverty," the measure tells us little else. The U.S. Census Bureau also measures the income-to-poverty ratio, which shows how close a family's income is to their poverty threshold. For example, if the income for a family is $12,000 and their poverty threshold is $24,000, their income-to-poverty ratio is 0.50. That is, their income is only half of their threshold. Below we focus on the population experiencing this depth of poverty — those with incomes below 50 percent of the poverty threshold.

In 2011, 20.4 million Americans had incomes that were half or less of their poverty thresholds. This represents almost 7 percent of the population and 44 percent of those in poverty. So not only are they in poverty, but more than two out of five people in poverty have incomes of less than half the poverty threshold. In addition, 7.3 million children were in this category. The rates also were higher for Blacks and Hispanics, with 12.8 and 10.5 percent, respectively, having incomes less than half of the poverty threshold (Short, 2012).

FIGURE 5

Percentage of Children in Relative Poverty in Economically Advanced Countries, 2009*



* Children ages 0–17 living in a household in which disposable income, when adjusted for family size and composition, is less than 50 percent of the national median income.

Source: UNICEF Innocenti Research Centre (2012).

The U.S. Census Bureau also reports the income deficit, defined as the difference in dollars between a family's income and its poverty threshold. In 2011 this deficit was $9,576 for families in poverty. The deficit was even higher ($10,317) for families with a female householder and no husband present.

However, there is also a large group of our citizens who live with incomes that many studies conclude not to be an adequate or livable income — incomes below **twice the poverty threshold** (Edelman, 2012). The use of this standard reveals a much larger segment of the population being identified as poor (many of whom may not consider themselves to be poor). The SPM estimates that 48.1 percent of the population had incomes below twice the poverty level in 2011, compared with 34.5 percent with the official rate. Thus, just about half of the U.S. population — more than 140 million people — lives below twice the SPM threshold (Short, 2012).[6] While these people are not considered officially poor, they have incomes that are considered inadequate or not livable.

Extreme Poverty

The National Poverty Center (NPC) at the University of Michigan has estimated the prevalence of extreme poverty in the United States as well as how it has changed between 1996 and 2011. During this period, the nation passed major welfare reform and experienced the Great Recession. The welfare reform ended the only cash entitlement program for poor families with children, while the recession resulted in large increases in the number of Americans who were unemployed. The NPC's February 2012 *Policy Brief* sought to determine whether these events have produced a new group of American poor: households with children living with virtually no income (Shaefer & Edin, 2012). Adapting one of the World Bank's measures of global poverty to define extreme poverty as $2 or less, per person, per day, the policy brief estimates the prevalence of extreme poverty and how it has changed over the past 15 years.

The NPC estimates that at the beginning of 2011, about 1.46 million U.S. households, with about 2.8 million children, were surviving on $2 or less in income per person per day in a given month. This number has grown by 130 percent since 1996 when 636,000 households were at extreme poverty levels. The growth rate was even higher for households headed by single females (191 percent) and for African-American households (183 percent).

[6] Applying the official poverty rate results in nearly 107 million people below twice the poverty level. The SPM identifies many more people having incomes below twice the poverty level because that measure includes noncash public benefits that disappear for those above the poverty line.

The NPC also provides estimates that include Supplemental Nutrition Assistance Program (SNAP) benefits (food stamps). When SNAP benefits are counted as dollars, the number of extremely poor households with children drops by about half. The NPC estimates that SNAP currently saves about 1.4 million children from extreme poverty.

Considering Income and Wealth

The poverty data presented above are better understood within the context of overall changes in family finances. The Federal Reserve Board's Survey of Consumer Finances (SCF) provides insights into family income and net worth for 2010 and shows changes between 2007 and 2010 as well as changes from earlier years (Bricker, Kennickell, Moore, & Sabelhaus, 2012). Some summary data are provided below for that period, a time when the U.S. economy experienced a major recession that saw falling GDP and rising unemployment.

First, family income fell sharply between 2007 and 2010. The median fell by 7.7 percent and the mean fell by 11.1 percent. For the prior three-year period, the median was basically unchanged and the mean increased by 8.5 percent. These changes marked a sharp departure from a pattern of substantial increases in total family income dating to the early 1990s. There are some variations in these patterns across different population groups; readers interested in these differences should consult the SCF report.

The decreases in family income were much smaller than the declines in wealth or net worth. Between 2007 and 2010 median net worth fell 38.8 percent and the mean fell 14.7 percent. These changes appear to have been driven most strongly by collapsing housing prices. These decreases differ markedly from the two preceding surveys (2004–2007 and 2001–2004) that showed substantial increases in family net worth. Here too there are many differences across population groups. Wealth differences are seen in groups defined in terms of family structure, education, racial or ethnic background, occupation, etc. While these differences mirror differences in income, the wealth differences tend to be larger. For example, the mean family net worth for White non-Hispanics in 2010 was $654,500, compared to $175,000 for non-Whites or Hispanics. The comparable medians are $130,600 and $20,400, respectively.

A recent analysis from the Pew Research Center has tracked changes in wealth during the first two years of the economic recovery. The wealth of the top 7 percent rose from an average of $2.5 million in 2009 to $3.2 million in 2011, an increase of 28 percent. The wealth of the lower 93 percent decreased from $139,896 to $133,817, a drop of 4 percent. These wide differences were likely driven by rallying stock and bond markets and flat home prices (Fry & Taylor, 2013).

What Does All This Mean for a Hypothetical Family of Four?

What do all of these statistics mean in terms of what families need today to meet basic daily needs, and how does the level of that need compare to the level at which we define the poverty rate or threshold? In addition to addressing these questions, the table below illustrates the importance of recognizing regional differences in the price of such necessities. The National Center for Children in Poverty provides a number of useful data tools, including the Basic Needs Budget Calculator, which we used to produce Table 6. We selected three areas of the country to use as examples and chose to estimate basic needs for a two-parent family with two children ages 3 and 6. We specified that both parents would be working full time.

TABLE 6

Annual Basic Needs Budget, Two-Parent Family with Two Children, Ages 3 and 6, Both Parents Working Full Time, 2010

	Newark/ Essex County, N.J.	Biloxi/ Harrison County, Miss.	Fargo/ Cass County, N.D.
Total budget needed	**$57,445**	**$43,124**	**$38,808**
Hourly wage needed (per parent)	$14	$10	$9
Percentage of the federal poverty level	261%	196%	185%
Rent and utilities	$15,348	$10,188	$7,344
Food	$9,104	$9,104	$9,104
Child care (center-based)	$15,719	$7,788	$9,007
Health insurance premiums (employer-based)	$3,135	$3,459	$3,210
Out-of-pocket medical	$816	$816	$816
Transportation	$1,632	$5,557	$5,557
Other necessities	$5,868	$4,630	$3,948
Debt	$0	$0	$0
Payroll taxes	$4,395	$3,299	$2,969
Income taxes (includes credits)	$1,428	-$1,716	-$3,147

Source: National Center for Children in Poverty (2012).

We can see that the annual salaries needed by these imaginary families to meet basic living expenses differ markedly. The $57,445 annual income needed in the Newark, New Jersey, area is nearly $20,000 more than needed in the Fargo, North Dakota, area. Also apparent are differences in transportation costs that presumably occur because of the existence or lack of public transportation. Most striking is how the levels of family income required to meet basic needs compare to the poverty threshold. These necessary income levels are substantially above the official poverty level. In both the Mississippi and North Dakota examples, the necessary survival income is nearly twice the poverty level. And in the New Jersey example, the required income is more than two and half times the official poverty level. By definition then, if these hypothetical families had incomes at the poverty level ($23,021 in 2011 for a family of four), they would be unable to meet basic needs.

An additional perspective that should be considered is how these basic living expenses relate to the minimum wage, which is set by individual states. In both New Jersey and North Dakota, the minimum wage is $7.25 per hour (Mississippi does not have a minimum wage). Our hypothetical New Jersey couple, each earning the minimum wage, would have to work more than 76 hours each, per week, to meet their family's basic needs. In North Dakota, that couple would need to work 51.5 hours each (U.S. Department of Labor, 2013).

CHILDHOOD POVERTY AND ITS MANIFESTATIONS

Poverty and the related disadvantages involve many aspects of children's lives that affect both the educational opportunities that children will have and the educational outcomes that they will likely experience. In this section we briefly document several important areas that affect the development of young children before they enter kindergarten and document the important differences that exist between poor and non-poor children. We focus on family structure and behaviors, food security, parent employment, the availability of health insurance, exposure to toxins, and child care. These important issues are by no means an exhaustive list of the many manifestations of poverty; rather, they serve to illustrate important areas of concern for the future of these children and possibly to identify points for potential policy development and/or intervention.

Families and Parenting Behavior

Substantial research has documented the importance of family factors in a child's development as well as differences in these supporting factors among different groups of children (Barton & Coley, 2007). One important factor is the number of parents in the home. Children growing up in single-parent families are more likely, on average, to experience a range of negative outcomes in school and later in life (Sigle-Rushton & McLanahan, 2004). In 2011, about 60 percent of all children lived with both of their married biological or adoptive parents or stepparents. Only about 12 percent children below the poverty line, however, were in this category, compared with 70 percent of children in families with incomes at or above twice the poverty line (Federal Interagency on Child and Family Statistics, 2012b).

Reading to young children has been identified as a key factor in helping children acquire important literacy skills. Here again, however, we find large differences by family income groups. For the highest income group, 64 percent of children were read to every day in the past week by a family member, compared with only 40 percent in families below the poverty level. Children in two-parent families were also more likely to be read to (Federal Interagency on Child and Family Statistics, 2012a).

Exposure to Toxins

Exposure to toxins such as tobacco smoke and lead can lead to a wide range of health and developmental problems for children. Children's exposure to tobacco smoke varies by poverty status. The percentage of poor children living in homes where someone smoked regularly was 10 percent in 2010. The percentage for the most affluent group of children was only 3 percent. The pattern is similar for exposure to lead. 21 percent of poor children between the ages of 1 and 5 had 2.5 or more micrograms of lead per deciliter of blood, compared to 10 percent of children above the poverty level.[7]

[7] While the Centers for Disease Control and Prevention consider a blood level of 10 micrograms per deciliter or higher to be "elevated," there is no safe level of lead in the blood and adverse health effects have been known to occur at lower concentrations.

TABLE 7

Percentage of Children Experiencing Selected Home Influences, by Poverty Level

Home influence	Below 100 percent poverty	100–199 percent poverty	200 percent poverty and above
Two parents (2011)	11.5	18.3	70.2
Read to daily (2007)	39.2	49.6	63.9
Tobacco smoke exposure (2010)	10.2	8.1	3.0
Lead risk (2007–10)	21	—	9.8 *

Note: "Below 100 percent poverty" is the same as "in poverty." 100–199 percent poverty includes all those described as "in poverty" plus some people who have incomes above poverty but less than twice their poverty threshold. 200 percent poverty and above includes those with incomes twice the poverty level or higher.

*100 percent poverty and above.

Source: Federal Interagency on Child and Family Statistics (2012a, 2012b, 2012c, 2012d, 2012e, 2012f).

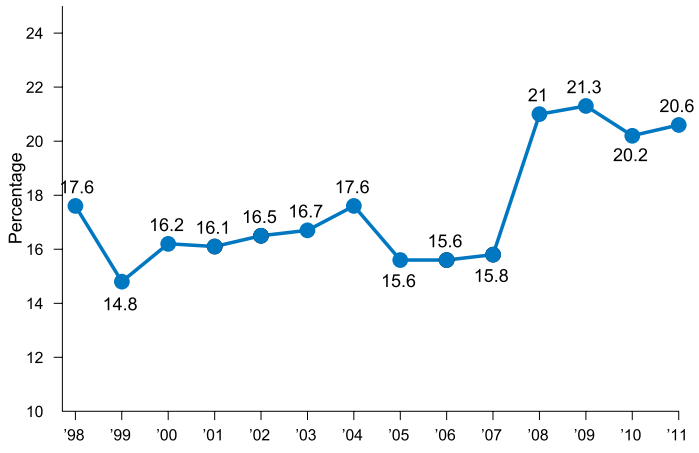
Food Insecurity[8]

Although the United States is among the richest countries in the world, some 50 million Americans live with food insecurity. The U.S. Department of Agriculture monitors and publishes data on food security for the nation. Here we provide some basic data on "food insecurity," a euphemistic term that means that at some time during the year the respondent was unable to acquire adequate food for one or more household members because the household had insufficient money and other resources for food. Food insecure households are further classified as having either low or very low food security.[9]

In 2011, 14.9 percent of all U.S. households and 16.4 percent of all individuals were food insecure. The situation for children is worse: 20.6 percent of U.S. households with children and 22.4 percent of all U.S. children were food insecure in 2011. These percentages have crept up slowly between 1998 and 2007 and have increased more since the Great Recession. The pattern can be seen in Figure 6, which shows trends in the percentage of food insecure children.

FIGURE 6

Percentage of Households with Children That Were Food Insecure, 1998–2011



Source: Coleman-Jensen et al. (2012).

In addition, 5.7 percent of U.S. households (6.8 million households and one-third of all food insecure households) had very low food security. In these households, the food intake of some household members was reduced and normal eating patterns were disrupted at times during the year because of limited resources.

As with most indicators of disadvantage, there are large differences across segments of our population. Some of these differences are illustrated in Figure 7. While about one-fifth of all families with children were food insecure in 2011, the proportion was much higher for households headed by single

[8] All of the data in this section on food security are from Coleman-Jensen et al. (2012).

[9] See U.S. Department of Agriculture (2013a) for further information and data.

females and much lower for married-couple households. Black and Hispanic households with children were also considerably more likely to be food insecure than White households. And as would be expected, there is a strong relationship between poverty and food insecurity. Forty-five percent of households with children whose income was less than the poverty level were food insecure in 2011.

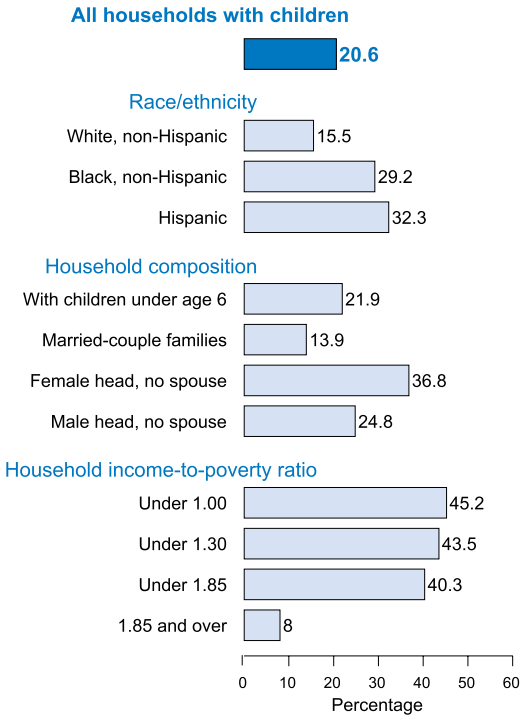
Food insecurity also varies by state. The U.S. Department of Agriculture publishes estimates of average 2009–2011 food insecurity by state. The U.S. household average was 14.7 percent. Alabama, Arkansas, California, Georgia, Mississippi, North Carolina, and Texas had food insecurity rates that were statistically significantly higher than the average.

Parent Employment

An obvious factor that is related to poverty is a family's employment status. When parents have stable employment, the family is more likely to be able to provide stable housing and healthy households. Many families today, still reeling from the effects of the Great Recession, don't have secure employment. In 2011, nearly one-third of all children in the United States lived in a household where no parent had full-time, year-round employment (KIDS COUNT Data Center, 2013). Figure 8 shows these data for each of the states. The percentage ranges from 38 percent in Mississippi to a low of 22 percent in North Dakota.

FIGURE 7

Prevalence of Food Insecurity in Households with Children, by Selected Household Characteristics, 2011



Source: Coleman-Jensen et al. (2012).

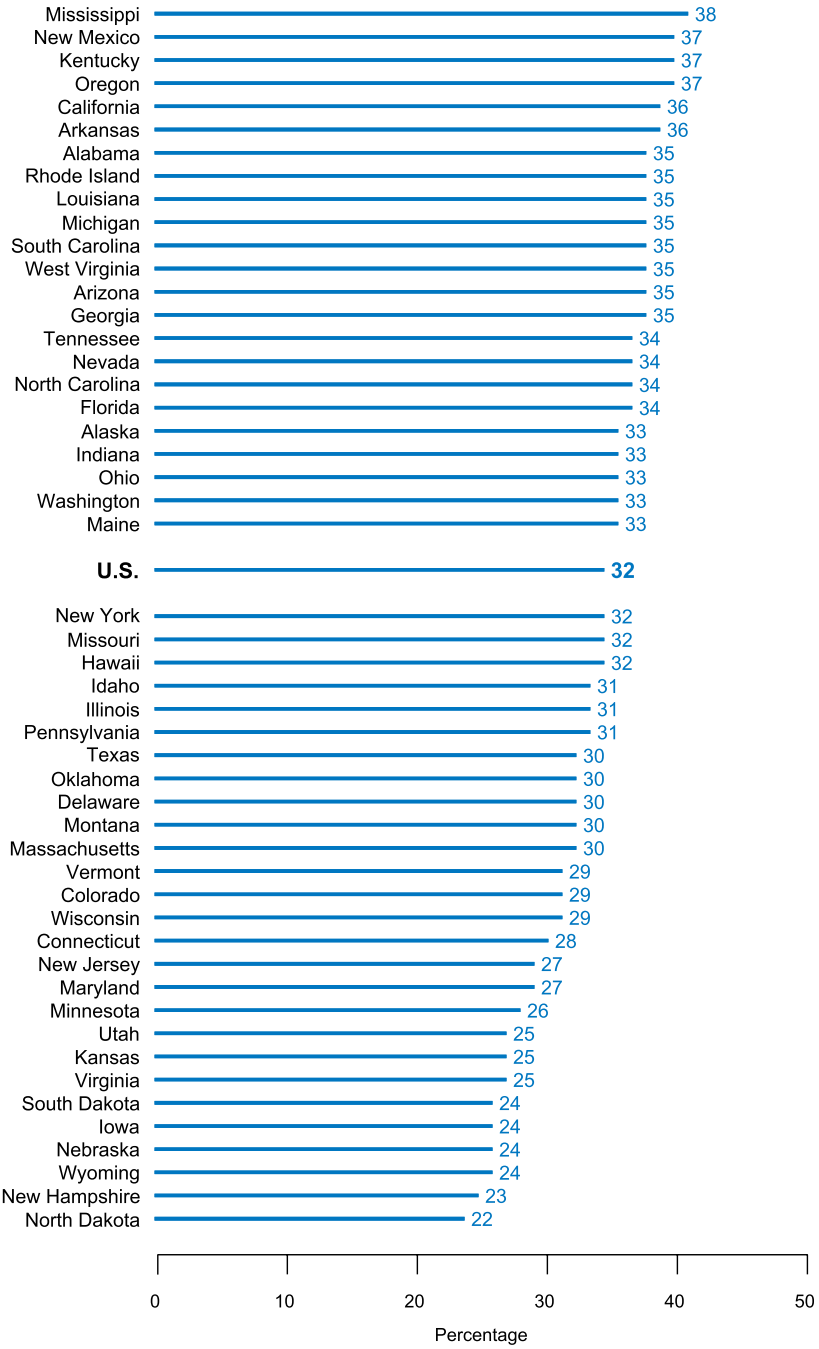
The employment situation in many of our large cities, where many of the children are poor, is even more troubling. Figure 9 shows the percentage of children living in families with unstable employment for the 10 cities with the highest rates. Half or more of all children in these urban areas experience unstable family employment.

Health Insurance

The availability and type of health insurance coverage varies widely by income status. Figure 10 shows that while a large proportion of all children have some type of health insurance, differences are apparent in the type of insurance. Among children living in families below the federal poverty income threshold, very few have private or employer-based insurance (where employer-based insurance makes up the bulk of private insurance). Among those between 100 and 130 percent of poverty, less than a third have employer-based insurance, and among those between 130 and 185 percent of poverty, less than half have private insurance. On the other side of the income spectrum, approximately 75 percent of families with incomes at 185 percent of more of the poverty threshold have employer-based insurance and over 80 percent have some form of private insurance. Medicaid programs have dramatically expanded the health insurance coverage of low-income children. Over 70 percent of the lowest-income children are on Medicaid, with declining shares covered by Medicaid in higher income brackets. As discussed later

FIGURE 8

Percentage of Children Living in Families Where No Parent Has Full-Time, Year-Round Employment, 2011



Source: KIDS COUNT Data Center (2013).

in this report, children's access to Medicaid-related programs varies by state. Some states are expected to increase coverage under the recently adopted Affordable Care Act, and while this will increase overall levels of child coverage, it also may increase disparities across states.

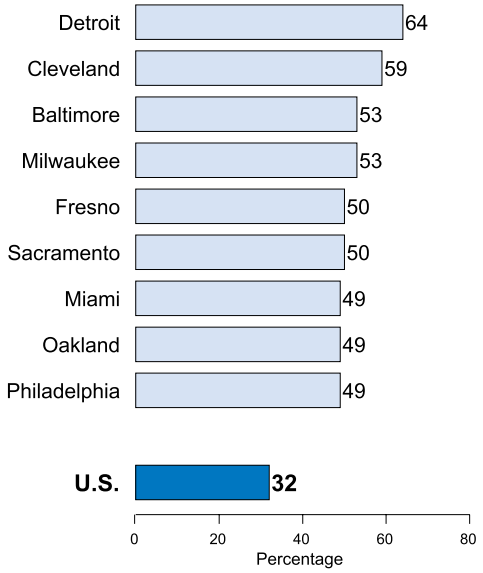
Child Care

The child care provided to children before they start formal schooling can have important implications for school readiness. Data for the nation's 4-year-olds presented in Table 8 show that 27.5 percent of children below the poverty threshold received no regular non-parental care in 2005–2006, compared to 17.5 percent of children above the threshold. In addition, poorer children were less likely to receive center-based care. While 59.5 percent of non-poor 4-year-olds were in center-based care, 51 percent of poor children received this type of care, raising the possibility that these children may get less formal preparation for regular schooling (NCES, 2012, Table 56).

The quality of day care experienced by different groups of children is also an area of concern. For children who received primarily home-based relative and nonrelative care, 68.1 percent of low-income children received this care in settings that were rated as low quality, compared to just 35.8 percent of non-low-income children. While the overall quality of center-based care (other than Head Start) was more highly rated, 15 percent of low-income children received low-quality care, compared to 10.8 percent of higher-income children (NCES, 2012, Table 57).

FIGURE 9

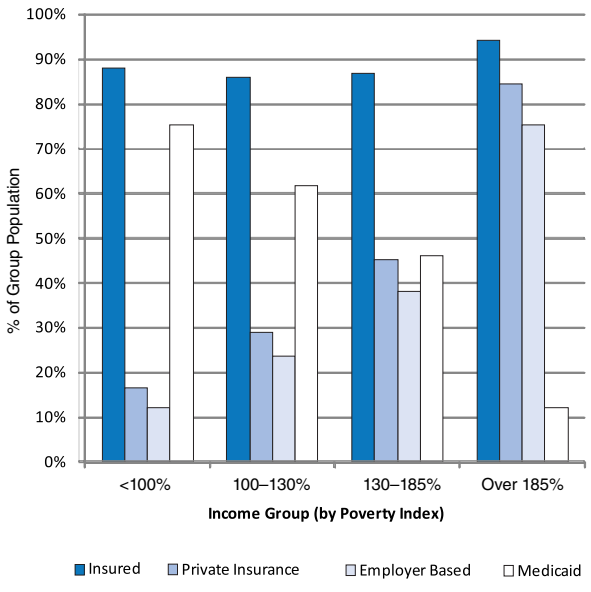
Percentage of Children Living in Families Where No Parent Has Full-Time, Year-Round Employment, Selected Cities, 2011



Source: KIDS COUNT Data Center (2013).

FIGURE 10

Percentage of Children Ages 3–17 with Health Insurance Coverage, by Type of Coverage, 2009–2011



Source: Data are from Ruggles et al. (2013). Tabulations by author.

TABLE 8

Percentage of Children at about 4 Years of Age in Types of Day Care, by Poverty Status, 2005–2006

	Poor	Non-poor
No non-parental day care	27.5	17.5
In center-based care*	51.0	59.5
In low-quality home-based care	68.1	35.8
In low-quality center-based care	15.0	10.8

* Center-based care includes care provided in places such as early learning centers, nursery schools, and preschools.

Source: NCES (2012, Tables 56 and 57).

As shown in the data presented in this section, on every measure examined, children in or near poverty begin their lives at a disadvantage. Poorer children are less likely to be raised in two-parent families and to be read to; are more likely to be exposed to toxins in their environments; are more likely to reside in food-insecure households; are more likely to suffer the effects of unstable parent employment; are less likely to be insured for their health care needs; and are less likely to experience center-based and high-quality day care. The topics included in this section of the report are not exhaustive; rather, they serve to illustrate important areas of concern for the future of these children. The next section of the report tracks some important parts of the school experiences that poor children encounter when they begin their formal schooling.

SEGREGATION AND ISOLATION IN AMERICA'S SCHOOLS

Public education is envisioned as the great equalizer of economic opportunity in the United States. But several features of our public schooling system undermine the achievement of this lofty objective. Elementary and secondary education in America is provided through a mixed system of public and private schooling, involving vastly disparate access to resources across and within sectors and characterized by substantial degrees of student segregation across and within schooling sectors by race, ethnicity, language proficiency, economic status, and disability. The following section of the report documents the segregation and isolation that characterizes the school experiences of too many of our nation's students.

Local public school districts and school attendance boundaries, organized around geographic spaces often casually referred to as "neighborhoods" (more specifically, school attendance boundaries), are defined by decades of racial segregation of residential housing, "strategic" placement of designated low-income housing, and persistent covert discrimination in mortgage lending and real estate practices (Gotham, 2002; Ross & Yinger, 2002).

Recent data from the Civil Rights Project show that school segregation is very high for Latino and Black students and that this segregation is almost always what Gary Orfield called "double segregation," that is, segregation by both race/ethnicity and poverty. In the 2009–2010 school year, 74 percent of Black and 80 percent of Hispanic students attended schools where 50 to 100 percent of the students were minorities. In addition, 38 and 43 percent of Black and Hispanic students, respectively, attended schools where 90 to 100 percent of the students were minorities. Exposure to classmates who are poor has been rising for both Black and Hispanic students as well. While the average White student attends a school where poor students account for a quarter to a third of enrollment, the typical Black or Hispanic student attends a school where nearly two-thirds of their peers are low-income (Orfield, Kucsera, & Siegel-Hawley, 2012).

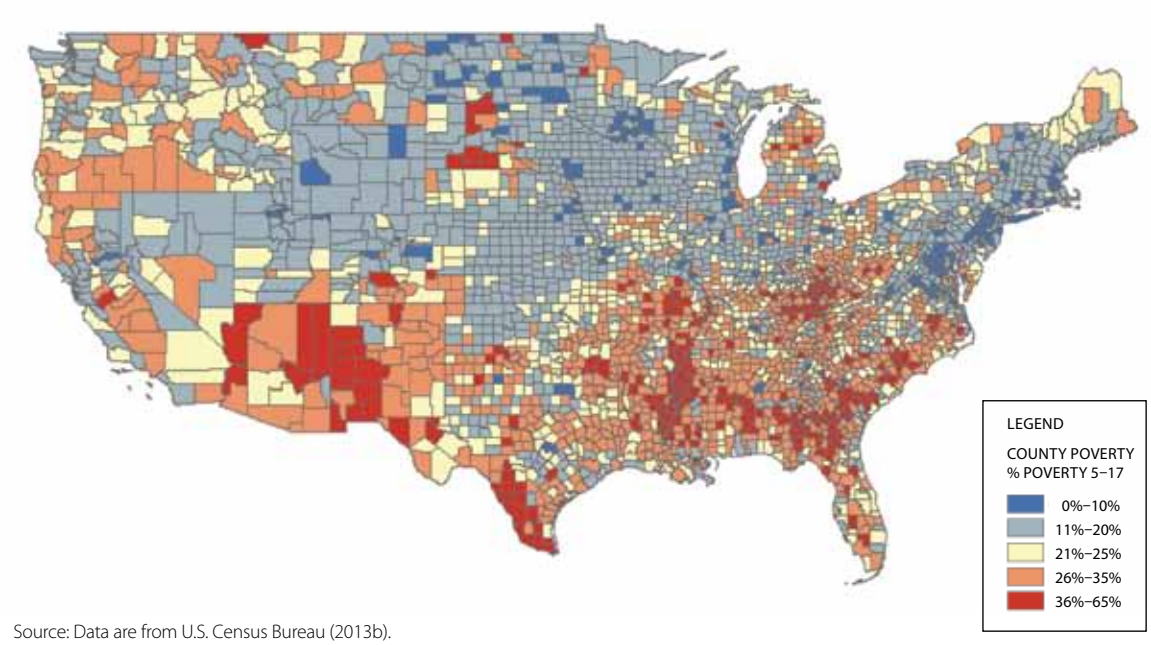
Charter schooling is a growing sector of publicly funded schooling. Although concentrated largely within lower-income neighborhoods in large urban school districts, charter schooling has failed to disrupt substantially the concentration of poverty. In some cases, charter schooling has exacerbated student segregation on the basis of race, language status, and disability status, in addition to poverty (Baker, Libby, et al., 2012; Frankenberg & Seigel-Hawley, 2012; Mead & Green, 2012). Further, because the greatest racial and economic disparities exist between local jurisdictions rather than within them, programs offering choice only within district boundaries, at most, chip away at the edges of these disparities.

In addition, private schools continue to siphon off a significant share of children from higher-income families. Nationally, less than 10 percent of children attend private schools. But this percentage varies widely across states and metropolitan areas, nearing 20 percent in some states, and far above that in some metropolitan areas. This leaves large segments of generally higher-income, higher-education level families disinvested entirely from the public education system, and also leaves behind more concentrated child poverty within the public education system, particularly in economically and racially diverse large cities.

Figure 11 shows the county level distribution of child poverty rates across the United States. Counties in the deepest blue have U.S. Census Bureau poverty rates for children between the ages of 5 and 17 that are below 10 percent, whereas counties in red have U.S. Census Bureau poverty rates that exceed 35 percent. The likelihood that children attend schools in concentrated poverty increases substantially in certain regions of the country — the south and southwest — and in socio-economically stratified major metropolitan areas.

FIGURE 11

County-level Distribution of Poverty, Ages 5–17, 2011



Source: Data are from U.S. Census Bureau (2013b).

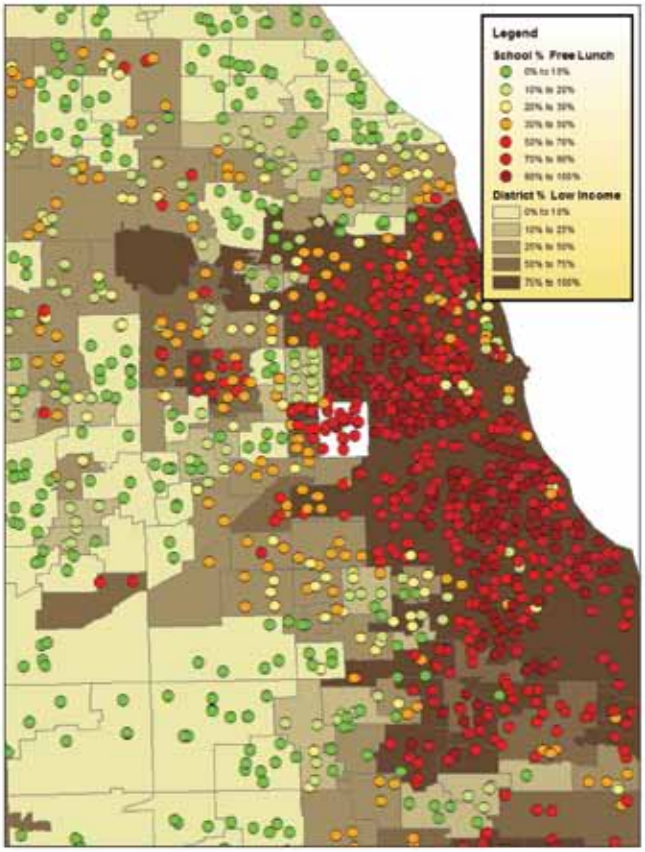
Figure 12 explores the pattern of poverty concentration in metropolitan areas at the school district and individual school level. First, the map on the left displays variations in the concentrations of low-income (defined as less than 185 percent income threshold for poverty) children across school districts in the highly segregated Chicago metropolitan area. The large swath of deep brown on the right-hand side of the picture is the City of Chicago Public Schools, which have over 75 percent low-income students. A handful of other smaller, inner urban fringe districts in their immediate surroundings also have over 75 percent low-income students, and others shown in lighter brown have 50 to 75 percent. However, not far away are numerous public districts with 0 to 10 percent low-income students. Further, observing school-level data, schools with the highest percentages of low-income children (eligible for free lunch) are almost invariably concentrated in the highest poverty districts. Few districts have a mix of *rich schools* and *poor schools,* limiting local policymakers' options for closing gaps.

The figure to the right shows school-level data for the area surrounding Newark, New Jersey. Red lines indicate district boundaries with district names labeled in blue and largely aligned with cities or towns. Each circle represents a school. Within the City of Newark School System, most of those schools range from 50 percent to over 90 percent of children in families falling below the 130 percent income threshold for poverty. As in Chicago, other inner urban fringe districts in some cases also have very high concentrations of low-income children. But in several nearby districts, the concentrations of low-income children range from about 0 to 30 percent. Another feature in Newark is that a handful of charter schools within the city have much lower concentrations of low-income children (on the order of 40 to 50 percent). Because these schools operate within a "choice" model among city school children, when some schools serve smaller shares of low-income children, others necessarily end up serving higher shares. While the majority of income segregation persists across district boundaries, choice programs within district boundaries may exacerbate income segregation.

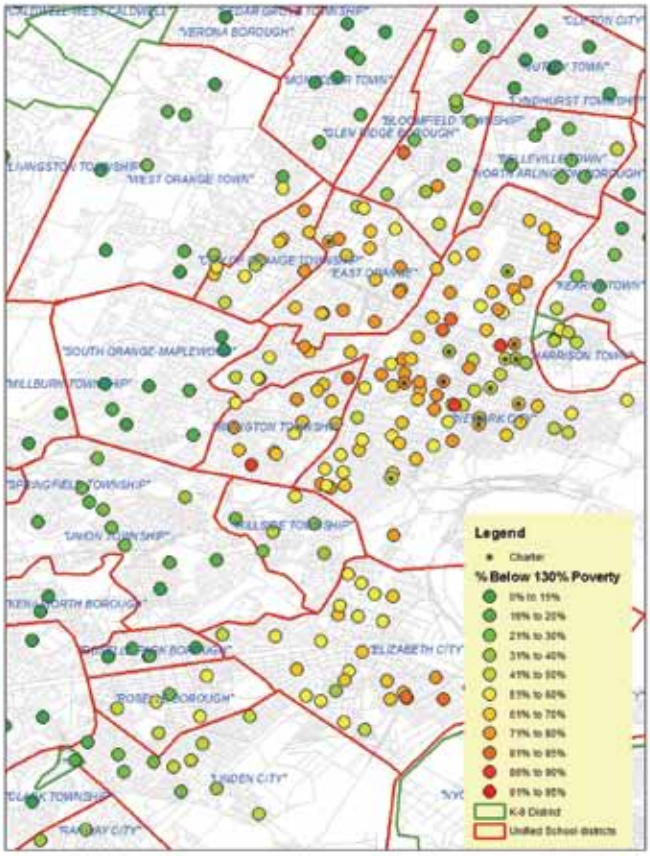
FIGURE 12

Poverty Isolation in Chicago and Newark Schools

Chicago Metropolitan Area
Low-Income Students by School District



Newark, New Jersey
Low-Income Students by School District



Source: Illinois data are from Illinois State Board of Education (2009). New Jersey data on school-level low-income concentrations (and locations) are from NCES (2009b).

The next two tables illustrate the role of private schooling in exacerbating economic segregation of students. Table 9 shows the 10 states (and District of Columbia) with the smallest percentages of 6- to 16-year-olds enrolled in public schooling, the median household income for both public and private school populations, and the income ratio between them. In these states, 13 to 19 percent of school-age children are enrolled in private schooling. As such, any policy intended to improve equity across public school children will necessarily miss up to one-fifth of that population. In addition, in every case, the median household income of those NOT in the public system considerably exceeds that of the median household income of families of children enrolled in the public schools. In the District of Columbia, the income differential is more than 3.5-fold. And while Washington, D.C., is somewhat of an outlier, the income differentials among the other states are striking.

TABLE 9

Public and Private School Enrollment and Household Income in States with the Lowest Percentage of Students in Public Schools, 2009–2011

State	Not enrolled	Public school enrollment	Private school enrollment	Percent private	Household income public	Household income private	Ratio of private to public income
Hawaii	4,795	144,219	36,045	19%	$81,135	$130,261	1.61
District of Columbia	1,503	46,337	10,482	18%	$60,900	$222,411	3.65
Louisiana	12,440	548,104	117,722	17%	$56,428	$113,773	2.02
Delaware	2,650	103,524	20,619	16%	$69,092	$130,397	1.89
Maryland	16,100	701,402	113,986	14%	$95,408	$154,141	1.62
Pennsylvania	38,725	1,460,911	234,294	14%	$76,217	$111,431	1.46
Wisconsin	17,864	701,838	110,264	13%	$75,312	$90,374	1.20
New York	55,840	2,248,241	352,937	13%	$82,946	$135,037	1.63
Missouri	19,570	737,869	113,536	13%	$67,341	$103,619	1.54
Ohio	37,115	1,440,600	218,699	13%	$67,078	$98,407	1.47

Source: Ruggles et al., (2013). Tabulations by author.

TABLE 10

Public and Private School Enrollment and Household Income in States with the Largest Gaps in Household Income Between Public and Private Schools, 2009–2011

State	Not enrolled	Public school enrollment	Private school enrollment	Percent private	Household income public	Household income private	Ratio of private to public income
District of Columbia	1,503	46,337	10,482	18%	$60,900	$222,411	3.65
Louisiana	12,440	548,104	117,722	17%	$56,428	$113,773	2.02
Texas	74,337	3,846,054	251,039	6%	$66,472	$130,431	1.96
Tennessee	19,014	794,988	102,801	11%	$59,428	$115,833	1.95
Mississippi	12,583	402,271	48,142	10%	$49,901	$95,949	1.92
California	89,281	5,113,773	472,934	8%	$75,929	$144,305	1.90
Delaware	2,650	103,524	20,619	16%	$69,092	$130,397	1.89
Georgia	29,111	1,357,502	138,997	9%	$64,156	$118,781	1.85
Florida	52,686	2,138,792	268,370	11%	$63,975	$117,481	1.84
North Carolina	27,973	1,243,579	124,065	9%	$63,114	$114,888	1.82

Source: Ruggles et al., (2013). Tabulations by author.

Table 10 shows the states with the largest income gaps between children enrolled in public and private schools. While many tend to write off private schooling as a relatively small segment of our collective education system, Table 10 shows that in many states the share of privately educated children is quite substantial (approaching 20 percent). This is a sizeable share — far more children than in charter schools, which often garner more attention. Ignoring inequities across public and private schooling means ignoring large shares of children for whom educational resources are inequitably distributed. In these states, the median household income of children in private schools is nearly double that of children in public schools. In five of these states, and the District of Columbia, more than 10 percent (approximate unweighted state average) of children are enrolled in private schools.

Such substantial differences in the backgrounds of children who attend different U.S. schools pose unique challenges to improving the educational and economic opportunities available to these children. Concentrated poverty and large income disparities reduce the extent to which lower- and higher-income children interact in schools and classrooms as peers, largely to the educational disadvantage of the lower-income students. The concentration of child poverty dramatically increases the costs of improving student outcomes by increasing the necessity for targeted educational interventions and supplemental services, most of which require additional professional staff and additional time (Baker, 2005, 2012b; Duncombe & Yinger, 2005). In areas with concentrated poverty, additional resources are often scarce, with political support for dedicating those resources waning in recent years (Baker, Sciarra, & Farrie, 2012; Barnett, Carolan, Fitzgerald, & Squires, 2012, 2013).

THE ROLE OF GOVERNMENT

Government addresses poverty through a variety of direct subsidy programs, provision of social services, and adjustments to tax codes. While the primary emphasis of this report is on elementary and secondary education policy in the United States, it is important to understand the nature and scope of the non-education programs that operate today. In this section, we briefly review the major federal poverty programs and the major federal education programs that are intended to alleviate the conditions of child and family poverty and, more generally, moderate income inequality.

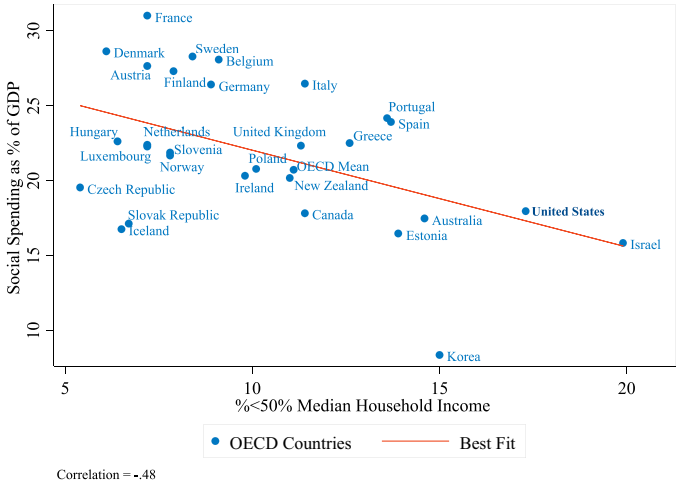
U.S. anti-poverty policies have been frequently criticized in comparative research with respect to the effectiveness of those policies at alleviating poverty, moderating income inequality, and promoting social mobility. Numerous authors note that while the United States has the highest income inequality among wealthy nations, in recent decades, public expenditures have shifted toward the disabled and elderly and away from those with the lowest incomes (Ben-Shalom, Moffitt, & Scholz, 2011). According to Timothy Smeeding (2005):

> *Our direct income transfer policies do less to redistribute overall and to lower income persons than do the policies in other nations. America began the last quarter of the 20th century with higher inequality than in any other nation and our inequality increased by more than in any other nation over this period, through expansion and contraction of the economy. (p. 979)*

Caminada and Martin (2012) characterized the United States as an outlier among developed nations, having "high poverty rates, low public social spending but high private social expenditures, a rather strong belief that people are poor because of laziness or lack of will, and remarkable differences across the Federal States caused by state discretion" (p. 1).

FIGURE 13

Relationship between Spending on Social Programs and Poverty, OECD Countries, Late 2000s



Social Spending: Total public social expenditure as a percentage of GDP, aggregated data (Organisation for Economic Co-operation and Development [OECD], 2012a, Table 1).

Poverty: Percentage of persons living with less than 50 percent of median equivalized household income, late 2000s. Provisional data from OECD (2012b).

It is difficult to discern how much worse income inequality might have become had the United States directed even fewer resources toward reducing poverty. Certainly, some evidence suggests that poverty among elderly constituents and access to healthcare among the elderly has improved marginally over time. Further, as we discuss in the following section, in some states that have exceeded federal policy standards, children's access to healthcare has improved substantially. Significant gains were made in poverty reduction between 1959 and 1973, with the overall poverty rate falling from 22 percent to 11 percent. But since that time, the rate has hovered around 11 percent with a recent uptick to 15.1 percent (Edelman, 2012). In general, as Edelman (2012) noted, poverty has shifted from the old to the young, in part as a function of the changing distribution of federal benefits.

Figure 13 shows the relationship between government social spending and national relative poverty rates. Notably, the United States is high

in relative poverty, or the percentage of individuals with less than 50 percent of median income, and the United States is also relatively low on social spending as a percent of gross domestic product (social spending effort).

Federal Poverty Programs

The major U.S. federal programs targeted toward reduction of income inequality and reducing poverty include payments or credits for food and housing, an ever-evolving federal-state partnership to support the provision of medical care to low-income families and individuals, and a handful of specific income-related subsidies including Supplemental Social Security Income (SSI), Temporary Assistance to Needy Families (TANF),[10] and the Earned Income Tax Credit (EITC). Selected major programs are briefly described.

The **Supplemental Nutrition Assistance Program (SNAP)**, or food stamps, governed by the U.S. Department of Agriculture, provides food subsidies for families with a gross income of under 130 percent of the income threshold for poverty and net income below 100 percent of the income threshold for poverty (U.S. Department of Agriculture, 2013c).

Public housing and **housing subsidies**, governed by the U.S. Department of Housing and Urban Development (HUD), are provided to individuals and families according to a combination of income status, elderly and/or disability status, and citizenship and/or eligible immigration status. Rather than linking income eligibility to poverty-related income thresholds, HUD uses a local measure of relative income to account for differences in affordability of housing. HUD defines "lower income" as 80 percent and "very low income" as 50 percent of the median income for the county or metropolitan area in which the applicant resides (U.S. Department of Housing and Urban Development, 2013).

Medicaid and the **Children's Health Insurance Program (CHIP)** operate as an evolving state-federal partnership to increase access to affordable health care for low-income individuals and families, children, pregnant women, senior citizens, and individuals with disabilities. Medicaid and CHIP combined cover approximately 60 million Americans (Centers for Medicare and Medicaid Services, n.d.). Federal law requires states to cover certain populations and provides flexibility to cover other population groups. For many eligibility groups, income is determined relative to the federal poverty level (Centers for Medicare and Medicaid Services, 2013). In 2008, approximately 85 percent of individuals were covered by some form of health insurance, with 67 percent covered by private insurance (a large share employer-based) and 14 percent covered by Medicaid. In the first year of significant economic downturn, the private coverage share dropped to 64 percent and Medicaid increased to 16 percent, for an overall decrease in coverage to 83 percent (U.S. Census Bureau, 2011, Table 155). Many states have expanded coverage, particularly for children, above federal minimums. Between 2000 and 2010, total enrollment in CHIP programs increased from approximately 3.36 million to 7.72 million (U.S. Census Bureau, 2011, Table 145).

The **Earned Income Tax Credit (EITC)** is a refundable income tax credit for low- to moderate-income working individuals and families. Originally approved in 1975 and designed as incentive for welfare recipients to retain employment, the program provides a tax refund when the calculated EITC exceeds the amount of taxes owed (Internal Revenue Service, 2013). EITC is the primary form of direct payment within U.S. anti-poverty policies. The national average credit per tax return was $2,202 in 2010 (Urban Institute & Brookings Institute, 2012a). The tax credit increases substantially at much lower levels of income. Combining federal income and payroll taxes (and related credits), a married couple with two children living at the federal poverty level would have had an expected benefit of $5,604 (tax of $5,604; Urban Institute & Brookings Institute, 2012b).

[10] For more information on Temporary Assistance to Needy Families, Social Security Administration, see **http://www.ssa.gov/policy/docs/ssb/v66n4/v66n4p21.html**.

Federal Education Programs and Policies

Several federal education programs attempt to disrupt the relationship between children's economic status and their educational outcomes. Among the major programs that will be discussed here are Head Start, the National School Lunch Program, and Title I of the Elementary and Secondary Education Act (1965). Although the federal role remains relatively small, federal resources can be significant for certain large high-poverty districts and in other specific cases, such as those serving students with parents in the military.

Head Start is a federally funded program operated through the Office of the Administration for Children and Families of the U.S. Department of Health and Human Services. Head Start serves preschool-age children. Early Head Start serves infants, toddlers, pregnant women, and their families. Head Start programs include center-based preschools, family child-care homes, and in-home visits (U.S. Department of Health and Human Services, n.d.). Head Start currently serves approximately 900,000 mostly low-income children per year with total federal spending of over $7 billion (Gibbs, Ludwig, & Miller, 2011).

Despite its long history, both critics and supporters of publicly financed early childhood education have levied criticisms regarding the effectiveness of Head Start's preschool programs (Barnett, 2011). More recent evaluations continue to raise concerns about the fade-out of positive effects of program participation by third grade (Puma et al., 2012). Barnett suggested that Head Start's relatively poor results may be related to lack of resources dedicated to ensuring basic quality standards for teachers, which have been adopted by more effective state-sponsored preschool programs (Barnett, 2011).

The **National School Lunch Program**, operated under the U.S. Department of Agriculture, is "a federally assisted meal program operating in over 100,000 public and nonprofit private schools and residential child care institutions. The program provided nutritionally balanced, low-cost or free lunches to more than 31 million children each school day in 2011. In 1998, Congress expanded the National School Lunch Program to include reimbursement for snacks served to children in afterschool educational and enrichment programs to include children through 18 years of age" (U.S. Department of Agriculture, 2013d, p. 1). The program was reauthorized under the Healthy, Hunger-Free Kids Act of 2010 (U.S. Department of Agriculture, 2013b).

While the National School Lunch Program itself has the goal of providing meal support for school-age children, data collected by schools on students participating in the program are frequently used for a variety of purposes, often conflating the meaning and purpose of this specific federal program and other policies that rely on its data. Under the National School Lunch Program, students in families under the 130 percent income level for poverty qualify for free lunch, and students in families under the 185 percent income level for poverty qualify for reduced-price lunch.

Data from the National School Lunch Program are often the only school- and district-level poverty data that are available. These data are often used in state school reporting systems to measure poverty rates in schools (albeit at different thresholds) and in some cases are used to determine state funding.

Title I of the Elementary and Secondary Education Act of 1965 is the largest federal educational grant program in the United States, and is specifically designed as a source of compensatory funding for low-income children. In 2011–2012, the U.S. Department of Education appropriated $14.5 billion in federal aid through the Title I program. There are four components to the Title I funding formula. The first two components, Basic Grants and Concentration Grants, allocate funding to each school district based on U.S. Census Bureau estimates of the number of children in poverty (i.e., the SAIPE) and the average per-pupil expenditure in the states.[11] The higher the average per-pupil expenditure in the state, the larger the Title I allocation. Each of these two components allocates a constant dollar amount per child in poverty within each state, but school districts must have at least 15 percent of the children in poverty to receive a Concentration Grant. Basic and Concentration Grants comprised roughly 54 percent of Title I funding in 2012 (U.S. Department of Education, 2013).

Targeted Assistance Grants are the third component of the Title I formula. Targeted Assistance Grants provide funding to school districts that increases as the share of children in poverty increases and as average per-pupil expenditure in the state increases. As a result, districts with a higher share of students in poverty receive larger Targeted Assistance Grants per pupil than districts with a smaller share of children in poverty. As with the Basic and Concentration Grant programs, the only determinants of school district aid are the state average expenditure per pupil and the estimated number of students in poverty. Targeted Assistance Grants comprised approximately 23 percent of Title I funding in 2012.

The remaining 23 percent of Title I funding comes from Education Finance Incentive Grants (EFIG), which depend not only on the number of children in poverty and the state average per-pupil spending, but also on (1) a measure of state fiscal effort (the percentage of per-capita income spent on elementary and secondary education, relative to the national average) and (2) a measure of state school funding equity (a weighted coefficient of variation in district per-pupil expenditures, wherein children in poverty have a greater weight than other children).[12]

Reauthorization of the Elementary and Secondary Education Act is still pending. Because Title I provides the largest share of direct federal education funding to states and local districts, Title I funds are a likely target for political tug-of-war during reauthorization. In recent years, questions have been raised about whether Title I funding in particular is appropriately targeted to those districts, schools, and children that need it most. Deliberations have focused on perceived flaws in the design of the Title I funding formulas (Carey & Roza, 2008; Liu, 2007, 2008; Miller, 2009; Miller & Brown, 2010a, 2010b). Critics argue that Title I funding favors wealthy states and larger urban districts, to the detriment of very poor states and rural areas, in part because parts of the formula described above are driven by states' own spending levels and because *rich states* are able to spend more, thus gain more Title I funding (Liu, 2008, 2007; Miller, 2009; Miller & Brown, 2010a, 2010b).[13] Specifically, Liu (2007, 2008) provided analyses that suggest that lower-poverty states and urban districts receive a disproportionate share of Title I funding per poor child and asserted that (1) "By allocating aid to states in proportion to state per-pupil expenditures, Title I reinforces vast spending inequalities between states to the detriment of poor children in high-poverty jurisdictions," and (2) "small or mid-sized districts that serve half or more of all poor children in areas of high poverty receive less aid than larger districts with comparable poverty" (Liu, 2008, p. 973).

[11] The counts of children in poverty also include children in certain institutions for neglected or delinquent children and youth or in certain foster homes, and children in families receiving TANF payments above the poverty income level for a family of four.

[12] School districts with fewer than 200 students are not included when calculating the weighted coefficient of variation.

[13] Additional criticisms of Title I funding point to the fact that three of the four formulas used to allocate dollars do not take into account state fiscal effort (the level of state and local revenue dedicated to providing public education) and the fact that state-minimum provisions guarantee relatively large allocations to states with small populations (see Miller, 2009).

As we have pointed out previously in this report, developing comparable measures of poverty across regions of the United States and between urban and rural areas is tricky. The appropriateness of current Title I distributions rests largely on the issues of poverty measurement we raised earlier in this report, including whether policy should:

1. Adjust the value of the Title I dollar for regional variations in costs of living

2. Adjust the rates of children in poverty for differences in competitive wages by region/location

In a new analysis, Baker, Taylor, Levin, Chambers, and Blankenship (2013) re-evaluated the distribution of Title I funding adjusting for both the value of the Title I dollar from across locations and adjusting child poverty rates by applying differential income thresholds for poverty, based on regional variation in competitive wages. This approach differs from other approaches such as those used by Renwick (2009, 2011) and Short (2012), which focus on differences in costs of basic goods and services. Wages may vary less than prices of goods and services, including housing, because individuals may be accepting of higher housing costs for access to quality local and regional amenities. As such, these differences in cost provide a more complete measure of the income needed to maintain a reasonable standard of living in each community.

Table 11 displays the distribution of Title I funding per child in poverty, by region, for metropolitan (around a core city with greater than 50,000 population), micropolitan (around a core city/town with population between 10,000 and 50,000), and rural (neither metro or micro) areas within each region, based on data from Baker et al. (2013). The goal of that study was to re-evaluate whether Title I funding really is distributed disproportionately to children in wealthy states and urban areas. But previous studies supporting this conclusion simply accepted existing poverty thresholds as characterizing equally well poverty rates from El Paso to Newark and from urban to rural areas in the same state. To re-evaluate the distribution of Title I funding, the authors applied their adjusted measure of poverty to determine shares of children in need and then re-calculated the amount of Title I aid per child in need.

The left-hand section of Table 11 provides Title I direct allocations to local public school districts without applying either adjustment for the value of the Title I dollar, or providing adjustment for poverty thresholds. Without cost adjustment or poverty-rate adjustment, it would appear that Title I funding is relatively high in Northeastern metropolitan areas (and Northwestern rural areas), but relatively low in Midwestern and Western micropolitan and rural areas and relatively low in rural and micropolitan areas. That finding would confirm previous reports that urban and Northeastern school districts receive an apparent unfair share of poverty-directed federal aid and would thus support changing the formula in the future.

The right-hand columns adjust the value of the Title I dollar for their regional purchasing power and adjust the shares of children in poverty based on regional variations in comparable wages. After making the relevant adjustments, it would appear that Title I funding does not favor metropolitan areas, nor does it systematically favor districts in Northeastern and Western states. If anything, greater support may be needed in metropolitan areas where intervention costs are higher and poverty relatively understated. This is but one example of how more accurate poverty measurement has substantial implications for the distribution of aid.

TABLE 11

How Correcting Poverty Measurement Affects Evaluation of Title I Aid Distribution

	Title I district revenue per poverty pupil			*NCES CWI Adjusted Title I district revenue per cost-adjusted poverty pupil*		
Region	***Metro***	***Micro***	***Rural***	***Metro***	***Micro***	***Rural***
Appalachia [1]	$1,420	$1,216	$1,465	$1,258	$1,601	$1,922
Central [2]	$1,343	$1,686	$1,620	$1,396	$2,562	$2,577
Mid-Atlantic [3]	$1,665	$1,470	$1,700	$1,260	$1,768	$2,211
Midwest [4]	$1,484	$1,296	$1,279	$1,301	$1,701	$1,779
Northeast [5]	$1,867	$1,514	$1,526	$1,311	$1,725	$2,059
Northwest [6]	$1,443	$1,474	$1,717	$1,301	$1,897	$2,329
Southeast [7]	$1,418	$1,339	$1,402	$1,454	$1,770	$1,979
Southwest [8]	$1,267	$1,398	$1,462	$1,254	$2,161	$2,423
West [9]	$1,368	$1,271	$1,216	$1,061	$1,723	$1,654

Source: Title I district-level revenue data are from the U.S. Census Bureau Fiscal Survey of Local Governments (F33) for 2007–2008, 2008–2009, 2009–2010 (U.S Census Bureau, 2012b). Enrollment and locale data are from the NCES Common Core of Data 2007–2008, 2008–2009, and 2009–2010 (NCES, 2009b). Wages were adjusted using the NCES education comparable wage index (CWI) (Taylor, 2012). Poverty was adjusted using adjustment factors reported in Chambers, Levin, Taylor, et al. (2012).

[1] Kentucky, Tennessee, Virginia, West Virginia
[2] Colorado, Kansas, Missouri, Nebraska, North Dakota, South Dakota, Wyoming
[3] Delaware, Maryland, Pennsylvania, New Jersey
[4] Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, Wisconsin
[5] Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
[6] Idaho, Montana, Oregon, Washington
[7] Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina
[8] Arkansas, Louisiana, New Mexico, Oklahoma, Texas
[9] Arizona, California, Nevada, Utah

State-Funded Education Programs and Policies

The vast majority of funding for and policies governing elementary and secondary programs and services remains controlled by states and local public school districts. When it comes to education funding and policy, the United States remains a collection of 50 divergent systems (Baker, Sciarra, et al., 2012; Baker & Corcoran, 2012; Verstegen & Jordan, 2009). States vary widely in the extent to which they provide equitable and adequate financing for local public school districts, and the extent to which they provide specific educational interventions and related services targeted to the needs of children in poverty. State interventions range from the general provision of targeted financial resources, to the specific provision of compensatory education programs and other supports such as early childhood education. Here we focus on state preschool programs and general state education aid formulas.

State Preschool Programs. Among the more prominent programmatic interventions that states have adopted or expanded in recent decades are state-supported preschool programs, which have substantively altered the scope of services of public education programs. As noted in the *2013 National Institute for Early Education Research (NIEER) Yearbook* (Barnett et al., 2013):

- In 2011–2012, more than 1.3 million children attended state-funded pre-K, 1.1 million at age 4.
- Combining general and special education enrollments, 31 percent of 4-year-olds and 7 percent of 3-year-olds are served by public pre-K. When including Head Start programs as well, 41 percent of 4-year-olds and 14 percent of 3-year-olds are served in these publicly funded programs. (Barnett et al., 2013, p. 6)

Painting a more pessimistic picture of changes in 2011–2012 over the previous year, Barnett and colleagues noted:

- Total state funding for pre-K programs decreased by more than $548 million across the 40 states that offer pre-K.
- Seventeen states plus Washington, D.C., increased enrollments, with increases ranging from 1 percent in Alabama, Louisiana, New Jersey, and Tennessee to 21 percent in Oregon. Sixteen states reduced enrollment, from 1 percent in Connecticut, Kansas, and New York to 19 percent in North Carolina.
- State pre-K funding per child decreased by $442 (inflation-adjusted) from the previous year to $3,841. This is the first time since NIEER began tracking state pre-K in 2002 that funding per child has fallen below $4,000.
- State funding per child for pre-K declined in 27 of 40 states with programs, when adjusted for inflation. In 13 states, per-child spending fell by 10 percent or more from the previous year. Only 12 states increased funding per child in 2011–2012. (Barnett et al., 2013, p. 6)

The NIEER annual report raises concerns that declining financial support is inhibiting state preschool programs from meeting quality standards established by NIEER. Barnett and colleagues noted that:

> *Only 15 states plus D.C. could be verified as providing enough per-child funding to meet all 10 benchmarks for quality standards. As only about 20 percent of the children enrolled in state-funded pre-K attend those programs, the vast majority of children served are in programs where funding per child may be inadequate to provide a quality education. (Barnett et al., 2013, p. 6)*

Those benchmarks for quality standards include standards for teachers, including requiring a bachelor's degree and specialized training, standards for assistant teachers, teacher professional development, standards for class sizes, health (vision, hearing, health) screenings and referrals, providing meals, and sufficient program monitoring. The authors explained that only "four states plus one of Louisiana's three programs met all 10 of NIEER's benchmarks for state pre-K quality standards, down from five states the previous year. Another 16 states met eight or more." (Barnett et al., 2013, p. 6)

State Aid Formulas. State school finance formulas generally strive to achieve two concurrent goals: 1) to account for the fact that some local public school districts have less capacity to raise local revenues on their own (weaker property tax base), and 2) to account for differences in the educational needs of students and other factors affecting the cost of education from one local district or school to another. Often, those districts serving children with greater needs are also those districts with less capacity to meet those needs. As such, providing sufficient and sustained support for schools serving high-need children can require significant effort on the part of the state.

Currently, 34 states supplement the general state finance system for low-income students, a proxy for low achievement and/or being at risk of dropping out of school. There are 14 states that do not provide additional funding for these students (Verstegen, 2011; Verstegen & Jordan, 2009).[14] A few states base funding directly on the number of students in need of remediation, which is a change from the past when funding was based on the number of students eligible for the federal free or reduced-price lunch (FRPL) program — the factor most used today (Chambers, Levin, Wang, et al., 2012).

[14] Among these 14 are states that do provide some adjustment to general aid for the numbers of children below certain income thresholds, usually those qualifying for free or reduced price lunch.

However, simply having a factor that provides some additional funding on the basis of poverty does little to guarantee that a state school finance system, on the whole, provides sufficient additional resources to children in poverty. *Is School Funding Fair? A National Report Card* (Baker, Sciarra, & Farrie, 2012) evaluates whether state school finance systems provide, on average, greater support to districts serving greater shares of children in poverty (progressive systems) or less support for districts serving greater shares of children in poverty (regressive systems). While 34 states provide some form of poverty-based supplement in their aid formulas, only a handful of states actually ensure systematically higher levels of resources in higher poverty districts.

Table 12 draws on the Report Card, listing states that have *progressive, neutral,* and *regressive* overall funding.

> *Progressive: Total state and local revenue per pupil is systematically higher in local public school districts with higher poverty concentrations (controlling for differences in competitive wage variation, economies of scale, and population sparsity);*
>
> *Neutral: Total state and local revenue per pupil is not systematically different between local public school districts with higher and lower poverty rates (controlling for differences in competitive wage variation, economies of scale, and population sparsity);*
>
> *Regressive: Total state and local revenue per pupil is systematically lower in local public school districts with higher poverty concentrations (controlling for differences in competitive wage variation, economies of scale, and population sparsity);*

Note that several states maintain school funding systems where state and local school revenue remains systematically lower in school districts serving high-poverty populations. Table 12 also organizes states by the level of effort they put into funding their education systems, where effort is measured as the share of state-level gross domestic product spent (state and local) on elementary and secondary schools. New Jersey and Ohio are relatively high-effort states where, on average, districts serving high-poverty populations receive additional resources. By contrast, Missouri, Colorado, Virginia, and Florida are among those states where high-poverty districts receive systematically fewer resources, and where relatively low state effort is applied.

While children from lower-income families would benefit from smaller class sizes, especially in earlier grades, only a few states provide sufficient additional resources for class size reductions to higher-poverty districts and schools (Baker, Sciarra, & Farrie, 2012). Further, in addition to smaller classes, children in high-poverty settings should be exposed to teachers of at least equal qualifications and effectiveness, but numerous studies indicate substantial gaps in teacher-quality measures between higher- and lower-poverty schools (Clotfelter, Glennie, Ladd, & Vigdor, 2008; Lankford, Loeb, & Wyckoff, 2002; Kalogrides, Loeb, & Beteille, 2012). Finally, it is increasingly apparent from emerging studies of states with highly inequitable school funding systems, including New York and Illinois, that the depth and breadth of curricular offerings — including access to Advanced Placement® courses, world languages, and the arts — varies widely across higher- and lower-poverty settings (Baker, 2012b).

TABLE 12

States Classified by Effort/Fairness and Progressivity of School Funding

Effort / Fairness	*Progressive*	*Neutral*	*Regressive*
High Effort	New Jersey Ohio	Indiana Kansas Maryland New Mexico South Carolina Vermont West Virginia Arkansas Connecticut Georgia Rhode Island Wisconsin	Michigan New York Pennsylvania New Hampshire
Medium Effort	Massachusetts Minnesota	Iowa Kentucky Mississippi Montana Nebraska	Alabama Idaho Texas Illinois
Low Effort	Utah South Dakota	Arizona California Delaware Louisiana Oklahoma Oregon Tennessee Washington	Maine Missouri Virginia Colorado Florida North Carolina Nevada North Dakota

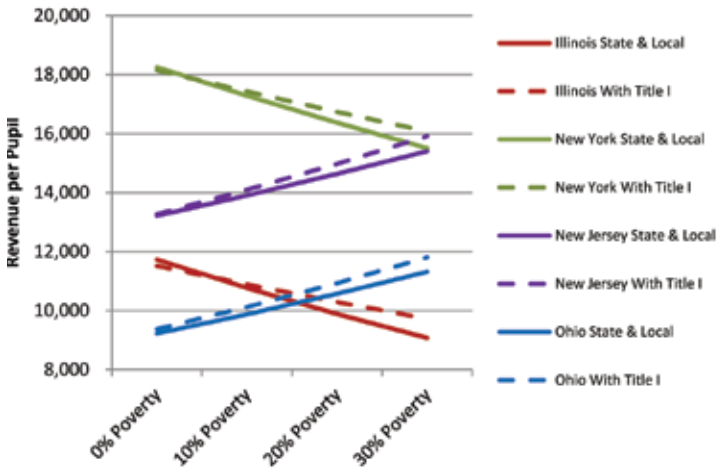
Source: Data are from Baker, Sciarra, & Farrie. (2012).

Because the bulk of education funding comes from states and local school districts, federal Title I funding, while helpful and important, does little to counterbalance the inequities of state school finance systems. Figure 14 graphs the projected funding distributions for four example states from the National Report Card. New York is a relatively high-spending state, but one in which higher-poverty districts tend to be relatively underfunded. Illinois is a lower-spending state, and also one where higher-poverty districts tend to be relatively underfunded. By contrast, Ohio and New Jersey are states where higher-poverty districts receive significant additional support, on average. The solid lines show the state and local funding only and the dotted lines add federal Title I funding. Indeed, Title I funding does help to shift the distribution of funding to high-poverty settings. But Title I funding is insufficient to turn around "regressive" states. Intervening in high-poverty school settings remains largely a state responsibility.

As explained previously, equitable and adequate funding for schools is a prerequisite condition for ensuring reasonable class sizes, competitive teacher wages, and the ability to provide specific programmatic interventions that may help to counterbalance the adverse effects of increased poverty and growing income inequality. On average, states with progressive distributions of state and local revenue also have progressive distributions of pupil-to-teacher ratios — with lower pupil-to-teacher ratios in higher-poverty settings (See Appendix A). On average, states that apply more effort to financing their public school systems also have more competitive wages for teachers (See Appendix B).

FIGURE14

Effect of Title I on Funding Fairness



Source: Predicted state and local revenue based on three-year model (2008–2010) of U.S. Census Fiscal Survey data (U.S. Census Bureau, 2012b), total state and local revenue per pupil as a function of (a) adjusted census poverty rate (U.S. Census Bureau, 2013a), (b) enrollment size (U.S. Census Bureau, 2012b), (c) county population density (see, for example: U.S. Census Bureau, 2012a), (d) regional competitive wage variation (Taylor, 2012), and (e) state. Predicted state, local, and federal Title I revenue estimated using same model, but adding Federal Compensatory Aid to state and local revenue.

THE PATH FORWARD

The promise of our educational system as the great equalizer appears more myth than reality today as the gap in outcomes between the poor and non-poor continues to grow in conjunction with the increasing divergence in incomes and wealth. Education policies and reform efforts have shifted over the past several decades. Emphasis has shifted away from providing more equitable and adequate funding for schools and targeted services for disadvantaged students and toward policies directed at developing and implementing common core standards, improving teacher quality through the design and implementation of quantitative evaluation metrics, widespread use of test-based accountability systems, and providing wider-ranging choice among traditional district schools, charter schools, and through private school vouchers. Yet, there exists little evidence that these reform strategies can substantially reduce the influence of poverty on educational opportunity, especially when they fail to address concurrently children's readiness for school and the availability of equitable and adequate funding for high-poverty schools and districts. As explained by Helen Ladd in her 2011 presidential address to the Association for Public Policy Analysis and Management:

> *Because these policy initiatives do not directly address the educational challenges experienced by disadvantaged students, they have contributed little — and are not likely to contribute much in the future — to raising overall student achievement or to reducing achievement and educational attainment gaps between advantaged and disadvantaged students. Moreover, such policies have the potential to do serious harm. Addressing the educational challenges faced by children from disadvantaged families will require a broader and bolder approach to education policy than the recent efforts to reform schools. (Ladd, 2012, p. 203)*

Some strategies are offered here to better match programs and services to the needs of children and to ameliorate the strong links between child poverty and later outcomes. We focus on seven areas that are generally within the purview of education policymakers:

- Increasing awareness of the incidence of poverty and its consequences
- Equitably and adequately funding our schools
- Broadening access to high-quality preschool
- Reducing segregation and isolation
- Adopting effective school practices
- Recognizing the importance of a high-quality teacher workforce
- Improving the measurement of poverty

There are other strategies that fall outside of the education arena — tax policy, job creation, minimum wage policy, etc. — that also are outside of the purview of this report.

Increasing Awareness of the Incidence of Poverty and its Consequences. A major purpose of this report is to provide a more comprehensive and nuanced view of poverty in the United States and document its influence on educational achievement and attainment. By no means unique, the dissemination of information and data such as these can better increase awareness and inform the debate about the level of poverty in this country and why it matters. By disseminating objective data on different measures of poverty and their impact on our children, we hope to communicate to a broad audience the

connections between poverty and issues like hunger and educational outcomes. Current media efforts such as *A Place at the Table,* a new film that captures the economic, social, and cultural impacts of hunger, is a good example of an effort to bring this issue before the public.

Efforts should be increased to extend the arguments for the need to address poverty beyond moral grounds and fairness ideals to arguments based on economics and national self-interest. The demographic changes that characterize the U.S. population will require that our public education system do more to meet the needs of our increasingly diverse student body if the nation is to remain competitive in the world economy. The hundreds of billions of dollars in annual costs associated with child poverty represent nearly 4 percent of U.S. GDP (Holzer et al., 2007). In addition, mounting evidence of the effectiveness of certain public policies like early childhood education should stimulate efforts to explore and implement other policies that show promise in reducing poverty.[15] The poverty levels documented in this report, in addition to the growing gap between those at the top and the bottom of the wealth distribution, threaten to destabilize our democracy and undermine the nation's promise of upward mobility.

Equitably and Adequately Funding Our Schools. The recent economic downturn has taken its toll on state school funding systems and on large-scale reform efforts like statewide preschool programs. Many states, including those that had been ordered by their courts to increase funding for schools and allocate those funds more progressively, retrenched and cut funding, in some cases to levels below pre-recession levels.[16] Pressures on state revenue systems, coupled with strong state legislative preferences against "revenue enhancement" (new, expanded, or increased taxes) have increased interest in supposed costless and/or cost-saving policy solutions characterized by Secretary of Education Arne Duncan in 2011 as the "new normal" (Stratman-Krusemark, 2011). But few of the education reform strategies popularized during the "new normal" and Race to the Top period have the research backing of more traditional strategies, leading some scholars to point out that many current reforms are perhaps more likely to exacerbate inequities and do more harm than good, and most are not costless (Baker & Welner, 2011; Ladd, 2012).

More recently, as the economy appears to be rebounding slowly, interest has re-emerged for supporting more traditional, more thoroughly researched strategies for improving educational opportunity for low-income children. Specifically, the recently released report from the Commission on Equity and Excellence titled *For Each and Every Child* laid out five priorities for guiding education policy-making, including equitable school funding; improving the quality of teachers, administrators and curricula; and expanding early childhood education (U.S. Department of Education, 2013).

We also need better coordination among levels of government. Federal education programs targeted at poverty are poorly articulated with state programs. Federal Title I funding, the largest direct federal aid to local public schools, does little to offset the inequities of poorly designed or underfunded state school finance systems. Head Start programs have struggled to show sustained positive effects and operate largely independent of and disconnected from state-sponsored pre-kindergarten programs.

Broadening Access to High-quality Preschool. All children, particularly those from disadvantaged backgrounds, should have access to high-quality preschool programs. Such programs have been shown to be important in improving the outcomes of all children, especially those from low-income households. Equitable and adequate state and local financing is a necessary underlying condition for providing these interventions.

[15] See, for example, Belfield and Levin (2007).

[16] Kansas and New York provide two examples. Both were ordered by their courts in 2006 (*Montoy v. State of Kansas*, 2001; *Campaign for Fiscal Equity v. State of New York*, 1995) to increase funding and provide more resources targeted to districts with children having greater needs. But with the onset of the economic downturn, both eventually cut state aid quite dramatically (Baker & Green, 2009). In New York State, by 2012, many districts were receiving as little as 50 percent in state aid of what they would have been receiving had the formula adopted to comply with the court order actually been fully funded (Baker, 2011).

A substantial body of research validates the benefits of providing high-quality early childhood programs. Steven Barnett of the National Institute for Early Education Research explained:

> *Early educational intervention can have substantive short- and long-term effects on cognition, social-emotional development, school progress, antisocial behavior, and even crime. A broad range of approaches, including large public programs, have demonstrated effectiveness. Long-term effects may be smaller than initial effects, but they are not insubstantial. These findings are quite robust with respect to social and economic contexts. Early educational intervention can improve the development and adult success of disadvantaged children in the developing world as well as in advanced economies. (Barnett, 2011, p. 978)*

Wong and colleagues also found significant positive effects of specific state-sponsored pre-K programs (Wong, Cook, Barnett, & Jung, 2008). While they varied in effectiveness, these programs produced generally more robust positive effects than major federal interventions like Head Start and may present better options for the future. In fact, the path forward might involve better integration of federal and state efforts, folding Head Start funding into new federal programs that assist states in providing high-quality publicly financed preschool programs. The Obama administration has proposed a major expansion of preschool programs across the country financed through taxes on tobacco products.

Reducing Segregation and Isolation. The nation's K–12 public school system should provide each student with the opportunity to attend school with peers from diverse social and economic backgrounds. Residential housing segregation remains at the heart of socioeconomic segregation of local public school districts and neighborhood schools. Housing segregation remains one of the nation's most intractable policy problems. Decades of strategically planned housing segregation, coupled with persistent discrimination in housing markets and mortgage lending, have reinforced the relationship between ZIP code and school quality (Reardon et al., 2009; Ross & Yinger, 2002; Yinger, 1997). Unfortunately, experiments displacing low-income families into housing in higher-income neighborhoods have yielded only mixed results on various outcome measures (Ludwig et al., 2012).

While there are no easy or immediate policy solutions for persistent residential segregation, policymakers should at the very least take care to ensure the current remedies intended on their face to disrupt the relationship between ZIP codes and schooling quality do not further exacerbate racial and socioeconomic segregation. There exists at least some concern and growing empirical evidence that expanded school choice programs in some settings are leading to increased economic segregation (Baker, Libby, et al., 2012; Frankenberg & Siegel-Hawley, 2012; Frankenberg, Siegel-Hawley, & Wang, 2011; Mead & Green, 2012; Roda & Wells, 2013).

Adopting Effective School Practices. The adoption of school policies that have been documented by research and practice to improve education outcomes, particularly of disadvantaged students, could be more broadly applied. For example, ample research indicates that children in smaller classes achieve better outcomes, both academic and otherwise, and that class-size reduction can be an effective strategy for closing racial or socioeconomic achievement gaps (Finn & Achilles, 2009; Finn et al., 2001; Konstantopoulos & Chun, 2009; Krueger, 1999; Krueger & Whitmore, 2001; Levin, Belfield, Muenning, & Rouse, 2007). A large body of the literature on the effectiveness of class-size reduction relies on data from the Tennessee STAR experiment, which focused specifically on class-size reduction in early grades (K–3). The results of these studies over time have been robust, with important implications for improving outcomes for economically disadvantaged children. (A comprehensive review of the literature on class-size reduction is beyond the scope of this report, but some additional references are listed below).[17]

[17] For other relatively recent studies on class-size reduction, see Chetty et al. (2010); Blatchford, Bassett, and Brown (2005); Babcock and Betts (2009); and Lubienski, Lubienski, and Crawford-Crane (2008).

Emerging research also points to selective successes among charter schools providing longer school days and intensive tutoring for low-income students (Dobbie & Fryer, 2009, in press; Fryer, 2011). Among the most studied programs are those that include comprehensive wraparound services, like Harlem Children's Zone in New York or the Knowledge Is Power Program (KIPP) middle schools, concentrated in New York and Houston, Texas. Other emerging charter school networks have adopted strategies similar to those of the KIPP schools, frequently referred to as "no excuses" strategies. While some of these programs have shown relatively positive results for low-income children in urban settings, recent research finds that these strategies are resource intensive and come with substantial additional costs — typically on the order of 30 to 50 percent greater than local public schools in the same locations (Baker, Libby, et al., 2012). Baker, Libby, et al. (2012) estimated that:

> *… to apply KIPP middle school marginal expenses across all New York City middle school students would require an additional $688 million ($4,300 per pupil x 160,000 pupils). In Houston, where the middle school margin is closer to $2,000 per pupil and where there are 36,000 middle schoolers, the additional expense would be $72 million. (p. 31)*

Baker, Libby, et al. (2012) also noted that:

> *… it's also quite possible that $688 million in New York or $72 million in Houston might prove equally or even more effective at improving middle school outcomes if used in other ways (for example, to reduce class size). Thus far, we simply don't know. (p. 31)*

Recognizing the Importance of a High-quality Teacher Workforce. Much has been made in recent years of the necessity to recruit and retain "high-quality teachers," but there remains debate as to how to measure teacher quality. There also exist contentious debates as to whether public education dollars would be better spent trying to improve teaching quality rather than increase teacher quantity (reduce class size). But there exists little if any clear empirical evidence to support the theory that a "good" teacher with a large class is necessarily more cost effective than a "less good" teacher with a small class — or vice versa (Chingos, 2013). Clearly, good teaching matters, and policies should ensure that children in high-poverty settings have equal access to good teaching, but often the sorting of teaching candidates on the labor market works against this goal (Lankford, Loeb, & Wyckoff, 2002; Kalogrides, Loeb, & Beteille, 2012).

Keeping teachers in high-poverty classrooms may require higher salaries or other incentives. For example, Clotfelter et al. (2008) found that bonus payments to teachers in high-poverty schools reduced average turnover rates by 17 percent, with the strongest effect exhibited for experienced teachers. The authors also suggest that the program effects may have been partly undermined by the state's failure to fully educate teachers regarding eligibility criteria. Finally, a substantial body of literature supports the contention that the overall quality of the teaching workforce and new entrants to the profession are sensitive to long-term expectations regarding wages, benefits, and working conditions (Ferguson, 1991; Figlio, 1997, 2002; Figlio & Rueben, 2001; Loeb & Page, 2000; Murnane & Olsen, 1989).

Improving the Measurement of Poverty. Finally, the measurement of poverty is extremely important both as an economic and social indicator and as the basis for allocating resources for scores of programs operated by federal, state, and local agencies including the Department of Health and Human Services, the Department of Agriculture, and the Department of Labor. We examined several different measures of poverty that reveal different patterns for different groups. Work should continue to expand the official definition of income to include government spending directed at low-income families and to recognize differences in the cost of living across regions. Recent work by Renwick (2011) has used methods, based

primarily on differences in housing costs facing owners and renters, for developing geographic adjustments in the poverty threshold both across and within states. Housing costs are not the only important determinants of regional differences in living standards, however, and families may choose a more modest dwelling in amenity-rich locations like San Francisco than they would chose in other parts of the country. See Appendix D for further discussion of ways to improve the measurement of poverty.

CONCLUSIONS

While fierce policy debates persist over how to effectively disrupt the link between poverty and children's educational outcomes, a fair amount is known from research on effective strategies and programmatic interventions. Several strategies are offered above that might be used to improve short-term educational and long-term economic outcomes for children from low-income families. Each of these strategies comes with a price, and for any to be equitably and adequately implemented requires equitable and adequate access to funding. Baker and Welner (2011) pointed out that research on state school finance reforms supports this contention, with a significant body of state-specific studies showing that changes to the level and distribution of available resources can, in fact, influence changes to the level and distribution of student outcomes. Specifically, in one cross-state study, Card and Payne (2002) found "evidence that equalization of spending levels leads to a narrowing of test score outcomes across family background groups." (p. 49)[18]

The evidence is clear that income inequality continues to rise in the United States, and that federal and state policies have arguably been less successful at curbing income inequality than policies in other developed nations. Since the "Great Recession" officially ended in 2009, the average net wealth of the wealthiest seven percent of households rose by 28 percent, while the average wealth of the lower-wealth 93 percent of households dropped by 4 percent (Fry & Taylor, 2013). Further, the political balance and distribution of government benefits continues to shift in favor of the elderly to the disadvantage of children. Total federal and state spending per capita is highest for children age 6–11 and next-highest for those age 12–18. Three- to 5-year-olds are in third place, and our youngest children (under age 2) get the least support (Edelstein, Isaacs, Hahn, & Toran, 2012). The confluence of these forces results in a growing gap in educational opportunity, largely influenced by gaps in income.

Indeed, some policy actions such as the provision of children's health care have improved through blended federal and state policies. But even those successes vary widely across the country, depending largely on state-level actions. Likewise, public education policy continues be highly decentralized and controlled by the states, with state investment in public schooling and participation rates of children in the public schools varying widely. Further, while a handful of states have made significant efforts to target school funding to those areas where it is most needed, many others have not and show little or no sign of future change in their state school funding policies.

In addition to more precisely measuring poverty and targeting resources accordingly, now is an appropriate time to rethink programs and strategies that might best serve to mediate the relationship between poverty and educational opportunity. Providing high-quality pre-kindergarten programs, reasonable elementary class sizes, and a high-quality teacher workforce for schools serving children in poverty requires sustained, equitable and adequate funding. Federal policy should focus on targeting the maximum available funding to schools, districts, and states with the greatest shares of children in need, and encouraging states to increase their own investment, placing less emphasis on competitive grant programs such as Race to the Top. State school finance policies should ensure equitable and adequate funding first, before attaching strings related to currently popular though largely unproven reforms.

But the difficulties outlined here also present insights and opportunities to lay the groundwork for new strategies aimed at moderating the influence of child poverty on educational outcomes. First, we raise

[18] See Baker and Welner (2011b) for a more thorough discussion of the Card and Payne (2002) analysis, its strengths, and its weaknesses.

issues that question how we measure poverty and whether policies might be better designed around refined poverty measures that account for regional differences in costs of living and competitive wages. Across existing federal programs reviewed herein, only HUD policies regarding housing subsidy rates actually account for differences in localized costs of living. We find that while many have criticized Title I funding as being too heavily directed toward northern and urban areas, that criticism is not substantiated when one applies regionally sensitive measures of poverty. In fact, the distribution of Title I funding might be refined and more precisely targeted by basing it on adjusted poverty measures. State aid formulas might also better target funds by using adjusted poverty measures, capturing the differences in relevant income thresholds between large metropolitan areas and smaller towns and rural areas.

REFERENCES

Babcock, P., & Betts, J. (2009). Reduced class size distinctions: Effort, ability and the education production function (NBER Working Paper No. 14777). Cambridge, MA: National Bureau of Economic Research.

Bailey, M. J., & Dynarski, S. M. (2011). *Gains and gaps: Changing inequality in U.S. college entry and completion* (NBER Working Paper No. 17633). Cambridge, MA: National Bureau of Economic Research.

Baker, B. D. (2005). The emerging shape of educational adequacy: From theoretical assumptions to empirical evidence. *Journal of Education Finance, 30*(3), 259–287.

Baker, B. D. (2009). *Private schooling in the U.S.: Expenditures, supply, and policy implications*. Retrieved from the Education and the Public Interest Center and Education Policy Research Unit website: http://epicpolicy.org/publication/private-schooling-US

Baker, B. D. (2011). School funding fairness in New York state. Retrieved from http://schoolfinance101.files.wordpress.com/2010/01/ny-aid-policy-brief_fall2011_draft6.pdf

Baker, B. D. (2012a). *Revisiting the age-old question: Does money matter in education?* Washington, DC: Albert Shanker Institute.

Baker, B. D. (2012b, March). *Unpacking the consequences of disparities in school district financial inputs: Evidence from staffing data in New York and Illinois*. Paper presented at the annual meeting of the Association for Education Finance and Policy, Boston, MA.

Baker, B. D., & Corcoran, S. P. (2012). *The stealth inequities of school funding: How state and local school finance systems perpetuate inequitable student spending.* Washington, DC: Center for American Progress.

Baker, B. D., & Green, P. C. (2009). Conceptions, measurement, and application of educational adequacy and equal educational opportunity. In G. Sykes, B. Schneider, & D. N. Plank (Eds.), *The handbook of education policy research* (438–452). New York, NY: Routledge.

Baker, B. D., Libby, K., & Wiley, K. (2012). Spending by the major charter management organizations: Comparing charter school and local public district financial resources in New York, Ohio, and Texas. Retrieved from the National Education Policy Center website: http://nepc.colorado.edu/files/rb-charterspending_0.pdf

Baker, B. D., Sciarra, D. G., & Farrie, D. (2012). *Is school funding fair? A national report card* (2nd ed.). Newark, NJ: Education Law Center.

Baker, B. D., Taylor, L., Levin, J., Chambers, J., & Blankenship, C. (2013). Adjusted poverty measures and the distribution of Title I aid: Does Title I really make the rich states richer? *Education Finance and Policy.*

Baker, B. D., & Welner, K. G. (2011). Productivity research, the U.S. Department of Education, and high-quality evidence. Retrieved from the National Education Policy Center website: http://nepc.colorado.edu/publication/productivity-research

Baker, B., & Welner, K. G. (2012). Evidence and rigor scrutinizing the rhetorical embrace of evidence-based decision making. *Educational Researcher, 41*(3), 98–101.

Barnett, W. S. (2011). Effectiveness of early educational intervention. *Science, 333*(6045), 975–978.

Barnett, W., Carolan, M., Fitzgerald, J., & Squires, J. (2012). *The state of preschool 2011: State preschool yearbook.* New Brunswick, NJ: National Institute for Early Education Research.

Barnett, W., Carolan, M., Fitzgerald, J., & Squires, J. (2013). *The state of preschool 2012: State preschool yearbook.* New Brunswick, NJ: National Institute for Early Education Research.

Barton, P., & Coley, R. (2010). *The Black-White achievement gap: When progress stopped.* Princeton, NJ: ETS Policy Information Center.

Barton, P., & Coley, R. (2007). The family: America's smallest school. Princeton, NJ: ETS Policy Information Center.

Belfield, C. R., & Levin, H. M. (Eds.). (2007). *The price we pay: Economic and social consequences of inadequate education*. Washington, DC: Brookings Institution Press.

Ben-Shalom, Y., Moffitt, R. A., & Scholz, J. K. (2011). *An assessment of the effectiveness of anti-poverty programs in the United States* (NBER Working Paper No. 17042). Cambridge, MA: National Bureau of Economic Research.

Blatchford, P., Bassett, P., & Brown, P. (2005). Teachers' and pupils' behavior in large and small classes: A systematic observation study of pupils aged 10 and 11 years. Journal of Educational Psychology, 97(3), 454–467. doi: 10.1037/0022-0663.97.3.454

Bricker, J., Kennickell, A. B., Moore, K. B., & Sabelhaus, J. (2012). Changes in U.S. family finances from 2007 to 2010: Evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin, 98*(2), 1–80.

Caminada, K., & Martin, M. C. (2012). Differences in anti-poverty approaches in Europe and the United States: A cross-Atlantic descriptive policy analysis. *Poverty & Public Policy, 3*(2), 1–15.

Campaign for Fiscal Equity v. State of New York, 86 N.Y.2d 306 (1995).

Card, D., & Payne, A. A. (2002). School finance reform, the distribution of school spending, and the distribution of student test scores. *Journal of Public Economics, 83*(1), 49–82.

Carey, K., & Roza, M. (2008). *School funding's tragic flaw*. Seattle, WA: Center on Reinventing Public Education.

Centers for Medicare and Medicaid Services. (n.d.). Eligibility. Retrieved from **http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Eligibility/Eligibility.html**

Centers for Medicare and Medicaid Services. (2013). 2013 poverty guidelines. Retrieved from **http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Eligibility/Downloads/2013-Federal-Poverty-level-charts.pdf**

Chambers, J. G., Levin, J. D., Taylor, L. L., Baker, B. D., Blankenship, C., & Cruz, L. M. (2012, March). *Towards a more accurate measure of student poverty: An alternative method for calculating cost-adjusted poverty with an application to measuring student need.* Paper presented at the annual meeting of the Association for Education Finance and Policy, Boston, MA.

Chambers, J. G., Levin, J., Wang, A., Verstegen, D., Jordan, T., & Baker, B. (2012). Study of a new method of funding *schools in Nevada.* Retrieved from the Nevada Legislature website: http://leg.state.nv.us/Interim/76th2011/Committee/Studies/FundingSchools/Other/NV-FundingStudyReportFINAL20120822.pdf

Chetty, R., Friedman, J. N., Hilger, N., Saez, E., Schazenbach, D. W., & Yagan, D. (2010). *How does your kindergarten classroom affect your earnings? Evidence from Project STAR* (NBER Working Paper No. 16381). Cambridge, MA: National Bureau of Economic Research.

Chingos, M. (2013). Class size and student outcomes: Research and policy implications, *Journal of Policy Analysis and Management, 32*(2), 411–438.

Clotfelter, C., Glennie, E., Ladd, H., & Vigdor, J. (2008). Would higher salaries keep teachers in high-poverty schools? Evidence from a policy intervention in North Carolina. *Journal of Public Economics, 92*(5), 1352–1370.

Coleman-Jensen, A., Nord, M., Andrews, M., & Carlson, S. (2012). *Household food security in the United States in 2011* (ERR-141). Washington, DC: U.S. Department of Agriculture, Economic Research Service.

College Board. (2012). *2012 college-bound seniors total group profile report*. New York, NY: Author.

DeNavas-Walt, C., Proctor, B., & Smith, J. (2012). *Income, poverty, and health insurance coverage in the United States: 2011* (U.S. Census Bureau, Current Population Report No. P60-243). Washington, DC: Government Printing Office.

Dobbie, W., & Fryer, R. G. (2009). *Are high-quality schools enough to close the achievement gap? Evidence from a social experiment in Harlem* (NBER Working Paper No. 15473). Cambridge, MA: National Bureau of Economic Research.

Dobbie, W., & Fryer, R. G. (in press). Getting beneath the veil of effective schools: Evidence from New York City. *American Economic Journal: Applied Economics.*

Duncan, G. J., & Magnuson, K. (2011, Winter). The long reach of early childhood poverty. Pathways, 22–27. Retrieved from http://www.stanford.edu/group/scspi/_media/pdf/pathways/winter_2011/PathwaysWinter11.pdf

Duncombe, W. A., & Yinger, J. (2005). How much more does a disadvantaged student cost? *Economics of Education Review, 24*(5), 513–532.

Edelman, P. (2012). *So rich, so poor: Why the wealthiest nation in the world is losing the battle against poverty.* New York, NY: New Press.

Edelstein, S., Isaacs, J., Hahn, H., & Toran, K. (2012). *How do public investments in children vary with age? A kid's share analysis of expenditures in 2008 and 2011 by age group.* Washington, DC: Urban Institute.

Elementary and Secondary Education Act of 1965, 20 U.S.C. §6301 *et seq.*

Evans, G. W., Brooks-Gunn, J., & Klebanov, P. K. (2011, Winter). Stressing out the poor: Chronic physiological stress and income-achievement gap. Pathways, 16–21. Retrieved from http://www.stanford.edu/group/scspi/_media/pdf/pathways/winter_2011/PathwaysWinter11.pdf

Federal Interagency on Child and Family Statistics. (2012a). ED1 Family reading to young children: Percentage of children ages 3–5 who were read to every day in the last week by a family member by child and family characteristics, and region, selected years 1993–2007 [data set]. Retrieved from the childstats.gov website: http://childstats.gov/americaschildren/tables/ed1.asp?popup=true

Federal Interagency on Child and Family Statistics. (2012b). FAM1.B Family structure and children's living arrangements: Detailed living arrangements of children by gender, race and Hispanic origin, age, parent's education, and poverty status, 2011 [data set]. Retrieved from the childstats.gov website: http://childstats.gov/americaschildren/tables/fam1b.asp?popup=true

Federal Interagency on Child and Family Statistics. (2012c). FAM3.B Child care: Percentage of children ages 3–6, not yet in kindergarten, in center-based care arrangements by child and family characteristics, and region, selected years 1995–2007 [data set]. Retrieved from the childstats.gov website: http://childstats.gov/americaschildren/tables/fam3b.asp?popup=true

Federal Interagency on Child and Family Statistics. (2012d). HC2 Usual source of health care: Percentage of children ages 0–17 with no usual source of health care by age, type of health insurance, and poverty status, 1993–2010 [data set].Retrieved from the childstats.gov website: http://childstats.gov/americaschildren/tables/hc2.asp?popup=true

Federal Interagency on Child and Family Statistics. (2012e). PHY2.B Environmental tobacco smoke: Percentage of children ages 0–6 living in homes where someone smoked regularly by race and Hispanic origin and poverty status, 1994, 2005, and 2010 [data set]. Retrieved from the childstats.gov website: http://childstats.gov/americaschildren/tables/phy2b.asp?popup=true

Federal Interagency on Child and Family Statistics. (2012f). PHY4.B lead in the blood of children: Percentage of children ages 1–5 with specified blood lead levels by race and Hispanic origin and poverty status, 2007–2010 [data set]. Retrieved from the childstats.gov website: http://childstats.gov/americaschildren/tables/phy4b.asp?popup=true

Ferguson, R. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation, 28*(2), 465–498.

Figlio, D. (1997). Teacher salaries and teacher quality. *Economics Letters, 55*, 267–271.

Figlio, D. (2002). Can public schools buy better-qualified teachers? *Industrial and Labor Relations Review, 55,* 686–699.

Figlio, D. N., & Rueben, K. (2001, April). Tax limits and the qualifications of new teachers. *Journal of Public Economics, 80*(1), 49–71.

Finn, J., & Achilles, C. (2009). Tennessee's class size study: Findings, implications, misconceptions. *Educational Evaluation and Policy Analysis,* 21, no. 2: 97–109.

Finn J., Gerber, S., Achilles, C., & Boyd-Zaharias, J. (2001). The enduring effects of small classes," Teachers College Record, 103, no. 2, (April 2001): 145–183; http://www.tcrecord.org/pdf/10725.pdf

Frankenberg, E., & Siegel-Hawley, G. (2012). Not just urban policy: Suburbs, segregation, and charter schools. *Journal of Scholarship & Practice*, 8(4), 3–13. Retrieved from http://www.aasa.org/uploadedFiles/Publications/Journals/AASA_Journal_of_Scholarship_and_Practice/Winter2012.FINAL.pdf#page=3

Frankenberg, E., Siegel-Hawley, G., & Wang, J. (2011). Choice without equity: Charter school segregation. Education Policy Analysis Archives, 19(1), 1–34. Retrieved from http://epaa.asu.edu/ojs/article/view/779/878

Fry, R., & Taylor, P. (2013). *An uneven recovery, 2009–2011. A rise in wealth for the wealthy; declines for the lower 93%.* Washington, DC: Pew Research Center.

Fryer, R. (2011). *Injecting successful charter school strategies into traditional public schools: Early results from an experiment in Houston* (NBER Working Paper No. 17494). Cambridge, MA: National Bureau of Economic Research.

Gibbs, C., Ludwig, J., & Miller, D. L. (2011). *Does Head Start do any lasting good?* (NBER Report No. 17452). Cambridge, MA: National Bureau of Economic Research.

Gotham, K. F. (2002). *Race, real estate, and uneven development: The Kansas City experience, 1900–2000.* Albany, NY: SUNY Press.

Griffith, M. (2013). *State pre-k funding: 2012–13 school year*. Denver, CO: Education Commission of the States.

Holzer, H., Schanzenbach, D., Duncan, G., & Ludwig, J. (2007). *The economic costs of poverty in the United States: Subsequent effects of children growing up poor.* Washington, DC: Center for American Progress.

Illinois State Board of Education. (2009). School enrollment by grade, gender, race/ethnicity, 2008–2009 [data set]. Retrieved from http://www.isbe.state.il.us/research/xls/09_Sch_GXGXE.xls

Internal Revenue Service. (2013). EITC home page – It's easier than ever to find out if you qualify for EITC. Retrieved from http://www.irs.gov/Individuals/EITC-Home-Page--It%E2%80%99s-easier-than-ever-to-find-out-if-you-qualify-for-EITC

Kalogrides, D., Loeb, S., & Beteille, T. (2012). Systematic sorting: teacher characteristics and class assignments. *Sociology of Education, 86*(2), 103–123.

KIDS COUNT Data Center. (2013). The Annie E. Casey Foundation. Retrieved from http://datacenter.kidscount.org/

Konstantopoulos, S., & Chun, V. (2009, November). What are the long-term effects of small classes on the achievement gap? Evidence from the lasting benefits study. *American Journal of Education, 116*(1), 125–154.

Krueger, A. (1999). Experimental estimates of education production functions. *The Quarterly Journal of Economics, 114*(2), 497–532.

Krueger, A. B., & Whitmore, D. (2001). Would smaller class sizes help close the Black-White achievement gap? (Working Paper #451). Princeton, NJ: Princeton University, Industrial Relations Section. Retrieved from http://dataspace.princeton.edu/jspui/bitstream/88435/dsp01w66343627/1/451.pdf

Ladd, H. F. (2012). Education and poverty: Confronting the evidence. *Journal of Policy Analysis and Management, 31*(2), 203–227.

Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools. *Educational Evaluation and Policy Analysis, 24*(1), 37–62.

Levin, H. M., Belfield, C., Muenning, P., & Rouse, C. (2007). The public returns to public educational investments in African American males. *Economics of Education Review, 26,* 699–708.

Liu, G. (2007). How the federal government makes rich states richer. Colleagues. 2(2). Retrieved from http://scholarworks.gvsu.edu/colleagues/vol2/iss2/9

Liu, G. (2008). Improving Title I funding equity across states, districts and schools. *Iowa Law Review, 93,* 973–1014.

Loeb, S., & Page, M. (2000). Examining the link between teacher wages and student outcomes: The importance of alternative labor market opportunities and non-pecuniary variation. *Review of Economics and Statistics, 82,* 393–408.

Lubienski, S. T., Lubienski, C., & Crawford-Crane, C. (2008). Achievement differences and school type: The role of school climate, teacher certification, and instruction. *American Journal of Education, 115,* 97–138.

Ludwig, J., Duncan, G. J., Gennetian, L. A., Katz, L. F., Kessler, R. C., … & Sanbonmatsu, L. (2012). *Long-term neighborhood effects on low-income families: Evidence from moving to opportunity* (NBER Working Paper No. 18772). Cambridge, MA: National Bureau of Economic Research.

Mead, J. F., & Green, P. C. (2012). Chartering equity: Using charter school legislation and policy to advance equal educational opportunity. Boulder, CO: National Education Policy Center. Retrieved from http://nepc.colorado.edu/publication/chartering-equity

Miller, R. (2009). *Secret recipes revealed: Demystifying the Title I, Part A funding formulas.* Washington, DC: Center for American Progress.

Miller, R. T., & Brown, C. G. (2010a). *Bitter pill, better formula: Toward a single, fair, and equitable formula for ESEA Title I, Part A.* Washington, DC: Center for American Progress.

Miller, R. T., & Brown, C. G. (2010b). *Spoonful of sugar: An equity fund to facilitate a single, fair, and equitable formula for ESEA Title I, Part A.* Washington, DC: Center for American Progress.

Montoy v. State of Kansas, No. 99-C-1738 (Shawnee County, Kansas, Nov. 21, 2001).

Murnane, R. J., & Olsen, R. (1989). The effects of salaries and opportunity costs on length of state in teaching. Evidence from Michigan. *Review of Economics and Statistics, 71*(2), 347–352.

National Center for Children in Poverty. (2012). National needs budget calculator. Retrieved from http://www.nccp.org/tools/frs/budget.php

National Center for Education Statistics. (2009a). The condition of education (NCES 2009-081). Washington, DC: Author.

National Center for Education Statistics. (2009b). Elementary/secondary information system [data set]. Retrieved from http://nces.ed.gov/ccd/elsi/

National Center for Education Statistics. (2011). *The nation's report card: Reading 2011* (NCES 2012-457). Washington, DC: Author.

National Center for Education Statistics. (2012). *Digest of education statistics* (NCES 2012-001). Washington, DC: Author.

Organisation for Economic Co-operation and Development. (2012a). OECD income distribution database: Data, figures, methods and concepts [data set]. Retrieved from http://www.oecd.org/els/soc/income-distribution-database.htm

Organisation for Economic Co-operation and Development. (2012b). OECD social expenditure statistics [data set]. doi: 10.1787/20743904-2012.

Orfield, G., Kucsera, J., & Siegel-Hawley, G. (2012). *E pluribus … separation: Deepening double desegregation for more students.* Los Angeles, CA: The Civil Rights Project.

Puma, M., Bell, S., Cook, R., Heid, C., Broene, P., Jenkins, F., & Downer, J. (2012). *Third grade follow-up to the Head Start impact study final report* (OPRE Report # 2012-45). Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation.

Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murnane (Eds.), *Whither opportunity?* (91–116). New York, NY: Russell Sage Foundation.

Reardon, S. F., Farrell, C. R., Matthews, S. A., O'Sullivan, D., Bischoff, K., & Firebaugh, G. (2009). Race and space in the 1990s: Changes in the geographic scale of racial residential segregation, 1990–2000. *Social Science Research, 38*(1), 55–70.

Renwick, T. (2009). *Alternative geographic adjustments of U.S. poverty thresholds: Impact on state poverty rates.* Washington, DC: U.S. Census Bureau.

Renwick, T. (2011, January). *Geographic adjustments of supplemental poverty measure thresholds: Using the American Community Survey five-year data on housing costs.* Washington, DC: U.S. Census Bureau.

Roda, A., & Wells, A. S. (2013). School choice policies and racial segregation: Where White parents' good intentions, anxiety, and privilege collide. *American Journal of Education, 119*(2), 261–293.

Ross, S., & Yinger, J. (2002). *The color of credit: Mortgage discrimination, research methodology, and fair-lending enforcement.* Cambridge, MA: The MIT Press.

Ruggles, S., Alexander, J. T., Genadek, K., Goeken, R., Schroeder, M. B., & Sobek. M. (2013). Integrated public use microdata series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota.

Shaefer, H. L., & Edin, K. (2012). *Extreme poverty in the United States, 1996 to 2011* (Policy Brief No. 28). Ann Arbor, MI: University of Michigan National Poverty Center.

Short, K. (2012). The research supplemental poverty measure: 2011 (Current Population Reports No. P60-244). Washington, DC: U.S. Census Bureau. Retrieved from http://www.census.gov/hhes/povmeas/methodology/supplemental/research/Short_ResearchSPM2011.pdf

Sigle-Rushton, W., & McLanahan, S. (2004). Father absence and child well-being. In D. Moynihan, T. Speeding, & L. Rainwater (Eds.), *The future of the family* (pp. 116–155). New York, NY: Russell Sage Foundation.

Smeeding, T. M. (2005). Public policy, economic inequality, and poverty: The United States in comparative perspective. *Social Science Quarterly, 86*(s1), 955–983.

Stratman-Krusemark, K. (2011). "New normal" is harsh reality, Duncan tells principals. Retrieved from The Homeroom: The Official Blog of the U.S. Department of Education website: http://www.ed.gov/blog/2011/01/new-normal-is-harsh-reality-duncan-tells-principals/

Tavernise, S. (2012, February 9). Education gap grows between rich and poor, studies say. *The New York Times.* Retrieved from http://www.nytimes.com/2012/02/10/education/education-gap-grows-between-rich-and-poor-studies-show.html?pagewanted=all

Taylor, L. (2012). The NCES comparable wage index: School district CWI 1997-2011 [data set]. Retrieved from the Bush School of Government and Public Service website: http://bush.tamu.edu/research/faculty/Taylor_CWI/files/LEA%20index.zip

UNICEF Innocenti Research Centre. (2012). *Measuring child poverty: New league tables of child poverty in the world's rich countries* (Innocenti Report Card 10)**.** Florence, Italy: UNICEF Innocenti Research Centre.

Urban Institute & Brookings Institute. (2012a). Tax facts: EITC claims by state 1997-2010. Retrieved from the Tax Policy Center website: http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=364

Urban Institute & Brookings Institute. (2012b). *Tax facts: Share of wages paid at the poverty level for individual federal taxes, 1970-2011.* Retrieved from the Tax Policy Center website: http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?DocID=268&Topic2id=40&Topic3id=41

U.S. Census Bureau. (2011). *The 2012 statistical abstract of the United States: Heath and nutrition.* Retrieved from http://www.census.gov/prod/2011pubs/12statab/health.pdf

U.S. Census Bureau. (2012a). Cumulative estimates of resident population change for the United States, States, counties, Puerto Rico, and Puerto Rico Municipios: April 1, 2000 to July 1, 2009 [data set]. Retrieved from http://www.census.gov/popest/data/maps/2009/maps-county2009.xls

U.S. Census Bureau. (2012b). Public elementary–secondary education finance data. Retrieved from http://www.census.gov/govs/school/

U.S. Census Bureau. (2013a). Small area income and poverty estimates. Retrieved from http://www.census.gov/did/www/saipe/data/schools/data/index.html

U.S. Census Bureau. (2013b). State and county estimates for 2011. Retrieved from http://www.census.gov/did/www/saipe/data/statecounty/data/2011.html

U.S. Department of Agriculture. (2013a). Food security in the U.S. Retrieved from http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us.aspx

U.S. Department of Agriculture. (2013b). Healthy Hunger-Free Kids Act of 2010. Retrieved from http://www.fns.usda.gov/cnd/Governance/Legislation/CNR_2010.htm

U.S. Department of Agriculture. (2013c). Supplemental Nutrition Assistance Program. Retrieved from http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm

U.S. Department of Agriculture. (2013d). U.S. School Lunch Program fact sheet. Retrieved from http://www.fns.usda.gov/cnd/lunch/AboutLunch/NSLPFactSheet.pdf

U.S. Department of Education. (2013). *For each and every child—A strategy for education equity and excellence.* Washington, DC: Author.

U.S. Department of Health and Human Services. (n.d.). Head Start services. Retrieved from the Office of Head Start website: http://www.acf.hhs.gov/programs/ohs/about/head-start

U.S. Department of Housing and Urban Development. (2013). HUD's Public Housing Program. Retrieved from http://portal.hud.gov/hudportal/HUD?src=/topics/rentalassistance/phprog

U.S. Department of Labor. (2013). Wage and hour division (WHD). Minimum wage laws in the states — January 1, 2013. Retrieved from http://www.dol.gov/whd/minwage/america.htm

Verstegen, D. A. (2011). Public education finance systems in the United States and funding policies for populations with special educational needs. *Education Policy Analysis Archives*, 19(21). Retrieved from http://epaa.asu.edu/ojs/article/view/769

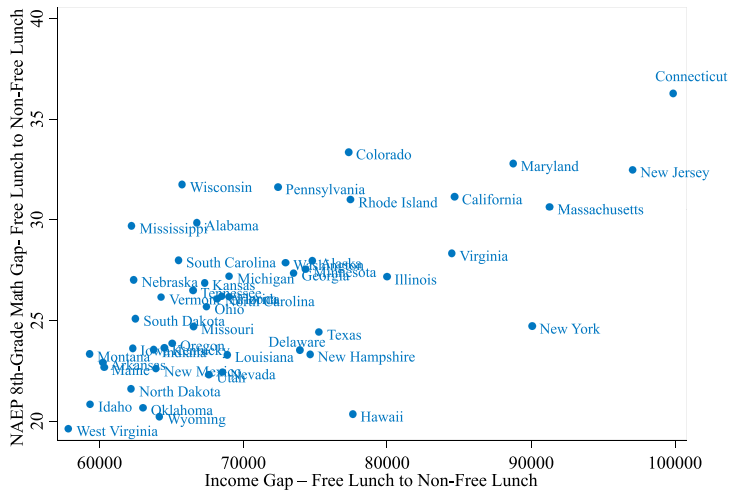
Verstegen, D. A., & Jordan, T. S. (2009). A fifty-state survey of school finance policies and programs: An overview. *Journal of Education Finance, 34*(3), 213–230.

Wong, V. C., Cook, T. D., Barnett, W. S., & Jung, K. (2008). An effectiveness-based evaluation of five state pre-kindergarten programs. *Journal of Policy Analysis and Management, 27*(1), 122–154.

Yinger, J. (1997). *Closed doors, opportunities lost: The continuing costs of housing discrimination*. New York, NY: Russell Sage Foundation.

FIGURE A-1

Relationship between State Income Gaps and NAEP Achievement Gaps

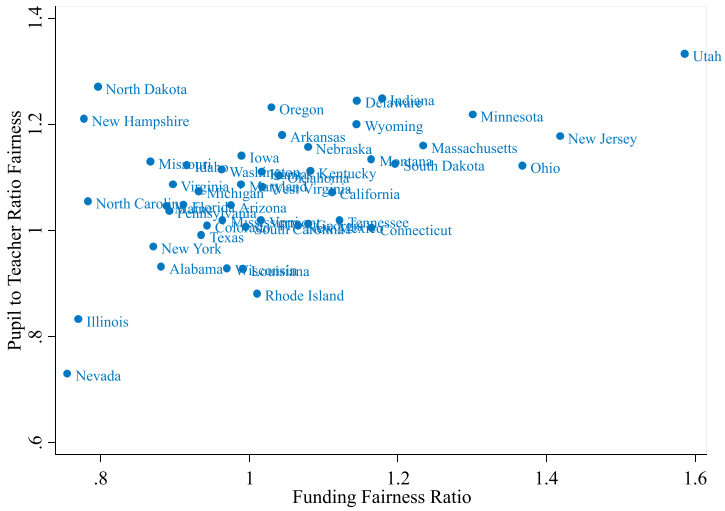


R-squared = .41

Data Source: NAEP data from NCES (2012). Income data from American Community Survey 2008–2010, accessed in IPUMS (Ruggles et al., 2013).

FIGURE B-1

Relationship between Funding Equity and Equity of Pupil-to-Teacher Ratios



R-squared = .26

Sources: Funding fairness ratio from Baker, Sciarra, & Farrie (2012). Pupil to teacher ratio fairness estimated by author using NCES Common Core of Data and applying method used in Baker, Sciarra, & Farrie (2012).

APPENDIX A

Figure A-1 shows the relationship between income gaps and achievement gaps across states. The income gaps are the differences in median household income between families eligible and not eligible for free lunch. The difference in income for these two groups in Connecticut is approximately $100,000, and in Idaho, Montana, or West Virginia the difference is about $60,000. Outcome gaps are, in this case, the average NAEP scale scores for 8th-grade math, for children qualified for free lunch (family under the 130 percent income threshold for poverty) and children not qualified for free lunch (family over the 130 percent income threshold for poverty).

On average, states with larger income gaps also tend to have larger achievement gaps. So, while Connecticut, New Jersey, Maryland, and Massachusetts do tend to have relatively large achievement gaps, the difference is largely explained by the degree of income disparity in these states. This illustration is particularly important for interpreting achievement gaps across states.

APPENDIX B

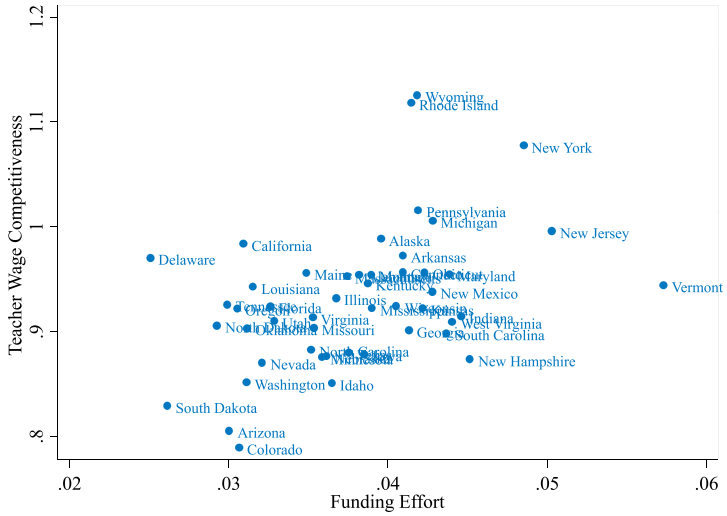
The Funding Fairness Ratio is the ratio of predicted state and local revenue for a district with 30 percent poverty to a district with 0 percent poverty. Pupil to Teacher fairness ratio is the ratio of pupils to teachers in the district with 0 percent poverty to the district with 30 percent poverty, where the assumption is that higher poverty districts required a lower pupil to teacher ratio. Figure B-1 shows that in states where there exists systematically more per pupil revenue in higher poverty districts than in lower poverty ones, there also exist lower pupil to teacher ratios in higher poverty districts.

APPENDIX C

The state effort ratio is the ratio of total state and local revenue for local public school districts as a percent of state Gross Domestic Product. Salary competitiveness ratio is a ratio of the expected hourly wage of a teacher at specific age and degree level compared to the employed non-teacher at the same age and degree level — that is, how do teacher hourly wages compare to non-teacher wages for workers of similar characteristics? Figure C-1 shows that, on average, states putting forth greater effort provide more competitive teacher wages.

FIGURE C-1

Relationship between Teacher Wages and State Effort



Sources: Funding effort from Baker, Sciarra, & Farrie (2012). Competitive wage ratio for teachers determined using data from the Integrated Public Use MicroData System and based on a model comparing wages for teachers with non-teachers of comparable age, degree level, hours worked per week and weeks worked per year.

APPENDIX D

In ongoing work, Taylor and colleagues proposed an alternative to the Renwick (2009) approach to derive a regionally adjusted poverty rate. Instead of relying on direct measures of cost-of-living variation, Taylor and colleagues rely on wage variation. As Taylor and colleagues explain in a forthcoming paper, "differences in the prevailing wage provide a more complete measure of the income needed to maintain a reasonable standard of living in a community because they reflect not only differences in the price of food and shelter, but also any differences in important community characteristics such as climate, crime rates, or public amenities." Determining Geographic Cost Adjusted Poverty rates (GCAP) is a four-step process:

1. Using a statistical model based on Census Bureau data, identify the relative (to national average) wages for high school graduates of comparable age, education level, occupation and industry across all metropolitan and micropolitan areas and rural census data subdivisions (public use microdata areas).

2. Use those estimates of wage variation to adjust the income thresholds for poverty (relative to national average) across areas. For example, if the competitive wage in New York is 20 percent higher than the national average, the income threshold for poverty will be adjusted upward by 20 percent (for each household configuration).

3. Based on the adjusted income thresholds, use census data to calculate the percent of individuals in families below these thresholds.

4. Compare this adjusted poverty rate to the original poverty rate to determine a poverty adjustment factor for each geographic area (metropolitan and micropolitan areas and rural census data subdivisions).

These poverty adjustment factors can then be used to create adjusted poverty rates at the county or school district levels by using the adjustment factor for the geographic area of that school district. In forthcoming work, Baker and colleagues use school district adjusted poverty rates to assess the distribution of Title I funding to local public school districts.

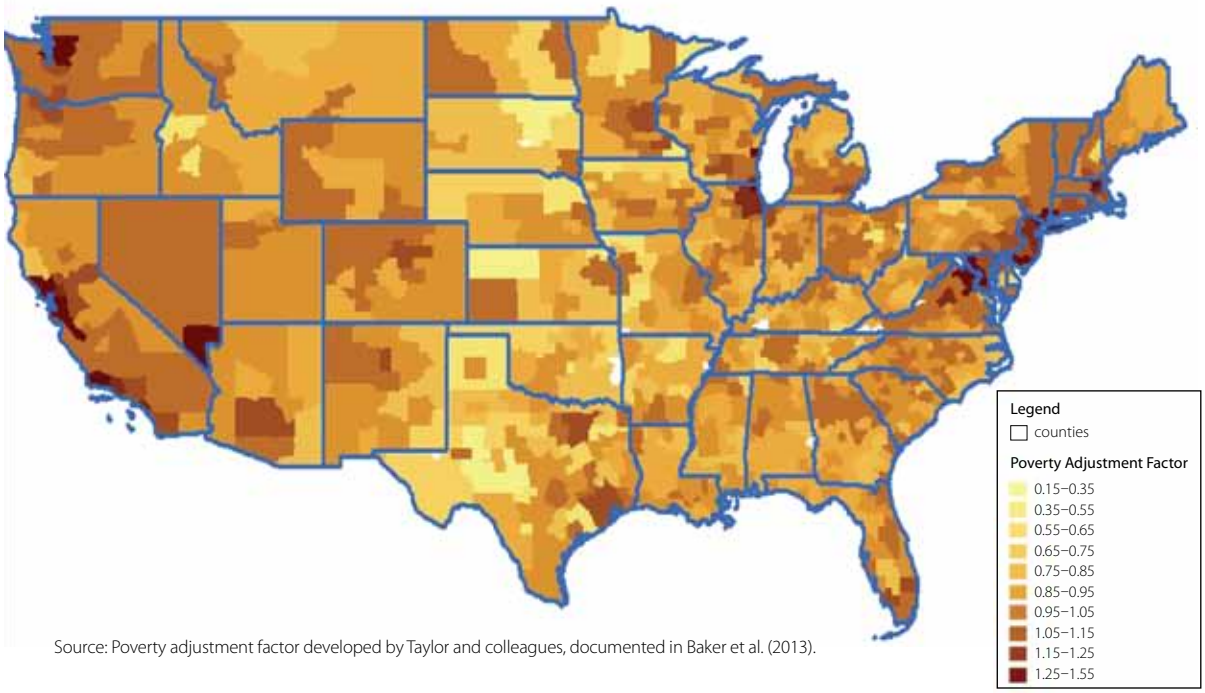
As one might expect, major metropolitan areas on the East and West Coast tend to have the highest competitive wages and thus receive the most substantial upward adjustment to their poverty rates. Areas of the rural south and high plains tend to have the lowest competitive wages and receive significant downward adjustment of poverty rates.

Figure D-1 shows the geographic distribution of poverty adjustment factors using the Taylor et al. GCAP approach. In addition to large regional differences, where the New York City area would receive upward adjustment in poverty rates over 1.25 (25 percent to 55 percent), there are also sizeable differences within states. In Texas, some areas would have their poverty rates reduced to around 35 percent of the unadjusted rate, and other areas would have their poverty rates increased between 5 and 15 percent.

Taylor and colleagues argue that these poverty adjustments might be useful for better targeting federal Title I aid, the largest direct federal aid program to schools. Further, they note that within states, these poverty adjustments might be useful for better targeting both general state aid with respect to student needs and also aid for specific poverty-oriented interventions.

FIGURE D-1

Geographic Distribution of Poverty Adjustment Factors



Source: Poverty adjustment factor developed by Taylor and colleagues, documented in Baker et al. (2013).

About ETS

At ETS, we advance quality and equity in education for people worldwide by creating assessments based on rigorous research. ETS serves individuals, educational institutions and government agencies by providing customized solutions for teacher certification, English language learning, and elementary, secondary and post-secondary education, as well as conducting education research, analysis and policy studies. Founded as a nonprofit in 1947, ETS develops, administers and scores more than 50 million tests annually — including the *TOEFL*® and *TOEIC*® tests, the *GRE*® tests and *The Praxis Series*™ assessments — in more than 180 countries, at over 9,000 locations worldwide.

21873

Listening. Learning. Leading.®

www.ets.org