CHAPTER TWO

Inequality in the Schools

Chapter 1 suggested that there were two distinct ways of looking at schools. Some people think a school's purpose is to make something happen to its students. They therefore try to judge the quality of a school by its long-term effect on its students. Other people think of schools primarily as communities where students and teachers live part of their lives. They judge the quality of a school by whether the students and teachers are interested or bored, sane or neurotic, happy or unhappy—while they are in school.

If you judge schools according to their long-term effects, if you believe that these effects are substantial, and if you are an egalitarian, you are likely to feel that everyone should get the same kind of schooling, whether they want it or not. Egalitarians of this persuasion often argue that students who want to drop out of high school should be encouraged or even coerced into returning, because otherwise they will have little chance of earning a good living. They also argue that students who do not want to attend college should be persuaded to do so, for similar reasons. They fight for systems of school finance that provide equal resources in every school, because they believe this is the only way to make the alumni of different schools equal. They demand an end to segregation because they think that this is a crucial step in eliminating the advantage of "haves" over "have-nots," and they oppose both elementary school tracking and distinctive high school curriculums on the grounds that these arrangements doom certain students to subordinate roles in adult life.

The evidence discussed in this book has convinced us, and may even convince some readers, that such arguments are misguided. Chapters 3 through 8 argue that differences between schools have rather trivial long-term effects, and that eliminating differences between schools would do almost nothing to make adults more equal. Even eliminating differences in the amount of schooling people get would do relatively little to make adults more equal. If this is true, schools ought to be

judged largely by their short-term effects. This does not, in our view, weaken the case for distributing school resources and opportunities equally. But it means that this case is no different from the case for making the distribution of public parks, trash collection, or other public services equal.

Giving everyone an equal claim on educational resources does not mean that everyone must receive equal benefits at any particular moment. If one 17 year old stays in school while another drops out, for example, they will receive unequal benefits in that particular year. Giving everyone an equal claim does, however, imply that we ought to try to create a system in which everyone gets more or less comparable benefits over a lifetime. If an individual does not want to take these benefits in the form of schooling, alternative benefits ought to be available. We begin, then, with the assumption that everyone's lifetime claim should be equal, leaving the burden of proof on those who want to justify deviations from this standard. (A case could be made for distributing educational benefits so as to compensate people for other handicaps, such as poor parents, physical handicaps, mental deficiencies, and so forth. We doubt, however, that education is usually an effective or efficient form of compensation in such cases.)

In discussing the distribution of educational opportunities, we will look first at quantitative differences, then at qualitative ones. We will begin, in other words, by examining disparities in the amount of preschooling, regular schooling, and higher education consumed by different individuals. We will then examine variations in the annual cost of such schooling and make tentative estimates of the resources going to the most- and least-favored portions of the population over their lifetimes. Having looked at inequality in educational expenditures, we will turn to other qualitative differences, first considering variations in children's chances of attending school with the kinds of classmates they prefer, and then considering variations in what schools try to teach different children.

Access to Schools and Colleges

Access to education is far more equal for children between 6 and 16 than for older or younger children. Most states accepted an obligation to provide every child with free elementary schooling during the nineteenth century. Most states had also accepted a similar obligation with respect to secondary schooling by the beginning of the twentieth century. Preschooling (kindergarten and nursery school) is still not uni-

versally accepted as every child's "right," and neither is higher education.

PRESCHOOLS

More children are in preschools today than at any time in the past. Between 1960 and 1970, the proportion of children who spent a year in kindergarten rose from 60 to 80 percent.[1] The proportion attending nursery school rose from 10 to 22 percent during this same period.[2] Increasing the proportion of children enrolled meant a decrease in inequality, at least if inequality is defined in standard statistical terms.[3]

In 1960, virtually all nursery schooling was private, and attendance was largely confined to the white middle class. By 1970, about 30 percent of all nursery schooling was public. Most public nursery schools were part of the Head Start program and were restricted to children with low-income parents. As a result, there were proportionately more blacks than whites in nursery school by 1970.[4]

Most kindergartens have been public for many years. But unlike Head Start, kindergartens have not made any special effort to recruit the poor or exclude the rich. As a result, about 82 percent of white children now attend kindergartens as compared to 70 percent of black children.[5]

Unfortunately, we cannot tell how many of the children who do not attend preschool would do so if one were available. Thus, we cannot say how much of the inequality we observe is due to variations in taste and how much is due to the vagaries in the public provision of such services. Neither can we tell to what extent the difference between black and white enrollment rates reflects differences in taste, and to what extent it reflects differences in access. Both are apparently involved to some degree.[6]

ELEMENTARY SCHOOLS

Since the Civil War, the majority of Americans have completed elementary school (i.e. eighth grade).[7] Yet until fairly recently there have been many exceptions, particularly among children whose parents lived on farms and among ethnic minorities. As these two groups were assimilated into the majority culture, however, they adopted majority norms about schooling—norms that were increasingly backed by legal compulsion. Today 99.2 percent of all children between the ages of 6 and 13 are in school.[8] Thus, we can hardly talk about inequality in access to elementary schooling. At this level almost all inequalities are qualitative.

SECONDARY SCHOOLS

A little over 40 percent of all adolescents were entering high school in 1914, and about 25 percent were finishing. The average age for entering the labor force was about 15. By the mid-1960s, 94 percent of all students spent at least a year in high school and 82 percent graduated. The average age for entering the labor force was about 19.[9]

Whether students stay in school depends to some extent on their upbringing and expectations. In the middle 1960s, for example, 34 percent of all blacks left high school without graduating, compared with only 16 percent of all whites.[10] Similarly, whites from working-class families are more likely to leave high school than whites from middle-class families.[11] This does not necessarily prove that poor or black students have less opportunity to use high schools than other students. But it does prove that public funds are being used to subsidize a service which is used by the white middle classes more than by other groups.

HIGHER EDUCATION

American colleges have always been selective institutions. Except for a slight lag between World War I and World War II, about half the students who finished high school have entered college. Furthermore, about half those who entered college have graduated.[12] The proportion going on to some kind of graduate work has also been relatively constant. Thus, in the 1920s about 40 percent of the population finished high school, just under 20 percent entered college, just under 10 percent finished college, and just under 5 percent did some kind of graduate work. Today, 80 percent graduate from high school, almost 40 percent enter some kind of college, almost 20 percent graduate, and almost 10 percent do some kind of graduate work.

It is hard to say to what extent the selectivity of higher education represents a denial of equal opportunity, and to what extent it results from variation in people's appetite for education. We can say, however, that America has never tried to make college attendance strictly a matter of taste or talent. State legislatures are quite complacent about the fact that it is easier for students who get money from home to attend college than for students who get nothing from home. If students without money from home can get through college at all, by working, borrowing, and making all kinds of personal sacrifices, opportunities are equal enough to salve most political consciences. Thus it is not entirely accidental that 87 percent of all high school graduates

whose families earned $15,000 or more entered college in 1967, as compared to only 20 percent of those whose parents earned less than $3,000.[13] Chapter 5 indicates that money per se accounts for only part of this difference, but it is certainly a factor of some consequence.

Money aside, America has provided higher education only for students with certain talents and interests. Definitions of what can be taught in a college and who should attend such institutions have broadened steadily for 200 years, but they are still not all-embracing. Most educators and laymen still assume that large numbers of students are not "college material," and that these students should go directly from high school into the labor force.

The net effect of all this is that public subsidies for higher education are even more concentrated on middle-class children than are public subsidies for high schools.[14] Students who are not temperamentally equipped for academic work, or who have no money from home and no appetite for self-sacrifice, get no direct benefit from these subsidies.

OVERALL INEQUALITY

The proportion of people finishing elementary and secondary school has increased much faster than the proportion entering college or graduate school. The educational "floor" has thus risen much faster than the "ceiling," making the distance between the floor and ceiling smaller. The number of years people spend in school is therefore increasingly equal.

Table 2–1 summarizes the pattern of change over the last 40 years. It presents two statistics, the "standard deviation" and the "coefficient of variation," which will be unfamiliar to many readers. Those who want an explanation should see Appendix C. One simple rule for those who merely want to interpret the table is that when the means are similar, a large standard deviation indicates more inequality than a small standard deviation. In order to make the comparison more precise, we divide the standard deviation by the mean to obtain the "coefficient of variation." This will be our measure of inequality throughout this book. Table 2–1 shows, for example, that the coefficient of variation declined from 0.42 to 0.23, or 45 percent, over a forty-year period. We will therefore say that inequality in years of schooling declined by 45 percent.

To make the statement more concrete, let us divide the population of the United States into fifths, according to the amount of schooling each individual has had. Among people born at the turn of the century, the most educated fifth received an average of 14 years of schooling,

TABLE 2–1
Years of Regular Schooling Completed by Different Population Groups

Group		Mean	Standard Deviation	Coefficient of Variation	(Median)
All Individuals					
Born:	1895–1904	8.90	3.76	0.42	(8.8)
	1905–1914	9.94	3.63	0.37	(10.5)
	1915–1924	10.86	3.30	0.30	(12.2)
	1925–1934	11.47	3.21	0.28	(12.3)
	1935–1939	11.90	2.92	0.25	(12.5)
	1940–1944	12.20	2.80	0.23	(12.6)
Males					
Born:	1895–1904	8.77	3.89	0.44	(8.7)
	1940–1944	12.39	3.00	0.24	(12.6)
Females					
Born:	1895–1904	8.96	3.65	0.41	(8.9)
	1940–1944	11.99	2.57	0.21	(12.5)
Whites					
Born:	1895–1904	9.18	3.65	0.40	(8.9)
	1940–1944	12.31	2.77	0.22	(12.6)
Blacks					
Born:	1895–1904	5.91	3.76	0.64	(5.1)
	1940–1944	11.10	2.77	0.25	(12.2)

Source: Rows 1–14 were derived by Norma Raines for CEPR from U.S. Bureau of the Census "Educational Attainment in 1969," Table 1. In calculating means and standard deviations, individuals reported as having 0 to 4 years of school were allocated as follows: 25 percent to 0 years, 25 percent to 1.5 years, 50 percent to 3.5 years. Individuals reporting 5 or more years of college were allocated as follows: 50 percent to 17 years, 25 percent to 18 years, 25 percent to 19 years. Preschooling is excluded. Beverly Duncan obtained fractionally lower means using slightly different assumptions (see her "Trends in the Output and Distribution of Schooling").

while the least educated fifth received 3.7 years. Thus, the most educated fifth had spent almost four times as many years in school as the least educated fifth. The most educated fifth of those born during World War II spent only twice as much time in school as the least educated fifth.[15]

Another way to look at the trend data is to compare the difference between random individuals born at the turn of the century and 40 years later. If we picked pairs of individuals born between 1895 and 1904 at random, we would find that the difference between one and the next averaged 4.2 years. If we picked random individuals born between 1940 and 1944, the average difference would be 3.2 years.[16]

Table 2–1 also shows that blacks used to get far less schooling than whites but that the gap has been declining in both relative and absolute

terms. It shows that women used to get more education than men (because they were more likely to finish high school) but that they now get less education than men (because almost everyone now finishes high school and women are less likely to attend college and graduate school). We also know from other sources that the children of white-collar workers used to get about 1.7 years more schooling than the children of blue-collar workers, and that they now get about 1.5 years more schooling.[17] The narrowing of this gap is explained by the increase in the minimum amount of education received by almost everyone. The importance of class background relative to other sources of variation in educational attainment does not appear to have changed at all.[18]

CONCLUSIONS

We draw three conclusions from all this. First, different individuals and groups get quite unequal shares of the nation's educational resources. Nonetheless, the amount of time people spend in school is more equal than most of their other experiences. Blacks get 10 percent less schooling than whites, for example, even though their parents make a third less money. Blue-collar children spend 13 percent less time in school than white-collar children whereas their parents' incomes are 26 percent lower.[19]

Our second conclusion is that access to low-cost educational services is more equal than access to high-cost services. Elementary and secondary schooling cost relatively little per student, so almost everyone gets them. Preschooling and higher education cost two or three times as much per pupil as regular schooling, so only a fraction of the population has access to them. When education is available only to a minority, this minority is usually academically talented or otherwise advantaged. Head Start is the main exception.

Inequalities of this kind are hard to reconcile with any theory of equal opportunity. Were it not for the recent shifts in the character of the Supreme Court, they might even be subject to legal challenge. If, as a series of lower courts held during 1971–1972, it is unconstitutional for a state to finance elementary and secondary education in such a way that some children receive substantially greater benefits than others, this same reasoning ought in theory to be applicable to higher education. The present system of state subsidies provides disproportionate benefits to those who happen to live within commuting distance of a public college and to those whose parents are willing and able to pay part of the cost. This violates the spirit of the equal protection clause in much [illegible] as a system of school finance that provides disproportionate benefits to those living in rich school districts. This seems doubly true in light of our finding, to be discussed in Chapters 6 and 7, that the amount of schooling people get influences their chances of entering a high-status occupation far more than the annual cost of their schooling.

Nonetheless, our third conclusion is that making all education free would not suffice to equalize people's actual use of either schools or colleges. Indeed, we cannot imagine *any* noncoercive way to equalize consumption of educational services. We therefore conclude that what America needs is a system of finance which provides alternative services to those who get relatively few benefits from the educational system. If people do not want to attend school or college, an egalitarian society ought to accept this as a legitimate decision and give these people subsidized job training, subsidized housing, or perhaps simply a lower tax rate.

Such a proposal will shock those who think that attending school is good for people. From their viewpoint, America has a positive interest in keeping people in school rather than giving them other alternatives. We are very skeptical about such claims. When a student feels he is not benefiting from school, we suspect he is usually right. If he decides to quit, he should not be expected to pay for the continued education of the students who remain. Instead, he should receive some other service that he values as much as they value staying in school.

Expenditure Differences between Schools and Individuals

There are at least three distinct traditions for evaluating school quality. The first and most popular approach is to equate quality with cost. A second tradition equates quality with social exclusiveness. A third tradition equates quality with what a school teaches, or tries to teach. The next three sections of this chapter will describe inequality between and within schools from these three perspectives, looking at differences between expenditures in one school and another, differences in the racial, economic, and academic composition of different schools, and differences in what schools try to teach students enrolled in different tracks and curriculums.

Before describing expenditure differences between schools, a brief comment on the rationale for looking at expenditures may be helpful.[20] As we will see in Chapters 3 and 5, no specific school resource has a consistent effect on students' test scores or on students' eventual educational attainment. Thus if we valued school resources solely in terms of their long-term effects on students, we might well conclude that schools

with few resources were as good as schools with ample resources. We do not believe this, however. Children spend between a sixth and a quarter of their lives in school. Teachers and administrators spend even more of their lives in schools. The quality of life in a school is therefore important, even if it has no effect whatever on students' chances of adult success. It is bad for children to be hungry, whether or not hunger produces brain damage, and it is bad for children to be miserable or bored in school, regardless of whether misery and boredom in school lead to misery and boredom in adult life.

We have no way of proving that the quality of teachers' and students' lives is affected by the resources available to their school. We do know, however, that both teachers and students *feel* there is a connection. Virtually everyone prefers small classes, new buildings in which the paint is not peeling off the walls, plenty of books in the school library, and teachers who are paid enough so they do not have to take a second job. We cannot say which of these expenditures does the most to improve the quality of people's lives and which does the least. All we can do is assume that each school district (and each school) does the best it can to make school life more satisfactory with whatever resources it has. This "best" may not be very good. It usually involves sacrificing some people's interests (usually children's) to other people's (usually adults'). Still, the more resources a school has, the less often it is likely to have to sacrifice anyone's interests. If there is enough to go round, even the have-nots may get something. We will therefore assume that well-financed schools are better for their students in the short run than poorly financed schools.[21] We will assume this despite the evidence, discussed at length in later chapters, that well-financed schools do not make much difference to students' long-run cognitive development or adult success.

There are three distinct sources of variation in school expenditures: differences between states, differences between districts in the same state, and differences between schools in the same district.

DIFFERENCES BETWEEN STATES

In 1969–1970, the average American school spent $783 per pupil. Schools in New York State spent an average of $1,237, while schools in Alabama spent an average of $438. These were extreme cases, however. Thirty of the 50 states spent between $600 and $880 per pupil.[22]

Inequality between states is declining, but this is not because federal aid is increasing. The federal government paid only 9 percent of the total cost of public schooling in 1969, and these funds were not distributed in such a way as to reduce inequality much.[23]

Expenditure differences between states depend largely on differences in states' tax bases.[24] Wealth and income differences between states have been shrinking, so expenditure differences have done the same.[25]

DIFFERENCES BETWEEN DISTRICTS

Expenditure differences between districts in the same state are probably less than the differences between states.[26] This is not because school districts in the same state have equal incomes from local sources. The tax bases of districts in the same state are as unequal as the tax bases of different states. However, state governments almost always do more to reduce expenditure differences between districts than the federal government does to reduce differences between states.[27]

The average state government pays about 40 percent of the cost of public education within its borders, whereas the federal government pays only 9 percent. This means that if the state gives the same amount per pupil to every district, without considering need, it will automatically reduce inequality between districts by a moderate amount. If, for example, one district spent $800 per pupil, while another spent $1,200, the richer would be spending 50 percent more than the poorer. If the state then gave $200 per pupil to both districts, expenditures would be $1,000 and $1,400, and the richer would be spending only 40 percent more than the poorer. A number of states go beyond this, giving more aid to poor districts than to rich ones. Formulas which purport to do this have become increasingly popular in recent years. Their implementation has, however, often been hedged with so many restrictions that the ultimate effect is not nearly as redistributive as the basic formula might lead people to expect. As a result, the degree of inequality between districts in the same state still depends largely on the percentage of local funds coming from the state and only secondarily on the specific formula governing distribution of the state's funds.[28]

We have no trend data on inequalities between districts in the same state. We suspect that disparities between rich and poor districts' tax bases have declined, since many very poor rural districts have been consolidated with somewhat more affluent ones. State aid is also more redistributive than in the past, simply because there is more of it. The percentage of school funds coming from the state rose from 17 percent in 1920 to 40 percent in 1950, although it has not risen since then.[29] This means that the "natural" level of redistribution rose until 1950 and then stabilized. Aid formulas may have become slightly more

redistributive since 1950, although this is far from certain. Unless state or federal aid increases dramatically, or the Supreme Court upholds recent lower court decisions requiring state legislatures to revamp their aid formulas, there is not likely to be much movement toward equality in the forseeable future.

DIFFERENCES BETWEEN SCHOOLS IN THE SAME DISTRICT

Unlike federal and state governments, local school boards do not have to "offset" the effects of neighborhood differences in wealth in order to ensure equal expenditures. All they have to do is give every school the same amount. Under these circumstances it is even harder to justify inequality between schools in the same district than inequality between districts. Nonetheless, such differences persist, though they are not as large as differences between districts and between states.[30] We know no trend data on these disparities.

LIFETIME INEQUALITIES IN EXPENDITURES ON INDIVIDUALS

Inequalities in annual expenditures may be either exacerbated or offset by inequalities in the length of time students stay in school. The student who drops out at the age of 16 is likely to get less than his share of public funds, even if he attends high-cost schools prior to 16. The student who attends a publicly subsidized college and graduate school is likely to receive more than his share of public funds, even if he attends relatively low-cost institutions at each level.

We have no good data on the degree of lifetime inequality in public expenditures on individual students. We have, however, made some crude estimates. We began by ignoring expenditure differences between one school and another. On this basis, we estimated that the most extensively educated fifth of the population received about 75 percent more than their share of the nation's educational resources, while the least extensively educated fifth received about half their share.[31] Such disparities are declining because disparities in the number of years of schooling people receive are declining.[32] Some people, however, get *both* protracted schooling *and* schooling that costs a lot annually. The eventual resource disparity between the most- and least-favored students is thus at least 4 to 1, and perhaps more.

RICH CHILDREN VERSUS POOR CHILDREN

Most people are not primarily concerned with random injustices that fall on rich and poor alike. They are concerned with expenditure differences between schools and individuals because they see this kind of inequality as part of a more general system in which the poor and the black get less than the rich and the white. Even if the effects of school expenditure on adult inequality are trivial, it is still important for poor and black children to get their share of the nation's resources while they are children.

We know that poor states spend less on education than rich ones, and that poor districts within a state spend less than rich districts in the same state. We also know, however, that many rich parents live in poor states and districts, and that many poor parents live in rich ones. As a result, expenditures on rich and poor children do not differ as much as we might expect. If two families' incomes differ by $1,000, their districts' average expenditure per pupil will only differ by an average of about $7.50 per year.[33]

Within any given district, schools serving predominantly middle-class areas typically spend a little more than schools serving poorer areas, but the differences are small and inconsistent.[34] Overall, the evidence suggests that the richest fifth of all families have their children in schools that spend about 20 percent more than the schools serving the poorest fifth.[35] For families whose incomes differ less dramatically, expenditure differences are correspondingly less. A few rich families use high-cost private schools, but this is exceptional.[36]

In a country where the top fifth of all families receives 800 to 1,000 percent more income than the bottom fifth, the fact that children from these same families attend schools whose expenditures differ by only 20 percent seems like a triumph of egalitarianism. Before a national celebration is begun, though, we must also take note of the fact that children from rich families stay in school longer than children from poor families. When we take this into account, we estimate that America spends about twice as much on the children of the rich as on the children of the poor.[37]

WHITES VERSUS BLACKS

Black children are more likely to live in poorly financed school districts than white children. This is because more black children than white children live in the South. Within either region, blacks and whites have about the same chance of being in an affluent district.[38] This may surprise readers who think of northern blacks as living in impoverished cities and of northern whites as living in affluent suburbs. Fortunately, most northern cities are not all that impoverished. Big city schools generally spend about as much per pupil as the state in which they are

located. (Of course they may need more than the state average, but that is another issue.) While some whites live in affluent suburbs, many live in small towns and working-class suburbs where the schools spend less than in big cities.

We do not have good national data on differences in expenditure on blacks and whites in the same district. Local studies suggest that some districts discriminate against black children while others discriminate in their favor. Boston, where the school board is notoriously antiblack, seems to spend slightly more money on black than white pupils.[39] Chicago spent substantially less on blacks in 1961, but had apparently reduced the gap to zero by 1966 as a result of intense political pressure and help from Title I.[40] New York City moved from favoring whites in the 1950s to favoring blacks and Puerto Ricans in the late 1960s.[41] In Detroit, there was discrimination against blacks in the early 1960s and this persisted throughout the decade, despite the fact that Detroit had one of the most liberal school boards in the country. The differences were quite small, however. In 1969, for example, Detroit's predominantly black schools spent about 12 percent less than white schools.[42] Washington, D.C. is the only city for which we have recent data showing large differences (i.e. about 25 percent) between expenditures in white and black schools.[43] We assume that there was a similar pattern in many other southern cities prior to the start of wholesale busing. As southern schools desegregate, however, expenditures on black and white children inevitably even out somewhat.

All in all, blacks suffer from living in the South, and they often also suffer from being in schools that get slightly less money than the average for their district. Our best guess is that America spends about 15–20 percent more per year on the average white child than on the average black school child.[44] These disparities are probably declining, however, because blacks are moving out of the South, because blacks in the South are moving into the same schools as whites, and because some northern cities are allocating more funds to black schools in order to head off pressures for busing.

The picture is complicated by the fact that whites stay in school longer than blacks. As a result, blacks born at the turn of the century probably had less than half as much spent on their education as whites. Blacks born during World War II probably had something like two-thirds as much spent on their education as the average white. Blacks now in school will probably have three-quarters to four-fifths as much spent on them as whites do.[45]

CONCLUSIONS

America spends far more money educating some children than others. These variations are largely explained by where a student happens to live and how much schooling he gets.

Unequal expenditures do not, as we shall see, account for the fact that some children learn to read more competently than others, nor for the fact that some adults are more economically successful than others. The case for equalizing expenditures must therefore rest on a simpler logic, which asserts that public money ought to be equitably distributed even if the distribution of such money has no long-term effect. There is no evidence that building a school playground, for example, will affect the students' chances of learning to read, getting into college, or making $50,000 a year when they are 50. Building a playground may, however, have a considerable effect on the students' chances of having a good time during recess when they are 8. The same thing is probably also true of small classes, competent teachers, and a dozen other things that distinguish adequately from inadequately financed schools.

Adequate school funding cannot, then, be justified on the grounds that it makes life better in the hereafter. But it can be justified on the grounds that it makes life better right now. This suggests that students' and teachers' claims on the public purse are no more legitimate than the claims of highway users who want to get home a few minutes faster, manufacturers of supersonic aircraft who want to help their stockholders pay for Caribbean vacations, or medical researchers who hope to extend a man's life expectancy by another year or two. But neither are the schools' claims any less legitimate than the claims of other groups.

Access to Privileged Schoolmates

Many people define a good school not as one with fancy facilities or highly paid teachers, but as one with the right kind of students. A definition of this kind makes it hard to provide good schooling for everyone. Once a "good" school starts taking in "undesirable" students (the definition of desirable being sometimes academic, sometimes social, and sometimes economic), its standing automatically declines. From this perspective, then, the quality of a school depends on its exclusiveness. Sometimes this exclusiveness is written into law, as in the case of racial segregation. Sometimes it is merely a by-product of

the law, as in the case of zoning that excludes low-income families from high-income neighborhoods and hence from high-income neighborhood schools. Sometimes exclusiveness is a by-product of the "free market." This is the case in neighborhoods whose housing prices reflect the reputation of the neighborhood school. Such a neighborhood attracts only families that are willing to pay extra for what they assume is "quality" education.

Subsequent chapters suggest that people who define a good school in terms of its student body are probably wiser than those who define it in terms of its budget. We have found some evidence that an elementary school's social composition has a modest effect on students' cognitive development, as well as some evidence that a school's racial composition has a modest effect on black students' later occupational status. The effects are generally small, and the evidence is far from conclusive, but it is more convincing than the evidence purporting to show that expenditures matter.

Whatever its long-term effect, the character of the student body determines what friends a student is likely to make, what kinds of values he will be exposed to, and often whether he will be happy or unhappy. As a result, many parents make great sacrifices to get their children into a school with what they regard as the right schoolmates. Just as we accept the proposition that equalizing expenditures is part of equalizing educational opportunity, even though equalization has no long-term effects, so, too, we accept the proposition that equalizing access to desirable schoolmates is part of equal opportunity, even though its long-term effects are problematic.

Unfortunately, it is not always easy to tell what kind of schoolmates parents or children regard as desirable. Polls show, for example, that all other things being equal most black parents would rather send their children to a racially mixed school than to an all-black school. But all other things are rarely equal, and experience with open enrollment does not suggest that most black parents in the North want their children bused long distances to desegregated schools unless these schools also have other advantages.

Nonetheless, a great deal of public discussion assumes that all parents and children prefer schools in which the students are advantaged (i.e. white, middle class, academically talented, or all three). If this assumption were correct, equalizing opportunity would mean making the social composition of every school the same. Such a school system would be completely desegregated—racially, economically, academically, and in any other way that seemed relevant. Every child would have

precisely the same proportion of advantaged and disadvantaged schoolmates.

If everyone wanted the same kind of schoolmates, we could measure inequality of opportunity by measuring the amount of variation in the composition of different schools. The less variation we found, the closer we would say the schools had come to equalizing opportunity (opportunity in this case being defined as contact with advantaged schoolmates). The only difficulty with this approach is that some disadvantaged parents and students may not be enthusiastic about schools in which most of the parents and students are better off than they. Some black students prefer predominantly black schools, some working-class students prefer predominantly working-class schools, and some low-aptitude students prefer schools where there is little academic competition. To the extent that students prefer schoolmates like themselves, they prefer segregated rather than desegregated schools.

It can, of course, be argued that schools should be completely desegregated regardless of what people want. Those who take this position usually assume, however, that segregated schools lead to poor reading scores, exclusion from higher education, and diminished chances of earning an adequate living. They also assume that parents and students who prefer segregated schools are unaware of this cost and would change their views if they realized how much harm their parochialism was doing their children. As we shall see, the measurable effects of segregation on students' later lives are small and uncertain. Blacks and working-class whites who prefer schools they feel are their own cannot, then, be faulted on the grounds that they are denying their children equal opportunity. Their children will not usually have completely equal opportunity no matter what schools they attend, but desegregation will only make a marginal difference.

Some people accept all this but argue that schools should be desegregated for political reasons, regardless of how desegregation affects individual opportunity. Many believe, on the basis of extremely scanty evidence, that exposing children to people unlike themselves helps develop tolerance and understanding. Others see school desegregation as part of a political process in which diverse people (adults as well as children) are forced to accept the fact that they have to live with one another. They assume this will be a good thing for society in the long run, even if it increases tension in the short run. We know no way to judge the validity of this latter argument, but we have considerable sympathy with it.

The remainder of this section will discuss the extent of racial, eco-

nomic, and academic segregation in America's public schools. We will not try to calculate the extent to which segregation is voluntary or involuntary, although we think it fair to assume that voluntary segregation is the exception rather than the rule.

Until recently, most American children attended schools that were either all white or all black. In the South, racial segregation was required by law until 1954, and it persisted on a de facto basis until the late 1960s. In 1965, for example, when the federal government made its Equality of Educational Opportunity Survey (EEOS), about 90 percent of the black children in the South were still attending black schools (i.e. schools that were more than 80 percent black).[46] By 1968, only 80 percent of southern blacks were in black schools, and by the fall of 1970 the figure had fallen to about 40 percent.[47] It is not clear how much further the Supreme Court will require southern school districts to go toward complete desegregation, but the proportion of southern blacks in all-black schools is likely to end up well below 40 percent.

In the North, many states have never had laws requiring segregation. Such laws as once existed were repealed well before 1954. Nonetheless, most northern schools remain racially segregated. In 1970, the Department of Health, Education and Welfare found that 57 percent of black northern children were attending segregated schools. If anything, this was an increase over 1965.[48] In general the situation is worse in elementary than in secondary schools.[49]

Economic segregation is far less pervasive than racial segregation. While it would be an exaggeration to say that every school is a microcosm of the larger society, this is certainly closer to the truth than the opposite exaggeration, which portrays every school as uniformly middle class or lower class. These terms describe the dominant group in a school, not a uniform pattern. The range of economic backgrounds in the typical elementary school is only 15 to 20 percent less than for the nation as a whole.[50] A few schools are more homogeneous than this, but hardly any public school enrolls uniformly affluent or uniformly poor students. This means that a poor child has a much greater chance of being in a school with a lot of middle-class children than a black child has of being in a school with a lot of white children.[51]

Schools are also segregated in terms of academic competence. This means that children with low test scores have a better than average chance of ending up in schools where most of the other children also score below average. This is largely because of economic and racial segregation, but there are also differences in the academic competence of students entering different schools at the same economic level. The most plausible explanation for this is that some parents in any given economic stratum have a stronger interest than others in their children's cognitive development. These parents appear to concentrate in neighborhoods where the schools have a good reputation. They also tend to have children who score above the norm for their economic group. The result is a moderate degree of academic segregation, over and above what we would expect on the basis of racial and economic segregation alone. The degree of academic segregation is about the same as the degree of economic segregation, which means it is considerably less prevalent than racial segregation.[52]

Access to Fast Classes and College Curriculums

We suggested at the outset that there are three popular definitions of a good school: schools that spend a lot of money, schools that enroll the right students, and schools that teach the right subjects in the right way. In America, however, there is not much difference between the formal curriculums of most public schools. Studying the right subjects is largely a matter of being in the right track or curriculum within a given school.

At the elementary level, almost all children are expected to acquire the same basic skills, but some children are expected to acquire these skills faster than others. This often leads to "ability grouping" or "tracking." Tracking means putting fast learners in separate classes from slow learners. Ability grouping may involve tracking, but even when schools assign children to classes randomly, teachers often group the children by ability within the classroom.[53]

At the secondary level there are also variations in course content, which supposedly reflect variations in students' interests, as well as variations in their ability to do academic work. In many cases students are formally assigned to a "college preparatory" curriculum, a "technical" curriculum, a "business" curriculum, or a "general" curriculum. There are sometimes further distinctions between fast and slow tracks within these curriculums.

A 1967 National Education Association survey found that tracking was quite common at the elementary level. Twenty-seven percent of all districts reported that they grouped all elementary school pupils by ability, 43 percent reported that they only grouped some children, 25 percent reported random grouping, and 5 percent did not report. In districts that did not track students, some teachers presumably grouped

students by ability within their classroom. At the secondary level, 85 percent of all districts reported ability grouping.[54] The practice seems to be favored by the overwhelming majority of teachers.[55]

A student's track or curriculum is the single most important determinant of what the school will try to teach him. If anything the school does to a student makes any difference, this should be it. Tracks and curriculums are by definition segregated in terms of academic ability. This almost inevitably means they are also segregated, albeit to a lesser extent, in terms of social class and race. Indeed, the character of a student's classmates depends at least as much on his track or curriculum as on the school he attends.[56] Thus if school segregation is a denial of equal opportunity, curriculum assignment is susceptible to the same objections.

Neither track nor curriculum assignment seems to have an appreciable effect on students' cognitive development.[57] High school curriculum assignment does, however, have some impact on a student's chances of attending college.[58] This means it has some indirect effect on later occupational status and earnings. In turn, elementary school track assignment may influence high school curriculum assignment. Furthermore, even if track or curriculum assignment has no long-term effects, it has important short-term effects on the lives of the children involved. For these reasons it seems important to find out how schools actually assign children to tracks and curriculums.

In northern urban high schools, EEOS found that 84 percent of all high school seniors said they were in the curriculum they wanted to be in. Ninety percent of those in the college curriculum said they wanted to go to college. Sixty-two percent of those in other tracks said they did not want to go to college.[59] Unfortunately, we cannot determine when these preferences and aspirations were first formed. We do not know whether most students were originally put in the curriculum they wanted to be in, or whether they simply adapted their tastes to reality once the school authorities had defined reality for them. Roughly 15 percent of all students in noncollege curriculums said they were still unhappy about it.

After personal preference, the next most important determinant of curriculum placement seems to be academic ability. The correlation between test scores and curriculum assignment is around 0.50.[60] (Readers who are unfamiliar with correlation coefficients may wish to read the explanation of measures of association in Appendix C. The size of a correlation coefficient can range from -1.0 to +1.0. The closer a correlation coefficient is to 0, the weaker the association between the two variables. Coefficients close to -1.0 indicate a strong negative relationship; one variable goes up when the other goes down. Coefficients close to +1.0 indicate a strong positive relationship.)

To our surprise, social class did not seem to play an important role in high school curriculum placement, except insofar as it influenced test scores. Among northern urban students with the same test scores, those with white-collar parents were only 3 percent more likely to be in the college curriculum than those with blue-collar parents.[61]

Even more surprising, EEOS showed that northern urban blacks were 2 percent more likely to be in the college track than whites with comparable test scores in the same school. When we compared blacks and whites of comparable economic background as well as comparable test scores, we found that the blacks were 7 percent more likely than the whites to be in the college track. This was partly due to the fact that the blacks had higher aspirations than whites of comparable background and ability in the same school. In addition, in the three all-black northern 4-year high schools covered by EEOS, blacks had higher aspirations and were more likely to be in the college track than similar blacks in integrated high schools. The differences were not large enough to warrant sweeping conclusions, but they certainly do not suggest that desegregation boosts a student's chances of being in a college curriculum.[62]

When we turn from high schools to elementary schools, the facts are harder to determine. The 1967 NEA survey referred to earlier provides data on how administrators say children are tracked. Most districts report using a combination of test scores and teacher recommendations, but some also say they take into account grades, social maturity, and parental desires. Larger districts place more emphasis on test scores than smaller ones. Folklore and anecdotal evidence suggest that race and class also have considerable influence, over and above test scores, but that is what the folklore led us to expect at the secondary level too, and our expectations proved wrong.

In the absence of national data on how American elementary schools actually assign children to tracks, our findings about England may be of interest. English primary schools assign children to streams largely on the basis of teachers' assessments. Teachers take account of test scores in judging students' ability, but other unidentified characteristics also play a role. Social class is among these characteristics, but its role is very small—comparable to its role in American high school curriculum assignment.[63]

The fact that schools do not discriminate directly against black or

working-class students does not, of course, mean that these students are proportionately represented in the fast tracks or in college curriculums. They are invariably underrepresented, both because they are less likely to have high test scores, and because they are less likely to want to go to college.

Excluding students from the college curriculum on the basis of their test scores is widely accepted as necessary and legitimate. In our view, however, it is neither. It is true that students with low scores are less likely to do competent work in high school and less likely to enter college than students with high scores. If the college curriculum were like college itself—an expensive luxury which society perhaps cannot afford to give everyone—restricting access to it would perhaps be unavoidable. Test scores would then be one of the many factors that high schools might take into account in rationing scarce places. In point of fact, however, it costs no more to have a student in the college curriculum than in the general curriculum, and it costs less than having him in a technical curriculum. The only argument for excluding a student who wants to enter the college curriculum is therefore that he cannot possibly do the work. However, some students with quite low test scores can do the work in a college curriculum, and also in a college.[64] The use of test scores to exclude students from the college curriculum cannot, then, be justified in terms of either necessity or equity. It is mainly a matter of bureaucratic convenience and "maintaining standards."

Elementary school tracking on the basis of test scores is subject to some of the same objections as high school curriculum assignment. Test scores have a fairly strong relationship to how much and how easily children learn, but the relationship is far from perfect. In addition, some children's competence varies from one subject to another. This means that any assignment policy that applies to all different skills is bound to be wrong in some cases. Equalizing opportunities to learn requires a system that is flexible enough to respond to children's specialized abilities, to changes in their performance over time, and to discrepancies between test scores and other kinds of performance. Ability grouping by classroom almost never achieves this.

The most obvious alternative to placing students on the basis of test scores, grades, and other similar criteria is to let students place themselves. This is not feasible at the elementary level, which is one good reason not to track elementary school children at all. At the secondary level, substantial numbers of schools, especially in the West, have abandoned the whole idea of separate curriculums. They simply

offer a variety of courses and allow each student to work out a program that suits his interests and plans. But even if a high school offers distinct curriculums, there is no reason why it cannot let the students decide for themselves which one they want to pursue. Some students would undoubtedly make the wrong decision, but then high schools also make a lot of mistakes when they start making decisions for students.

The evidence we have reviewed suggests that the existing system of curriculum choice is already more heavily influenced by what students say they want than by anything else. To the extent that this is so, the system provides what we think of as "equal opportunity." This does not, however, mean that the system is in any sense ideal. It can be argued that eighth and ninth graders should be discouraged from making *any* irrevocable decisions about their future. If so, perhaps everyone ought to be assigned to a college curriculum, so as to keep open the possibility of later attending college.

The evidence also underlines the limited value of equalizing "opportunity" without equalizing anything else. Students are not all equally talented, equally ambitious, or equally hard working. A system which provides everyone with equal opportunity will ensure that the more talented, ambitious, and diligent succeed, while others fail. Some will choose curriculums that lead nowhere, because such curriculums involve less work in the short run. Some will eschew college, because they dislike the idea of spending 4 more years reading books. Some will avoid high-status jobs, because they are afraid of responsibility or even of success. The fact that this happens does not prove that the students' educational opportunities were unequal; it proves that equal opportunity is not enough to ensure equal results.

Conclusions about Inequality in the Schools

The evidence reviewed in this chapter suggests that educational opportunities are far from equal. This inequality takes several forms. First, resources are unequally distributed. Second, some people have more chance than others to attend school with the kind of schoolmates they prefer. Third, some people are denied access to the curriculums of their choice. None of these inequalities appears to us either necessary or just. What, then, might be done to remedy these problems?

Let us begin with the problem of equalizing different students' claims on the nation's educational resources. First, we need to make annual expenditures per pupil more equal. In order to equalize expenditures

in different states, we would need to expand federal aid and drastically revise existing formulas for distributing such aid, so as to concentrate it on poor states. If we want perfect equality between districts in the same state, we must end the schools' dependence on local taxes and raise all school revenue from statewide taxes or federal aid. If we want to preserve some local discretion, we can rely on state aid formulas which make each district's income depend on the local tax rate, but not on the local tax base. "Compensatory" formulas of this latter kind have already been adopted in some states, although usually with severe restrictions. In effect, they compute each district's revenue by assuming that the district has as much taxable property per pupil as the wealthiest district in the state, and that it is taxing all this property at the rate that it actually applies to local property. The difference between the district's theoretical entitlement and its actual income from local taxation is made up by state aid. A formula of this kind results in some inequality, since districts have different tax rates, but the degree of inequality is far less than at present. Finally, if we want to eliminate disparities between schools in the same district, we must persuade school boards to provide extra resources to those schools that now spend relatively little. If, for example, schools in poor areas have high teacher turnover and hence have low average salaries, these schools must be given extra staff or other resources.

All these changes are easy to imagine, though not to implement. They grow naturally out of values that are already widely accepted in American society. But even if we were to succeed in equalizing annual expenditures per pupil, we would still be left with inequities that derive from the fact that some students get more education than others. Unlike differences in annual expenditure, differences in lifetime expenditure strike most people as entirely reasonable. Even those who have a generally egalitarian outlook usually assume that the ideal educational system would provide everyone with as much education as he wanted, and that we would finance this from a progressive income tax. They see no injustice in taxing high school dropouts to finance higher education, so long as the dropout is free to attend college if he wants to.

This attitude seems to us to derive from a mistaken analogy between education and other public services. In general, public services are free either because it is difficult to determine who benefits from them or because the beneficiaries are more needy than the average taxpayer. Public parks fall into the first category, while public hospitals fall into the second. Advanced education falls into neither category. It is easy to identify the primary beneficiaries of subsidies for higher education,

namely the students. It is also easy to predict that on the average these beneficiaries will be better able to pay for their education than is the average taxpayer.

It can be argued, of course, that higher education provides benefits for those who do not attend college as well as those who do. Even the poor, for example, need lawyers. The mere fact of a public benefit is not, however, sufficient justification for a public subsidy. Hot dog vendors, for example, also render a public service, but they do not need a public subsidy. A public subsidy only makes sense if some necessary service will dry up in its absence. If, for example, lawyers earned so little that nobody was willing to pay for his own legal training, legal education might require subsidy. In fact, however, there are plenty of law school applicants, and there would be plenty even if would-be lawyers had to borrow against future income to finance the full cost of their training.

Public discussion of these issues is complicated by widespread acceptance of a false dichotomy. Many assume that there are only two alternatives: a system in which access to education depends on parents' ability and willingness to pay, and a system in which costs are shared by everyone. There is, however, a third alternative. We can create a system in which access to education depends on the *student's* willingness to pay—not at the time he gets his education, but later, when he is presumably enjoying its benefits. Ideally, funds for advanced education probably ought to come from a surcharge on the income tax of those who have had education beyond, say, the age of 16. Failing that, it would still be fairer to finance advanced education through long-term loans to those who attend college and graduate school than through taxes on those who do not attend.

The primary objection to such a system of educational finance is not that it would be inequitable, but that it would probably reduce the overall demand for education. We do not know how many students would drop out of school or college if they knew they would eventually have to pay for it, but some doubtless would. Despite widespread hostility to students as a class, most Americans feel that schooling is a good thing. They are reluctant to impose what looks like a tax on virtue (i.e. staying in school) in order to reduce the cost of vice (i.e. dropping out). If we accepted this basic moral equation, we too would favor a system in which higher education was financed from general taxation. Since we reject the equation of schooling with virtue, we prefer a system in which higher education is financed by taxing those who have benefited from it directly.

Equalizing access to privileged schoolmates is even more controversial than equalizing claims on resources. Busing arouses more passion than state aid formulas. In principle, we believe that an ideal pupil assignment system should give every student an opportunity to attend any public school he (or his parents) find appealing. Indeed, we would go so far as to *define* a "public" school as one that is open to any student who wants to attend. All other schools, regardless of formal control or financing, are to some degree "private."

If we want to give everyone equal access to every school, certain reforms seem necessary. First, school districts ought to admit any student in the district to any school he wants to attend, regardless of whether he lives near the school or far from it. Second, they ought to pay the cost of transporting any pupil to any school in his district. Thus a student from a poor neighborhood who wants to attend a school in a rich neighborhood ought to have precisely the same opportunity to do so as a student who lives in the rich neighborhood. This might, of course, mean that some schools in rich neighborhoods became overcrowded. If this happened, demand might slack off. If it did not, the district could expand the school, using portable classrooms or whatever other expedients seemed feasible. If expansion were really impossible—which it rarely is—applicants could be admitted by lot. If popular schools got too large, they could simply be divided in half. Applicants could then be assigned randomly to one of the two new adjoining schools.

Those who believe in neighborhood schools object to this approach on the grounds that "outsiders will take over our schools." These are likely to be the same people who resist outsiders (i.e. blacks) moving into "their" neighborhood. Committed integrationists also object to such a system, on the grounds that it is simply a warmed-over version of what the North calls "open enrollment" and the South calls "freedom of choice." Such a system does not ensure that every black child will attend school with whites or vice versa. Blacks will only attend school with whites if they apply to schools where whites are enrolled. Whites can escape attending school with blacks if they can find schools that have no black applicants. In a community where blacks are expected to stay in their place, and are subject to all sorts of sanctions if they apply to an all-white school, a system of this kind will achieve almost nothing. In a community where the school administration believes in desegregated schooling and encourages black parents to attend desegregated schools, such a system could produce dramatic changes in attendance patterns. The "liberal" alternative, which is widely viewed as the road to racial equality, seems to be compulsory busing of blacks to white neighborhoods, and vice versa. This implies that black parents cannot send their children to all-black schools, even if they want to, because all-black schools are *by definition* inferior. This position strikes us as both racist and politically unworkable over the long haul.

When we turn from school assignment to curriculum assignment, we again lean to "freedom of choice" solutions. This means we think schools should avoid classifying students whenever possible. At the elementary level, students should be assigned to classes randomly, and teachers should try to respond to students' individual interests rather than expecting all students to learn the same thing. At the secondary level, students should not be segregated into "college preparatory" and "noncollege" curriculums that determine what they must study, but should be free to design their own curriculums from whatever courses the school offers. Students who hope to attend college must be told what academic courses they need to take, and encouraged to take them. But if they also want to take vocational courses, that too should be possible. Students who want some kind of job training should be given it, assuming the school can devise training programs of practical value. But if these students also want to take academic courses, they should also be encouraged to do so on the same basis as anyone else.

These reforms are not likely to make students appreciably more equal after they finish school. They would, however, give every student an equal claim on educational resources, desirable classmates, and interesting subject matter while he was in school. By recognizing that every child's needs are equally legitimate, they would not only make educational arrangements more egalitarian, but might spark similar reforms in institutions that serve adults.

NOTES

1. The Equality of Educational Opportunity Survey (EEOS) showed that among children who entered first grade in 1960 (and were therefore in sixth grade in 1965), 59 percent reported having attended kindergarten (see p. 77 in Mayeske et al., "Item Response Analyses"). The 1960 school enrollment survey (see Tables 2 and 4 in U.S. Bureau of the Census, "School Enrollment: 1960") showed that 49 percent of all 5 year olds were in kindergarten and that another 15 percent were in the first grade. No data were collected on 4 year olds, but since 15 percent of 5 year olds were in first

grade, it seems reasonable to assume that at least 10 percent of 4 year olds were in kindergarten. This would coincide with the EEOS estimate that 59 percent attended kindergarten at one age or another.

The 1970 school enrollment survey (see the U.S. Bureau of the Census, "School Enrollment: 1970") showed that 13 percent of all 4 year olds, 65 percent of all 5 year olds, and 5 percent of all 6 year olds were in kindergarten. Allowing for some repeaters, it seems reasonable to infer that about 80 percent of all 6 year olds had attended kindergarten at one time or another.

2. EEOS found that 12 percent of the children who entered first grade in 1960 (i.e. sixth graders in 1965) and 12 percent of those who entered first grade in 1963 (i.e. third graders in 1965) reported that they had attended nursery school. But first grade teachers reported that only 9 percent of the pupils who entered in 1965 had attended nursery school. (Another 10 percent had attended the summer Head Start program, but the year-round Head Start program did not begin until 1965.) It is unlikely that the percentage in preschool actually fell during the early 1960s. We assume that the apparent change is attributable to the fact that data on the younger children came from teachers rather than from pupils. Ten percent seems a reasonable compromise estimate for this period.

The 1970 school enrollment survey found that 12 percent of 3 year olds, 16 percent of 4 year olds, and 3 percent of 5 year olds were in nursery school. Virtually all those who are in school at 3 are in school again at 4, but about half of all 4 year olds are in kindergarten rather than nursery school. Of the 12 percent who enter nursery school at 3, we therefore assume that around half are in nursery school again at 4. This means that about $16 - (12/2) = 10$ percent of all 4 year olds are entering nursery school for the first time. Most of the 5 year olds in nursery school are probably repeaters. We, therefore, estimate that about 22 percent $(12 + 10)$ of those born in 1966 spent a year or more in nursery school.

3. Throughout the book, inequality is described in terms of standard deviations and coefficients of variation (the standard deviation divided by the mean). An explanation of these concepts will be found in Appendix C. An increase in the coefficient of variation signifies an increase in inequality; a small (close to 0.00) coefficient of variation indicates a low level of inequality.

The mean proportion attending kindergarten in 1960 was 0.60. The standard deviation was, therefore, $\sqrt{(0.6)(1-0.6)} = 0.49$, and the coefficient of variation was $0.49/0.60 = 0.82$. The mean in 1970 was 0.80, the standard deviation was 0.40, and the coefficient of variation was thus 0.50. Between 1960 and 1970 the coefficient of variation for nursery schooling dropped from $\sqrt{(0.1)(1-0.1)}/0.1 = 3$ to $\sqrt{(0.22)(1-0.22)}/0.22 = 1.88$. A Gini coefficient yields a similar result, since the percentage of people receiving 100 percent (or any smaller percent) of the preschooling rose steadily. For a discussion of different measures of inequality, see Alker and Russet, "On Measuring Equality."

4. See the U.S. Bureau of the Census, "School Enrollment: October, 1970."

5. Enrollment data are from the U.S. Bureau of the Census, "School Enrollment, and Education of Young Adults and their Fathers: October, 1960," and "School Enrollment: October, 1970." Kindergarten utilization was estimated by comparing total kindergarten enrollment to the number of 5 year olds and subtracting 3 percent for repeaters, as in note 1.

6. EEOS found that blacks had somewhat less access to kindergartens than whites, largely because they were more likely to live in the rural South where kindergartens are exceptional (see Coleman et al., *Equality of Educational Opportunity*). In the urban North, where blacks are as likely as whites to be in districts with free kindergartens, they are still somewhat less likely than whites to attend (see Jencks, "The Coleman Report and the Conventional Wisdom").

7. See p. 136 in Folger and Nam, *Education of the American Population*.

8. See the U.S. Bureau of the Census, "School Enrollment: 1970."

9. On past attainment, see Table 173 in the U.S. Bureau of the Census, "Characteristics of the Population, Part 1, United States Summary," 1964. Estimates for 1914 are based on all those aged 60–64 in 1960. Estimates for the mid-1960s are from the U.S. Bureau of the Census, "Educational Attainment: March 1971." The figures in the text are for those aged 22–24 in 1971. The percentages "entering high school" are those finishing ninth grade. In addition, an unknown percentage entered but did not finish ninth grade. In a few cases, ninth grade was part of a junior high school. Data on age of entering the labor force were estimated from enrollment data by age group (see the U.S. Bureau of the Census, "School Enrollment: October 1970" for current data).

10. See Table 1 in the U.S. Bureau of the Census, "Educational Attainment: March 1971." The estimates are for whites and blacks aged 22–24 in March 1971.

11. See Table 1 in the U.S. Bureau of the Census, "Educational Change in a Generation," 1964.

12. There are three basic sources of data on continuation ratios: (1) comparisons of enrollment reports at different levels in successive years, (2) follow-up studies of individuals initially enrolled at some level, and (3) retrospective studies of adults who report how far they went. Studies based on enrollment statistics are plagued by incomplete coverage and inconsistent definitions. Studies based on follow-ups of individuals tend to lose large numbers of students. Since retrospective Census reports of educational attainment appear to be quite accurate (see Siegel and Hodge, "A Causal Approach"), they are probably the most reliable way of estimating selectivity.

One limitation of retrospective data is that the Census only publishes information of the highest grade an individual *completed*, not on the highest grade *entered*. Appreciable numbers of individuals enter high school or college but complete less than 1 year. Large numbers also do some graduate work, especially in education, without completing a full year of it.

For a fuller presentation of the Census data on educational attainment, see Folger and Nam, *Education of the American Population*. For attempts

to reconcile attainment and enrollment data see Jencks and Reisman, *The Academic Revolution*, as well as Folger and Nam.

13. See Table 8 in the U.S. Bureau of the Census. "Factors Related to High School Graduation and College Attendance: 1967."

14. For a detailed analysis of this issue see Hansen and Weisbrod, *Benefits, Costs, and Finance of Public Higher Education*, and the controversy surrounding their work in Volumes 4 to 6 of the *Journal of Human Resources*.

15. Throughout the book, we will compare the top and bottom fifths of various distributions. In most cases, these estimates are derived from the mean and standard deviation of the distribution by assuming that the distribution is normal. By averaging Z-scores, we can show that the top fifth of a normal distribution averages 1.4 standard deviations above the mean, while the bottom fifth averages 1.4 standard deviations below the mean. Since the standard deviation of education for individuals born between 1895 and 1904 was 3.76 years, and the mean was 8.9, the best-educated fifth averaged $8.9 + (1.4)(3.76) = 14.2$ years. The other figures can be derived in the same way.

In point of fact, education is not quite normally distributed. The deviations from normality are not large enough to make much difference, however, so we have usually ignored them. For those born between 1940 and 1944, for example, an estimate based on normality implies that the bottom fifth got 68 percent as much schooling as the national average, whereas direct estimation from census tables indicates that the bottom fifth actually got 66 percent as much as the national average. The approximation implies that the top fifth received 132 percent of the national average, whereas direct estimation yielded 133 percent. For those born between 1895 and 1904, the approximation implies values of 41 and 150 percent, whereas the observed values are 42 and 158 percent. For parallel calculations see Beverly Duncan, "Trends in Output and Distribution of Schooling."

Ideally, we would like to be able to estimate "years enrolled" rather than "highest grade completed." Unfortunately, such data does not seem to exist. The disparity between years enrolled and years completed does not appear to be large, however. U.S. Bureau of the Census, "School Enrollment in 1970," Table 7, shows that the standard deviation of years completed among students who are enrolled in school or college and who are the same age is about 1 year. The standard deviation of years completed for students dropping out at any given age is probably quite similar to this. The standard deviation of years completed for all students, regardless of the age at which they quit, is now about 2.8 years. Thus, if all students had attended school continuously, the number of years they had attended would explain about 87 percent $(1 - (1^2/2.8^2))$ of the variance in the highest grade they completed. This implies that years in attendance correlates about 0.93 $(\sqrt{0.87})$ with years completed. Since some people have not been in school continuously prior to dropping out, the true correlation between years of regular enrollment and highest grade completed presumably exceeds this estimate. The standard deviation of years completed for students of any given age was about the same in 1960 as in 1969, but it appears to have been closer to 1.25 years in 1950 (see Folger and Nam, *Education of the American Population*). The standard deviation of schooling for all individuals completing school in 1950 was also higher, i.e. about 3.2 years. Thus, the correlation between years attended and years completed should be about $\sqrt{1 - 1.25^2/3.2^2} = 0.92$. Folger and Nam report evidence that students were held back more often prior to World War II than after World War II. But the variance in attainment was also higher before World War II, so the correlation of attainment with attendance was probably still about 0.9.

Tabulating years enrolled as against years completed would probably reduce the standard deviations shown in Table 2–1 slightly. It would probably also slightly reduce the differences between blacks and whites.

16. This comparison will also be used frequently in the text. The estimate assumes that the difference between random individuals is equal to the standard deviation multiplied by $2/\sqrt{\pi} = 1.13$. This estimate assumes a normal distribution, but deviations from normality do not greatly alter it.

17. See the U.S. Bureau of the Census, "Educational Change in a Generation," 1964. The estimate in the text is based on a comparison between males aged 25–34 and 55–64 in 1962. Men whose fathers worked on farms or who did not report their father's occupation are excluded.

18. See Blau and Duncan, *The American Occupational Structure*, Table 5–3, and the discussions of cohort data in that volume and in Appendix B of this volume. The correlation between father's occupation and son's education showed no trend for men born between 1897 and 1936.

19. Schooling estimated for men aged 25–34 in 1962 (see note 17). Income estimated for all families in 1960, excluding those living on a farm (see Table 230 in the U.S. Bureau of the Census, "Characteristics of the Population, Part 1, United States Summary," 1964).

20. For a quite different approach see Michelson, "The Association of Teacher Resourceness with Children's Characteristics."

21. Ideally, we would like to compare schools' resources by looking at expenditures per pupil and then adjusting this to take account of price differences between one community and another. As a practical matter, however, we will have to settle for simple dollar differences. We are not sure whether expenditure differences overstate or understate differences in purchasing power. This probably depends on what a school wants to purchase. For a discussion of the price of similar teachers in different kinds of schools, see Levin, "A Cost-Effectiveness Analysis of Teacher Selection." Construction prices would vary in quite different ways from teacher prices.

22. The figures are for "current expenditures per pupil in average daily attendance." Since average daily attendance is about 92 percent of enrollment, the current cost per pupil enrolled was about 8 percent lower than the figures in the text. Amortizing capital costs probably adds about 8 percent to "current" costs, however, so the figures in the text are also about right for total cost per pupil. The figures are from p. 122 of the *Statistical Abstract of the United States* (1970).

23. See Grubb and Michelson in "States and Schools."

24. On the determinants of states' educational expenditures, see, e.g. Shapiro, "Some Socio-Economic Determinants."

25. See Freeman, *Financing the Public Schools*. For a full analysis of this issue see Grubb and Michelson, "States and Schools."

26. Grubb and Michelson in "States and Schools" compute Gini coefficients for districts in 16 states. The average Gini coefficient is 0.08, but there is great variation in the coefficient from one state to another. The Gini coefficient for differences between states is 0.13. Katzman in *The Political Economy of Urban Schools* used coefficients of variation and concluded that there was as much inequality within states as between, i.e. both coefficients of variation were about 0.25. Katzman had a more restricted data base, but Grubb and Michelson calculated coefficients mainly for states with relatively large districts..

27. See the summary in Grubb and Michelson's "States and Schools" for 16 states. Also see Coons, Clune, and Sugarman, *Private Wealth and Public Education*.

28. See Grubb and Michelson in "States and Schools."

29. See Table 39 in the U.S. Department of Health, Education and Welfare, *Digest of Educational Statistics*, 1965.

30. See Katzman, in *The Political Economy of Urban Schools*, for data on Boston elementary schools; Burkhead et al., in *Input and Output in Large City High Schools*, for data on Chicago and Atlanta high schools; and the unpublished work of Paul Smith of the Harvard Center for Law and Education for data on Detroit elementary schools. These sources yield coefficients of inequality of 0.15 ± 0.02 for schools in the same district. An analysis of intradistrict variation in salary expenditures per pupil using the EEOS sample yields comparable results, but this sample is not very appropriate for this purpose. Owen, in "The Distribution of Educational Resources in Large American Cities," provides parallel analyses of large cities covered by the EEOS.

31. This calculation is based on the distribution of educational attainment in the U.S. Bureau of the Census "Educational Attainment: 1969." Each year of schooling was weighted according to a crude estimate of its cost relative to other years. The weights were as follows: each year of elementary schooling was weighted 1.00; each year of high school was weighted 1.50; each year of college was weighted 3.00; each year of graduate schooling was weighted 6.00. The basic distributions were derived in the same way as in Table 1. The resulting coefficient of inequality was 0.46 for all individuals aged 25–29 in 1969. The distribution being skewed, the bottom fifth received 54 percent of the average, while the top fifth received 175 percent. The ratio is thus 3.2:1.

32. Using the same weighting system as in the note 31, the coefficient of inequality for all individuals aged 65–75 in 1969 was 0.64, compared to 0.46 for those aged 25–29.

33. A 1960 survey, reported in Chapter 19 of Morgan et al., *Income and Welfare in the United States*, estimated that the poorest fifth of all families lived in districts that spent 20 percent less than the districts where the richest fifth lived. Of course, many of the richest families lived in the same districts as the poorest families. This survey obtained excellent adult income information. The methods used to estimate the expenditures of school districts in which the adults lived were rather inexact, however. Since not all the families in question had children in public school, the data were not precisely comparable to what would be obtained from a survey of parents with children in school.

The EEOS surveyed students in public schools. It did not get information on their parents' incomes, but it did get information on a variety of other parental characteristics. The characteristic of parents that was most highly correlated with district expenditures was the "mean educational attainment" of parents in a school. Coleman et al., in the Supplemental Appendix of *Equality of Educational Opportunity*, reported correlations of 0.15 between the mean educational attainment of parents in a school and the district's mean expenditures for sixth and ninth grade whites. The correlation was lower for twelfth grade students. Using the EEOS data, Jencks found that at least in the urban North, about half the variance in mean parental educational attainment was between elementary schools in the same district. The correlation between the mean attainment of parents in a district and the mean expenditures would thus be about $0.15/\sqrt{0.50} = 0.21$. Since Morgan and his coauthors found a slightly stronger correlation between expenditures and parental income than between expenditures and parental education, we might reasonably assume a correlation between district expenditures and parental income as high as 0.25. This is the same as the correlation obtained by Miner in *Social and Economic Factors*. Coleman and his coauthors report that the standard deviation of district expenditures (weighted by enrollment) was $177. The standard deviation of family income in 1965 was about $6,000. This implies a $7.50 per pupil increase in expenditures for every $1,000 increase in family income. This is consistent with the estimates provided by Morgan and his coauthors for the bottom two-thirds of the income distribution, although it is higher than their overall average.

34. Katzman, in *The Political Economy of Urban Schools*, using 1965 data, found that the Boston elementary schools spent more on poor students. Burkhead et al., in *Input and Output in Large City High Schools*, found that Chicago and Atlanta high schools spent about the same on middle-class and working-class students. The plaintiff's briefs in *Hobson v. Hansen* and *Bradley v. Milliken* showed that Washington, D.C. and Detroit spent more on the middle classes. Owen, using data on selected schools in large cities covered by the EEOS, reported in "The Distribution of Educational Resources in Large American Cities" that more was spent on the middle classes than on the working classes.

35. The U.S. Bureau of the Census, "Income in 1969," shows that the poorest fifth of all families had incomes averaging 32 percent of the national average in 1969, while the richest fifth averaged about 196 percent. The mean was $10,577, so the difference between the top and bottom fifths was $17,400. This implies an expenditure difference of about $130, assuming constant elasticities during the 1960s. Since the mean expenditure per pupil was $783, the top fifth would have received about $848 and the bottom

fifth received about $718. The difference is 18 percent. Morgan et al., in *Income and Welfare in the United States*, report reassuringly similar results.

36. Only 1 percent of all children are in nonreligious private schools (see the U.S. Department of Health, Education and Welfare, *Digest of Educational Statistics*, 1970). Religious private schools spend no more than public schools.

37. Note 31 estimates that the least educated fifth received 54 percent as much resources as the national average, while the most educated fifth received 175 percent, ignoring annual expenditure differences between schools. If the correlation of attainment with parental income is roughly 0.44 (see note 4, Chapter 5), the children of the poorest fifth receive about 80 percent as much resources as the national average and the children of the richest fifth receive about 133 percent, again ignoring annual expenditure differences between schools. Note 35 implies that the poorest fifth receive 90 percent of the national average each year they are in school and that the richest fifth receive 110 percent. Overall, then, the rich get (1.33) (1.10) = 146 percent of the national average, while the poor get (0.80) (0.90) = 72 percent.

38. See the Supplemental Appendix in Coleman et al., *Equality of Educational Opportunity*.

39. See Katzman, *The Political Economy of Urban Schools*.

40. See Baron, "Race and Status." Compare Burkhead et al., *Input and Output in Large City High Schools*, who found no discrimination at the high school level and Coons, "Chicago," who had earlier found discrimination. Also compare Bruck, "Results of a Study," who found whites getting 5–10 percent more than blacks from local funds. Exclusion of Title I funds shows that local funds are still allocated disproportionately to whites; inclusion of Title I yields rough equality.

41. See the Public Education Association "Status of Public School Education" for baseline data showing discrimination against blacks. For recent data showing discrimination in favor of blacks and Puerto Ricans, see Gittell, *New York City School Fact Book*.

42. For details, see plaintiff's brief in *Bradley v. Milliken*. These data were compiled by Paul Smith of the Harvard Center for Law and Education. For earlier evidence on Detroit, see Sexton, *Education and Income*.

43. See "Second Joint Memorandum of Plaintiffs and Defendants," (April 12, 1971), in *Hobson v. Hansen*.

44. Coleman et al., in the Supplemental Appendix of *Equality of Educational Opportunity*, show that in 1965 the average white was in a district that spent 8–10 percent more than the districts where the blacks lived. Within districts, we estimate the average disparity at 5–10 percent, including Title I of ESEA. These figures are obviously rough, but the order of magnitude is probably about right. Owen's "The Distribution of Educational Resources in Large American Cities" suggests somewhat larger disparities within districts, but his samples within districts may not be representative.

45. These estimates were derived by a two step procedure. First, we calculated the expenditure disparity on the assumption that the only source of expenditure differences between blacks and whites was the length of time they stayed in school. Using the weighting procedure described in note 31, we estimated the mean expenditure on blacks aged 25–29 in 1969 at 82 percent of the mean for whites. For those aged 65–74, the black mean was 59 percent of the white mean. We then assumed that annual expenditures on blacks aged 25–29 in 1969 had been 80 percent of those on whites, and that annual expenditures on blacks aged 65–74 had been 70 percent of those on whites. This yielded an overall black-white ratio of 66 percent for the younger group and 41 percent for the older. For those now in school we simply extrapolated the implied trend. All these estimates are obviously very rough.

46. See Coleman et al., *Equality of Educational Opportunity*. The presentation of the EEOS statistics is a bit confusing because Coleman and his coauthors pooled the South and Southwest in their analyses.

47. See the U.S. Department of Health, Education and Welfare, News Release, 1971.

48. See Coleman et al., *Equality of Educational Opportunity*, and the U.S. Department of Health, Education and Welfare News Release. Figures 2.14.1 and 2.14.5 in Coleman et al. imply that 40 percent of all blacks were in segregated schools in 1965. These Figures seem, however, to have been drawn without reference to data. Tables 2.13.1 and 2.14.1 in Coleman et al. show 72 percent of Northern black first graders and 55 percent of Northern black twelfth graders in majority-black schools. This implies that if we combined elementary and secondary students, about 60 percent of the blacks would be in majority-black schools. If 60 percent were in majority-black schools, we can infer that about 45–50 percent were in 80–100 percent black schools. This can be compared to 57.4 percent in 1968 and 57.6 percent in 1970. Because the data are from different sources, we do not have much confidence that the 1965–1968 trend was real, especially since there was no such trend in the 1968–1970 comparisons, where the data sources *are* comparable.

49. See Coleman et al., *Equality of Educational Opportunity*.

50. Mayeske et al., on p. 96 of *A Study of Our Nation's Schools*, estimate the percentage of socio-economic variance that lies within schools at different grade levels in EEOS. For the ninth and twelfth grades, the percentages are 67 and 72. This implies that the standard deviation of the socio-economic index in the average high school will be 82–85 percent of the national standard deviation. The percentage of variance within schools should be slightly smaller for elementary schools. Mayeske et al. report that 72 percent of the sixth grade socio-economic variance was within schools. There may be more within-school error variance in the sixth than in the ninth and twelfth grade data. Mayeske et al. report 60 and 61 percent of the variance within schools at the third and first grade levels, but this probably understates the within-school variance due to the teachers' tendency to report the same socio-economic level for all students about whom they were not sure. (First and third grade teachers filled in the relevant items for the students.) We estimate the "true" within-school variance at 65 percent for elementary schools. The within-school standard deviation thus averages 81 percent of the national average.

51. In order to compare different kinds of segregation, we need a segregation index (I). The best index appears to be the ratio of the within-school standard deviation (S_W) to the standard deviation for the total population (S_t). In order to make this a segregation index rather than an integration index, we subtract it from 1. Thus, $I = 1 - S_W/S_t$. If we define all students as white or nonwhite, we find that 50 percent of the variance in race was within northern urban elementary schools in 1965. At the secondary level, the comparable figure was 58 percent. The standard deviation within elementary schools was thus $\sqrt{0.50} = 71$ percent of the total standard deviation, and the segregation index = $1 - 0.71 = 0.29$. For high schools $I = 1 - \sqrt{0.58} = 0.24$. For economic status, $I = 0.19$ at the elementary level and 0.15 at the secondary level.

52. Mayeske et al., in *A Study of Our Nation's Schools,* estimate the between-school variance in test scores at 35 percent in all grades, using a composite achievement measure. Using any single test, the between-school variance is less than 35 percent. This is probably because the separate tests contain more random error. Socio-economic and racial variables explain 70 to 80 percent of the between-school variance in first grade scores. The rest must be explained by other kinds of selectivity. See Jencks, "The Quality of the Data Collected," for additional discussion and data.

53. Rist, in "Student Social Class," provides a good description of grouping within classrooms and some suggestive evidence on its effects.

54. See the National Education Association, *Ability Grouping.* The reliability of reports on grouping is uncertain (see Jencks, "The Quality of the Data Collected," for evidence that EEOS data on grouping is nearly worthless). Since large districts are more likely to use ability grouping than small districts, the proportion of *pupils* who are grouped is larger than the proportion of *districts* that group.

55. See the National Education Association, "Teacher Opinion Poll."

56. This is another way of saying that there is more test score variance and almost as much socio-economic variance between tracks and curriculums in the same school as between schools. Jencks found that in the Talent high school sample (see note 60), about 11 percent of the achievement variance and 22 percent of the socio-economic variance was between high schools. About 20 percent of the achievement variance and 14 percent of the socio-economic variance was between curriculums in the same high school. For similar results in English primary schools, see Acland, "Social Determinants of Educational Achievement." Heyns, in "Curriculum Assignment and Tracking Policies," found that in the EEOS sample of northern urban 4-year high schools 18.1 percent of the achievement variance and 13.1 percent of the variance in father's occupational status was between schools, while 28.7 percent of the achievement variance and 9.3 percent of the status variance was between the college and noncollege curriculums in the same school.

57. See "The Effects of Tracking," in Chapter 3 of this volume.

58. See "The Effects of Curriculum Placement," in Chapter 5 of this volume.

59. See Heyns, "Curriculum Assignment and Tracking Policies."

60. Heyns, in "Curriculum Assignment and Tracking Policies," found a correlation of 0.48 between verbal score and ninth grade track assignment in the 48 northern urban 4-year high schools covered by EEOS. The correlation was 0.44 in the 91 white, nonvocational high schools throughout the nation covered by the Project Talent ninth–twelfth grade follow-up. These correlations would presumably be higher if they were based on the tests used by the schools themselves to evaluate aptitude.

61. See Heyns, "Curriculum Assignment and Tracking Policies."

62. The studies of high school curriculum assignment reported above are more fully described in Heyns, "Curriculum Assignment and Tracking Policies." For additional data on segregation and black aspirations in EEOS, see Armor, "The Racial Composition of Schools and College Aspirations of Negro Students."

63. This research is fully reported in Acland, "Social Determinants of Educational Achievement." The findings are based on the Plowden survey of English primary schools. The first stage of this longitudinal survey is reported in Peaker, "The Regression Analysis of the National Survey."

64. See Chapter 5, "The Effects of Curriculum Placement," in this volume.