

1

CLIVE R. BELFIELD
HENRY M. LEVIN

*The Education Attainment Gap:
Who's Affected, How Much,
and Why It Matters*

IS EXCELLENT EDUCATION for all America's children a good investment? We know that education is expensive, but poor and inadequate education for substantial numbers of our young may have public and social consequences that are even costlier. The contributors to *The Price We Pay* examine the costs of investing in services to provide excellent education and—equally important—the costs of not doing so.

A person's educational attainment is one of the most important determinants of his or her life chances in terms of employment, income, health status, housing, and many other amenities. Unlike other attributes, such as family background and personal characteristics, educational attainment can be chosen by the individual and influenced by public policy. In the United States we share a common expectation that all citizens will have access to high quality education that will reduce considerably the likelihood of later lifetime inequalities. Yet large differences in educational quality and attainment persist across income, race, and region. Even with similar schooling resources, educational inequalities endure because children from educationally and economically disadvantaged populations are less prepared to start school. They are unlikely to catch up without major educational interventions on their behalf.

In the United States we typically view educational inequality as a challenging public policy issue because of its implications for social justice. If life chances depend so heavily on education, then it is important that educational inequalities be redressed in order to equalize opportunities in a democratic

society. But beyond the broader issue of fairness, such inequalities may create costly consequences for the larger society, in excess of what it would take to alleviate the inequalities. An excellent education for all of America's children has benefits not only for the children themselves but also for the taxpayer and society. A copious body of research literature has established that poor education leads to large public and social costs in the form of lower income and economic growth, reduced tax revenues, and higher costs of public services such as health care, criminal justice, and public assistance. Therefore we can view efforts to improve educational outcomes for at-risk populations as public investments that may yield benefits considerably in excess of investment costs.

In this volume we and our colleagues address these issues directly. To set the stage for the discussion, in this chapter we first review previous efforts to measure the costs of inadequate education. We then report on the current educational attainment and achievement of the U.S. population, adopting high school graduation as a minimum standard of education. We also suggest a feasible, if ambitious, goal for increasing high school graduation rates and estimate the further educational gains that would result. Finally, we provide an overview of the book as a whole.

Previous Studies of the Costs of Inadequate Education

Attempts to determine the social consequences of poor education and the returns on investments that might be gained by improving the situation have a modest history. In 1970 the U.S. Senate formed the Select Senate Committee on Equal Educational Opportunity to explore ways in which the federal government could build on the recent racial integration of U.S. public schools. Although the Supreme Court had decided in 1954, in *Brown v. Board of Education in Topeka*, to end the dual school system, the actual shift toward desegregating schools had not begun to gain traction until about 1968. The new Senate committee, under Senator Walter Mondale, held hearings on desegregation with the dual goal of supporting movement in that direction and identifying new ways to improve the education of minority and economically disadvantaged students.

Mondale's concern was that although many experts who testified before his committee argued that education would result in higher incomes and tax revenues and lower public costs of crime, public assistance, and health, no one was able to attach numbers to these claims. So the committee decided to commission a study that might provide at least an estimate of the benefits to the taxpayer of reducing the magnitude of inadequate education. What invest-

ment would it take, and what would be the return on such an investment? The results were reported in a study titled “The Costs to the Nation of Inadequate Education.”¹

The researchers who conducted the study attempted to estimate the effects of failure to attain a minimum of high school completion among males 25–34 years old in 1970. Using lifetime income patterns by race and education level, and adjusting for the presumed lower “ability” of high school dropouts, simulations were made to estimate the additional earnings associated with an increase in the number of high school completers (including the small number of additional graduates who might then undertake some postsecondary education). On the basis of this analysis it was estimated that \$237 billion in lifetime income in 1970 dollars (about \$1.2 trillion in 2004 dollars) was lost by failing to ensure that all persons attained a minimum of high school completion, including about \$71 billion (\$350 billion in 2004 dollars) in government revenues. The effects of inadequate education on public assistance and crime and their costs were also reviewed, as well as evidence on the effects of poor education on reduced political participation and intergenerational mobility and higher health costs. Because of data shortcomings, however, these estimates were highly speculative.

The study assumed that educational investments in compensatory resources would have to increase by 50 percent for every year of schooling, elementary through high school, in order to provide the resources that would lead to graduation. The overall cost of providing these additional resources for the dropout cohort that was analyzed was estimated at about \$40 billion in 1970 dollars (about \$200 billion in 2004 dollars). When this figure was compared with just the benefits of higher tax revenues from increased high school completion, the benefits were almost twice the costs. Under a substantial range of assumptions it appeared that investing in reducing the number of poorly educated people in the population would have public benefits well in excess of the costs.

Ramirez and del Refugio Robledo replicated this type of analysis for the cohort of Texas ninth graders in 1982–83 who were projected to drop out before their anticipated graduation in 1986.² They estimated the benefits of a dropout prevention program as those attributable to savings in public assistance, training and adult education, crime and incarceration, and unemployment insurance and placement and to higher earnings associated with the additional high school graduates. Such benefits were calculated at \$17.5 billion, and the costs of eliminating dropouts in this cohort were estimated at slightly less than \$2 billion, for a benefit to cost ratio of nine to one. Although

1. Levin (1972).

2. Ramirez and del Refugio Robledo (1987).

the specifics of this investment were unclear, estimates of additional tax revenues were 2.5 times greater than the costs to taxpayers.

James Catterall undertook a similar analysis of children who dropped out of high schools in Los Angeles for all students in the class of 1985.³ He concluded that because of the dropouts, the Los Angeles class of 1985 was likely to generate more than \$3 billion less in lifetime economic activity than it would have if all its members had graduated. Catterall suggested that the cost of investing successfully in dropout reduction would be a mere fraction of this amount. Furthermore, he found that Los Angeles was addressing the dropout problem with programs that were spending the equivalent of only about \$50 per dropout, or less than one-half of 1 percent of school spending, even though 40 percent of its students were not graduating.

Although the authors of each of these studies made serious attempts to identify the benefits to society or to the taxpayer of improving the education of those with the most serious educational inadequacies, each study has serious shortcomings because of the early vintage of the research. Only recently have detailed data that enable the linking of educational levels to participation in crime, health, public assistance, and tax revenues become available. This is also true of research studies that have provided insights into ways to separate out non-educational influences on income and behaviors that increase the cost of public services. Moreover, in recent decades the benefits of education have grown, leaving high school dropouts farther behind. The contributors to this book capitalize on both the rich data resources and the research on these topics that have emerged in recent years.

Inadequate Education Today

What do these data say about the current state of education in the United States? In attempting to answer this question in this chapter, we focus on the flow of new entrants into the labor market (approximately 4 million persons in 2005) rather than the stock of the total workforce (approximately 150 million persons). Specifically, we describe the educational attainment levels of the cohort of persons aged 20 in 2005. We then consider potential improvements in education levels that might be feasible and realistic. Such improvements can be used to calculate the economic consequences of ensuring an adequate education.

Consistent with previous analyses, we adopt high school graduation as a minimally adequate educational standard. We recognize that precisely what consti-

3. Catterall (1986).

tutes an adequate education differs among observers. Some argue for high student performance on standardized achievement tests. Others say that all students should meet meaningful levels of proficiency in key subjects. Still others emphasize the ability to solve problems and analyze complex situations. We focus on high school graduation because it is viewed as a minimum requirement for developing both the cognitive and noncognitive attributes that are important for success in adulthood. It is usually a minimum requirement for engaging in further training and higher education, and it opens up a range of future possibilities that would otherwise be closed. Most important, we focus on high school graduation because for the population as a whole the United States is far from fulfilling even this educational goal. International comparisons show that the United States lags behind other industrialized countries in rates of high school graduation.⁴

High School Graduation Rates

There is no consensus on definitions of high school graduation, completion, and dropout status.⁵ Some students may complete high school but not graduate—that is, complete school with a level of knowledge and skills deemed appropriate by age 18. Some may take an examination such as the General Educational Development (GED) exam in lieu of completing secondary school, but this may not fully capture what is learned by attending school.⁶ Some may drop out and then return to school later. Further, states vary in the exit standards they impose on graduates. Increasingly, states are requiring students to pass an exit examination in addition to completing a specified set of courses.

Research studies typically use a uniform method for estimating graduation rates: the number of completers divided by the student population for a given age or grade cohort. However, some studies use contemporaneous figures (for example, diplomas awarded relative to the age cohort size in a given year), and others compare the number of twelfth grade graduates with the size of the ninth grade cohort three years earlier. Also, studies vary in the way they account for private school enrollments, special education students, and migration.

Two population-level data sets—the Current Population Survey (CPS) of the U.S. Bureau of the Census and the Common Core of Data (CCD) of the U.S. Department of Education—are typically used. Both have shortcomings

4. Organization for Economic Cooperation and Development (2006).

5. See Barton (2005); Educational Testing Service (2004); Greene (2002); Haney and others (2004); Holzman (2005); Kaufman (2004); Mishel and Roy (2006); National Center for Education Statistics (2003); Orfield and others (2004); Swanson (2004); Warren (2005).

6. On the lack of equivalence between graduation and the GED, see Cameron and Heckman (1993).

Table 1-1. *National Graduation Rates*

Percent

<i>Measure</i>	<i>Graduation rate</i>
High school completion rate ^a	67
Graduates/population rate ^b	68
Cumulative proportion index ^c	68
Basic completion ratio ^c	68
Diploma/population rate ^c	69
Diploma/population rate ^d	70
Department of Education CCD enrollment rate ^e	70
National Center for Education Statistics rate ^c	80
Inverse dropout promotion rate ^c	82

a. From Warren (2005).

b. From Haney and others (2004).

c. From Swanson (2004).

d. From Barton (2005).

e. From Greene and Forster (2003, app. table 1).

for calculating graduation rates. Neither is longitudinal or based on actual student transcripts, as recommended by Mishel and Roy.⁷ The CPS has poor population coverage (especially for black males), counts only the civilian non-institutionalized population (but includes immigrants), and classifies GED holders as high school graduates. In contrast, the CCD relies on public school administrative data, estimates “event status dropout” in terms of whether a student graduated on time or not, and classifies GED holders as dropouts. In addition, both self-reported and administrative data are likely to have significant measurement biases (misreporting and overstatement), particularly for persons with low education levels.

Notwithstanding these methodological issues, there is reasonable agreement across data sets on the high school graduation rate for public school students. Table 1-1 summarizes nine separate measures. Seven of them report rates of 67 to 70 percent, and two report rates of 80 to 82 percent, but these last have lower coverage rates of districts and schools and so may be overstated.⁸ Separately, the authors of a recent federal study comprehensively documented ways of measuring the high school graduation rate.⁹ Identifying eleven measures from the literature, they found strong correlations across the estimates (with

7. Mishel and Roy (2006).

8. Swanson and Chaplin (2003).

9. Seastrom and others (2007).

Table 1-2. *Public School Graduation Rates and High School Dropout Rates*^a
Percent

<i>Subgroup</i>	<i>On-time graduation rate</i>	<i>High school dropout rate</i>
<i>Male</i>		
White	71	8
Black	42	13
Hispanic	48	32
<i>Female</i>		
White	77	7
Black	56	9
Hispanic	59	22

Sources: Column 1 from Swanson (2004, table 5) for 2001 school year. Column 2 from Greene and Forster (2003, app. table 1) for ages 16–24.

a. Recipients of GED credentials are counted as high school completers. Data are based on sample surveys of the civilian non-institutionalized population.

the weakest correlations at 0.5 and most at 0.8). Thus, rather than focus on the precision of the estimates of the dropout rate, we emphasize the overall consensus. Specifically, we can conclude with reasonable confidence that roughly three of every ten students in the United States are not graduating from high school on time.

There are significant differences in dropout rates by race and by gender.¹⁰ Table 1-2 reports the figures for two studies that tabulate on-time graduation rates and dropout rates by race and gender. Graduation is measured at one point in an individual's life, whereas being a dropout is a state that a person can move out of at any time by passing a high school equivalency exam. Table 1-2 shows that educational attainment, whether measured as an event or as a status, is very low, especially for minority groups. The black male public high school graduation rate is 42 percent, in comparison with 48 percent for Hispanic males and 71 percent for white males. The disparities are smaller for females, but they follow the same pattern: black females graduate at a rate of 56 percent, Hispanic females at 59 percent, and white females at 77 percent.

Attainment for New Cohorts Entering the Labor Market

To model the economic consequences of high school graduation, we focus on a single age cohort. Specifically, we use the Current Population Survey (CPS)

10. Kao and Thompson (2003).

Table 1-3. *Educational Attainment of the Population Aged 20 in 2005^a*

Thousands except as indicated

<i>Subgroup</i>	<i>< 9th grade</i>	<i>9th–11th grade (GED)</i>	<i>High school</i>	<i>College level</i>	<i>Total</i>	<i>Dropouts (percent)</i>
Male	63	450	638	1,101	2,252	23
White	18	194	402	749	1,362	16
Black	6	69	99	127	301	25
Hispanic	38	168	104	48	358	58
Other	1	19	33	177	230	9
Female	33	259	508	1,183	1,983	15
White	6	100	297	822	1,225	9
Black	0	71	96	129	296	24
Hispanic	25	63	81	114	283	31
Other	2	26	33	118	179	16

Source: Current Population Survey, March 2005.

a. The category 9th–11th grade includes persons with GEDs. College level includes persons with some college and those with at least a B.A. Dropout percentages include all persons with less than high school education. Race-specific adjustments for rates of institutionalization are from Raphael (2004): the average rate for blacks and other [whites] is 9 percent [2 percent]; for those with less than high school education it is 23 percent [4 percent]. Race-specific adjustments for GED receipt are from Rumberger's (2004) analysis of the National Educational Longitudinal Survey (2000). Of all graduates, 15 percent of blacks and other races and 8 percent of whites are GED holders.

for educational attainment levels for the cohort of young adults who were 20 in 2005. We choose age 20 to allow for those who did not graduate on time.

The distribution of attainment is given in table 1-3. We adjust the raw figures to account for two ways in which the CPS is less than ideal (see table note). First, we adjust for persons who are incarcerated and so are not counted in the CPS; we use data on incarceration rates by education level from Stephen Raphael.¹¹ Second, we adjust for those who have earned a GED, because this is not equivalent to a regular high school diploma; here we use data from the National Educational Longitudinal Survey (NELS) derived by Russell Rumberger.¹² We separate persons by gender and by race or ethnicity—white, black, Hispanic, and other.

As shown in table 1-3, a large number of males aged 20 are not high school graduates. Of the 2.3 million males, 0.5 million are dropouts, with 0.6 million having completed high school and another 1.1 million attending or having

11. Raphael (2004).

12. Rumberger (2004).

completed college. The overall male dropout rate is 23 percent. After accounting for those who graduate late from high school, this rate corresponds to the national estimates reported in table 1-1. The dropout rate is much higher for black and Hispanic males than for white males.

A similar pattern can be seen for females. There are 0.3 million dropouts, which is 15 percent of the age cohort. For white females, fewer than one in ten is a dropout. For black females, one in four is a dropout; for Hispanic females the ratio is almost one in three.

Overall, table 1-3 shows that a significant number of persons entering the labor market lack an adequate education. Although there are about 800,000 noncompleters, we assume that the 709,000 who have succeeded in reaching at least tenth grade might be considered prospects for high school graduation. (If we do not adjust for incarceration and the GED, there are approximately 600,000 dropouts). This subgroup of persons might become graduates if effective educational interventions were implemented.

Increasing Educational Attainment after High School

Increasing the numbers of people graduating from high school will also enable and motivate more of them to attend college. These may be the same new graduates or they may be people who would have graduated in the absence of new interventions but were motivated by the programs to attend college and to raise their employment prospects. Regardless, failing to ensure that a person graduates from high school, and so foreclosing the opportunities of college, should be counted as one of the costs of inadequate education. Raising educational standards in high school would mean more college education, resulting in additional economic benefits. To capture these effects we can conceive of an “expected high school graduate,” a person who is a new high school graduate and in addition now has some probability of progressing to college and completing a degree.

Progression to college—conditional on high school graduation—can be divided into attendance and completion, both of which may vary across race, gender, and many other variables (for example, occupational choice, region, parental education). Table 1-4 shows rates of college attendance and completion by sex and race or ethnicity. We calculated attendance rates directly from NELS-1988, a longitudinal survey that followed students who were in eighth grade in 1988. For attendance rates we looked only at those who were in the lowest quartile for reading. For completion rates we used tabulated results from the Beginning Postsecondary Students Longitudinal Study, which followed persons through five academic years from college entry in

Table 1-4. *College Attendance and Completion Rates by Age 20^a*

Percent

	<i>Attendance rates for lowest quartile in reading</i>		<i>Completion rates for lowest third of socioeconomic status</i>	
	<i>Two-year college</i>	<i>Four-year college</i>	<i>Two-year college</i>	<i>Four-year college</i>
<i>Male</i>				
White	18	12	64	56
Black	17	16	48	49
Hispanic/other	18	9	55	53
<i>Female</i>				
White	24	6	58	65
Black	21	10	47	54
Hispanic/other	21	6	48	57

Sources: For attendance, 1988 National Educational Longitudinal Survey; for completion rates, 1996–2001 Beginning Postsecondary Students Longitudinal Study (National Center for Education Statistics 2002, table 311).

a. College attendance rates are as of 1994 for those aged 20 who were in the lowest quartile for reading. College completion rates are within five years of first enrollment.

1995. We restricted the analysis to those in the lowest third of socioeconomic status.

Using these progression rates we construct an “expected high school graduate” by sex and race. The probabilities that a person in each category will graduate from high school, attend some college, and obtain a B.A. or more advanced degree are reported in table 1-5. Based on data for persons from the most disadvantaged backgrounds, these are very conservative progression rates. They reflect the fact that only education levels are being changed, not ability or family resources. Approximately 80 out of 100 new high school graduates are expected to terminate their education after high school, and of the remainder, three-quarters are likely to attend but not complete college. Nevertheless, for all groups it is likely that inducing expected dropouts to graduate will yield a further upgrading of education into college. This upgrading effect must also be counted in examining the cost to the nation of inadequate education.

Aggregate Effects of Raising the Number of High School Graduates

Aspirationally, we wish to find ways for all students to graduate from high school and to receive an excellent education. The literature on the causes of dropping out, however, suggests that this will not be accomplished by even the

Table 1-5. *Expected High School Graduate Progression Rates*^a

Probability

	<i>Highest level of attainment conditional on high school graduation</i>		
	<i>High school</i>	<i>Some college</i>	<i>B.A. or above</i>
<i>Male</i>			
White	0.80	0.12	0.07
Black	0.75	0.17	0.08
Hispanic/other	0.77	0.18	0.05
<i>Female</i>			
White	0.81	0.14	0.05
Black	0.83	0.11	0.06
Hispanic/other	0.85	0.11	0.04

a. Probabilities are derived from table 1-4. Those who failed to complete four-year college are classified as "some college." These rates are for new graduates who were on the margin of completing high school. Rates do not sum to 1 because of rounding.

most promising educational interventions. Both statistical studies and surveys of dropouts suggest that the quality or type of education received is not a sole factor.¹³ Family problems, frequent residential moves and school mobility, limited cognitive or physical abilities, psychological problems, pregnancies, and financial constraints all exert pressure on students to drop out. Experts agree that a more complete response will require changes not only in schools but also in the combined support and additional resources of families and communities. In addition, some of the dropouts are immigrants, many of whom did not attend U.S. schools throughout childhood. Their educational deficiencies cannot be fully addressed by educational reforms within the United States. On the basis of our reading of the literature and on expert opinions, we believe that perhaps half the school dropout rate can be influenced by school interventions that have been proven to be effective.

Realistically, we might expect a reduction of the dropout rate by up to 50 percent for persons who currently have a ninth to eleventh grade education—that is, those on the margin of graduation. As shown later in this volume, each effective intervention typically raises the number of on-time high school graduates by 10 out of 100 students, and school officials are not restricted to applying only one intervention per student. Moreover, we believe

13. Rumberger (2004).

Table 1-6. *Increase in Educational Attainment for Persons Age 20 in 2005^a*
 Projected numbers of persons

	<i>Increase in educational attainment if 50 percent of those with 9th–11th grade education became high school graduates</i>		
	<i>High school</i>	<i>Some college</i>	<i>B.A. or above</i>
Male	175,470	34,335	14,225
White	77,600	11,640	6,790
Black	25,875	5,865	2,760
Hispanic	64,680	15,120	4,200
Other	7,315	1,710	475
Female	107,790	15,800	6,410
White	40,500	7,000	2,500
Black	29,465	3,905	2,130
Hispanic	26,775	3,465	1,260
Other	11,050	1,430	520

a. Cohort numbers from table 1-3. College progression derived from table 1-5.

other strategies can further reduce dropout rates, although they will draw more heavily upon policies for providing support and resources to families and communities in conjunction with schools.¹⁴ These are discussed later in the book.

In absolute terms, even half of those who reach ninth grade but drop out is still a large number. The age cohort in our analysis includes 450,000 males and 259,000 females who are dropouts. The projected effect on educational attainment of reducing the dropout rate by 50 percent is shown in table 1-6. Such a reduction would mean 354,030 new high school graduates. Most of them would terminate their education after high school, but 50,000 would progress to some college education, and 20,000 would obtain a four-year college degree. Ensuring an adequate education for this number of persons would yield a significant economic gain for taxpayers and society.

About This Book

The remaining chapters in this volume are divided into three parts. The contributors to part 1 examine the broader context of efforts to improve education in the United States. Part 2 is focused on calculating the economic gains pro-

14. Levin and Belfield (2002); Rothstein (2004); Rumberger (2004).

duced by improved education in the form of higher graduation rates. The contributors to part 3 examine specific policy interventions and their potential to achieve the desired gains.

Richard Rothstein and Tamara Wilder lead off part 1 by highlighting the complexity of any effort to reduce inequality, whether in educational attainment or economic outcome. Focusing on differences between blacks and whites, they catalog the many interrelated inequalities associated with low education, from birth through adulthood. Their discussion makes it clear that inadequate education is often a joint product of social disadvantage both outside and inside school. Moreover, even if educational inequality is eliminated, significant disparities in outcomes across the population will remain.

In chapter 3 Marta Tienda and Sigal Alon analyze the demographic trends that make the problem of improving education, particularly for the disadvantaged, so urgent today. As they argue, the United States is experiencing a school-age population bulge, largely as a result of high immigrant fertility. These future workers have parents with relatively little education and lower incomes, making them both a potential asset and a potential liability. If we make major educational investments on their behalf, they can play a crucial role in helping the United States cope with the consequences of an aging population. If we do not rise to the occasion, we will see a decline in both the education and the productivity of the future labor force. This conflux—large numbers of poorly educated people set against an aging population—has been dubbed the “perfect storm.”¹⁵

In chapter 4 Thomas Bailey also focuses on labor force productivity, but he expands the boundaries of the discussion by analyzing the importance of higher education in an increasingly competitive global economy. Bailey agrees with Tienda and Alon that without a major push for educational improvement among the children of immigrants, minorities, and low-income families, the future labor force will be less skilled than the present one. In addition, Bailey asserts that increasing high school graduation is a necessary but insufficient solution. Vast increases in postsecondary participation will also be necessary, requiring public policies that overcome both academic and financial obstacles to higher educational progress.

Beyond the need to invest now to markedly improve the educational attainments of the future labor force, we need to ask what kinds of returns the taxpayer will obtain on such an educational investment. Or, to turn the question around, what does it cost taxpayers not to make that investment? The chapters in part 2 offer some answers by addressing the way inadequate education

15. Kirsch and others (2007).

reduces potential tax revenues and raises public expenditures on crime, health, and public assistance.

In chapter 5 Cecilia Rouse provides estimates of the incomes associated with different levels of education. She converts the additional income from greater educational attainment into the additional tax revenues the U.S. government would receive. The additional tax payments received from high school graduates as opposed to high school dropouts are substantial, and they are even greater for people who undertake some postsecondary education as a consequence of high school graduation. Even the completion of one more year of schooling by age 20 yields to the government the present-value equivalent of \$50,000.

In addition to paying less in taxes, high school dropouts are costlier to society because of their dependence on publicly subsidized health care. With lower incomes and poorer health than their more educated counterparts, they draw heavily on public programs such as Medicaid and Medicare in the event of disabilities. In chapter 6 Peter Muennig estimates the effects of poor education on public health care costs using recently available data sets that provide great detail on public health expenditures. He finds that each additional high school graduate would save the government the present-value equivalent of \$39,000 over his or her lifetime from age 20.

In chapter 7 Enrico Moretti documents the strong association between education and crime. Dropouts are incarcerated at rates twice those of high school graduates, leading to much greater public spending on policing, the court system, and the prison system. Moretti uses statistical modeling to estimate the likely effects of increased schooling on engagement in criminal activity. He finds that a one-year increase in average schooling reduces murder and assault by almost 30 percent, motor vehicle theft by 20 percent, arson by 13 percent, and burglary and larceny by about 6 percent. Increasing the high school completion rate by just 1 percent for all men ages 20–60 could save the United States more than \$1 billion a year in the costs of criminal justice.

Jane Waldfogel, Irwin Garfinkel, and Brendan Kelly show in chapter 8 how poor education raises the probability that a person is on welfare, directly increasing the costs of providing public assistance. The obvious link is that high school dropouts face economic circumstances so poor that they often require financial and other assistance just to meet basic needs. With more education, their economic prospects rise, reducing their dependence on such public assistance. For example, single-mother high school graduates are from 24 to 55 percent less likely to be dependent on assistance from the Temporary Assistance for Needy Families program than are high school dropouts. This chap-

ter highlights the relationship between low levels of educational attainment and the cost of public assistance and the way in which improved education would reduce the taxpayer's burden.

In part 3 the two of us, in chapter 9, begin to join these separate analyses by looking at interventions that might improve the educational situation of people who would normally be recipients of inadequate education. In our view, the best solution would be to invest in educational interventions that ensure that as many students as possible graduate from high school, with an increasing portion of these proceeding to postsecondary education. We identify five interventions that have proved effective in increasing graduation rates, and we estimate the costs for each intervention. We also aggregate the public benefits of additional high school graduates in terms of increased tax revenues and reduced public costs for crime, health care, and public assistance. We then compare the intervention costs with the public benefits. Our analysis clearly shows that the public benefits are substantial and considerably greater than the costs of effective education programs.

Given the scale of inadequate education across the United States, we and our colleagues pay particular attention to policy solutions that might yield significant improvements in the rate of high school graduation. In chapter 10 Clive Belfield focuses on preschool programs. On the basis of a large and rigorous body of evidence, preschool programs are often heralded as a major part of the solution to inadequate education. Belfield reviews this evidence and offers a critical view of whether an expansion of preschool really can deliver what is needed. It is noteworthy that two of the interventions discussed in chapter 9 that have shown strong evidence of increasing high school graduation are preschool programs.

In chapter 11 Ronald Ferguson considers a farther-reaching solution, one in which communities collectively address the problem of inadequate education through social empowerment. Ferguson supports high quality preschools as part of the solution, but he also calls for more skillful parenting along with "transformative school reform." He focuses on both more resources and better programs for children from impoverished and minority backgrounds.

Finally, in chapter 12 Michael Rebell returns the discussion to the issue of fairness and equity. Many high school dropouts come from disadvantaged families in impoverished communities. Rebell reinforces our initial contention that, coupled with strong economic arguments in favor of increased educational investments, U.S. society has an important moral imperative to ensure that all children have the opportunity to secure their own economic well-being.

Conclusion

By focusing resources on students who are receiving inadequate education, it is possible to obtain benefits far in excess of the costs of those investments. Increases in tax revenues and reductions in taxes paid into public health, criminal justice, and public assistance would amount to many billions of dollars a year in excess of the costs of educational programs that could achieve these results. Even these benefits of more and better education as a good investment do not include the gains in political participation or civic engagement that are also causally influenced by education. Effective investments to ensure high school graduation therefore produce high yields from the taxpayer's perspective.

According to the National Opinion Research Center's General Social Survey (2006), three-quarters of respondents thought the government was spending too little on education.¹⁶ This proportion was greater than the proportions of respondents who thought all other government spending items, including health care, welfare assistance, and the environment, were too low. Political support for public investment in education is strong and justified by the economic returns. But it is important to note that this is due to more than just good public investment policy with monetary returns. A society that provides fairer access to opportunities, is more productive, and has higher employment, better health, and less crime is a better society in itself. It is simply an added incentive that the attainment of such a society is profoundly good economics.

References

- Barton, Paul. E. 2005. *Unfinished Business: More Measured Approaches in Standards-Based Reform*. ETS Policy Information Report. Princeton, N.J.: Educational Testing Service.
- Cameron, Steven V., and James J. Heckman. 1993. "The Nonequivalence of High School Equivalents." *Journal of Labor Economics* 111, no. 1: 1–47.
- Catterall, James. 1986. "On the Social Costs of Dropping Out of School." Report SEPI-86-3. Stanford, Calif.: Stanford Educational Policy Institute.
- Educational Testing Service. 2004. *One-Third of a Nation*. ETS Policy Information Report. Princeton, N.J.
- Greene, Jay. P. 2002. *High School Graduation Rates in the United States*. New York: Manhattan Institute for Policy Research.
- Greene, Jay P., and Greg Forster. 2003. "Public High School Graduation and College Readiness Rates in the United States." Working paper. New York: Manhattan Institute for Policy Research.

16. National Opinion Research Center (2006).

- Haney, William, and others. 2004. *The Education Pipeline in the United States, 1970–2000*. National Board on Educational Testing and Public Policy, Boston College.
- Holzman, Mark. 2005. “Public Education and Black Male Students: A State Report Card.” Policy paper. Boston, Mass.: Schott Foundation for Public Education.
- Kao, Grace, and Jennifer Thompson. 2003. “Racial and Ethnic Stratification in Educational Achievement and Attainment.” *Annual Review of Sociology* 29, no. 2: 417–42.
- Kaufman, Phillip. 2004. “The National Dropout Data Collection System: History and the Search for Consistency.” In *Dropouts in America*, edited by Gary Orfield, pp. 107–30. Cambridge, Mass.: Harvard Education Press.
- Kirsch, I., and others. 2007. *America’s Perfect Storm: Three Forces Facing Our Nation’s Future*. ETS Policy Brief. Princeton, N.J.: Educational Testing Service.
- Levin, Henry M. 1972. *The Cost to the Nation of Inadequate Education*. Select Senate Committee on Equal Educational Opportunity, 92nd Congress. Government Printing Office.
- Levin, Henry M., and Clive R. Belfield. 2002. “Families as Contractual Partners in Education.” *UCLA Law Review* 49, no. 6: 1799–1824.
- Mishel, Lawrence, and Joydeep Roy. 2006. *Rethinking High School Graduation Rates and Trends*. Washington, D.C.: Economic Policy Institute.
- National Center for Education Statistics. 2002. *Short-term Enrollment in Postsecondary Education: Student Background and Institutional Differences in Reasons for Early Departure, 1996–98*. NCES 2003-153. Department of Education.
- . 2003. *Public High School Dropouts and Completers from the Common Core of Data: School Year 2000–01*. NCES 2004-310. Department of Education.
- National Opinion Research Center. 2006. “Trends in National Spending Priorities.” Chicago.
- Orfield, Gary, and others. 2004. *Losing Our Future: How Minority Youth Are Being Left Behind by the Graduation Rate Crisis*. Civil Rights Project, Harvard University.
- Organization for Economic Cooperation and Development. 2006. *Education at a Glance*. Paris (www.oecd.org/document/7/).
- Ramirez, David, and Maria del Refugio Robledo. 1987. “The Economic Impact of the Dropout Problem.” *IDRA Newsletter* (April). San Antonio: Intercultural Development Research Association.
- Raphael, Stephen. 2004. “The Socioeconomic Status of Black Males: The Increasing Importance of Incarceration.” Working paper. University of California, Berkeley.
- Rothstein, Richard. 2004. *Class and Schools: Using Social, Economic, and Educational Reform to Close the Black-White Achievement Gap*. Washington, D.C.: Teachers College Press and Economic Policy Institute.
- Rumberger, Russell. 2004. “Why Students Drop Out of School.” In *Dropouts in America*, edited by Gary Orfield, pp. 243–54. Cambridge, Mass.: Harvard Education Press.
- Seastrom, Marilyn, and others. 2006. *User’s Guide to Computing High School Graduation Rates*, vol. 2: *Technical Evaluation of Proxy Graduation Indicators*. NCES 2006-605. National Center for Education Statistics, Department of Education.
- Swanson, Chris B. 2004. “Who Graduates? Who Doesn’t? A Statistical Portrait of Public High School Graduation, Class of 2001.” Working paper. Washington, D.C.: Urban Institute.
- Swanson, Chris B., and D. Chaplin. 2003. “Counting High School Graduates When Graduates Count: Measuring Graduation Rates under the High Stakes of NCLB.” Working paper. Washington, D.C.: Urban Institute.
- Warren, John. 2005. “State-Level High School Completion Rate: Concepts, Measures, and Trends.” *Education Policy Analysis Archives* 13: 51.

