Introduction

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This book is an outgrowth of the desire at the Hoover Institution to focus on issues that are of essential policy relevance. Right now, few issues are more important in the United States than improving education. This introduction summarizes the key arguments made in the book's essays. The summary is followed by a discussion of some of the key policy questions in education. More will be said on the nature of the book below, but let us get to the essence first.

THE IMPORTANCE OF EDUCATION

In his Foreword, George P. Shultz states that education is failing too many of our students. It is essential to remedy the situation, he goes on to say, because there is simply too much at stake. On the whole, parents know what is good for their own children. The usual argument for limiting parental discretion is that there are certain parents who neglect their children or who simply do not have the information necessary to make the appropriate decisions. Although this is true, Shultz points out that even were this the case, as long as a significant fraction of the population cares about the quality of their children's education, the

schools will be forced to rise to the standard demanded by diligent parents.

Shultz argues that there are a few themes that should be part of any educational agenda. First, he views English-based education as essential, because English is by far the dominant language in the United States. Children who are not firmly grounded in English will have difficulties throughout their entire lifetimes. Second, accountability is key, and what Shultz means by accountability is not only accountability for the school but accountability for the individual. Students should be held accountable for their actions and for their own education. Third, competition among schools is important because it lowers costs, increases quality, and gives individuals choices. Shultz sees choice as a matter of right. Education in this country should be a right, and the choice about how that education is delivered should be a parental right. In sum, he concludes that the child comes first. We should keep what works and throw out what fails. Indeed, he argues that doing this would be revolutionary.

A natural starting point is to ask, "Why is education so important?" Gary S. Becker points out that human capital is the most important part of the economy, and human capital in large part is produced by formal education. Furthermore, the importance of education has grown in recent decades, and new technology for delivering it, such as distance learning, will help it grow even further.

Becker contrasts human capital with physical capital. Physical capital, that is, the machines, buildings, infrastructures, and tangible assets, while important to the economy, is an overrated factor of production. Becker argues that an appropriate accounting of the capital in society would show that human capital accounts for a much greater portion of the total capital stock than does physical capital. Good evidence for this, he argues, is provided by the crash of the stock market in 1987. The effect on the economy was minimal because it affected primarily physical capital and not human capital. Indeed, because the

stock of human capital did not fall during that period, there was not a large drop in the total stock of capital, even if one believes that the market decline reflected a real fall in the value of physical capital.

Although formal education is important, individuals continue to acquire human capital throughout their lifetimes by learning on the job and in other ways. Becker believes that significant growth in the economy will come from increases in human capital, which in turn stimulate technological change.

EDUCATION AND GROWTH

Education can affect technological change through a number of different channels. First, a more educated population may create new technology by inventing more and better things. Second, a more educated population might simply produce more output per unit of time. If education increases over time, then productivity might increase over time, resulting in growth.

A number of authors have examined the relation between growth and education. Two of the most important contributors to the literature have essays included in this book. One, Robert Barro, summarizes comprehensive work that examines many countries over a period of more than three decades. Barro points out that there is an important distinction between the quantity of education and its quality, and that the distinction matters for interpreting and measuring the effects of education on growth. He finds that both quantity and quality affect growth. What do we mean by the quality of education? Barro measures the quality of education by outcome variables, most notably test scores on standardized exams. He argues that test scores are a reflection of educational quality and have effects on economic activity. In particular, science and math test scores have a positive influence on economic growth. Part of these test scores reflects inputs of the school, and part may also reflect culture and the effort

of the individual students involved. Hours of work vary significantly by country. Hours of school attendance and homework vary by country as well. No one would be surprised to find that the more input there is, the more output.

Barro argues that human capital is extremely important, primarily in terms of the ability of societies to grasp new technology and to help its diffusion throughout the economy. The larger its stock of human capital, the more quickly a country can use any given amount of new technology. He also argues that physical capital can be changed very rapidly, but that the stock of human capital, which is imbedded in the population, changes only slowly. It is therefore important to make investments in human capital over a significant period of time.

Robert Hall also has examined the effects of education on national output. He does so primarily by focusing on productivity. Hall and Charles Jones have found in other studies that although education does not explain all of the variation in productivity around the world, it is an important determinant of productivity variation. The United States is not the highest in its index of education, but the combination of high levels of education, high investment in physical capital, and high efficiency all contribute to make the United States the most productive country in the world.

Hall believes that much of this is a result of rule of law and infrastructure. When a country's infrastructure is favorable, crime rates are low and the best people produce rather than devote their energies to corruption. One form of investment is investment in human capital, so Hall argues that the correlation that is observed between rule of law and education reflects, at least in part, causation running from the former to the latter.

Given that education has effects on the macroeconomy, it is not surprising that education affects the individuals in the economy. Education's effect on individual income is well known and has been documented in the economics literature consistently for over forty years. Specifically, those who are more educated receive higher earnings, presumably as a re-

sult of their increased productivity. Also as a result of higher productivity, educated workers are not as likely to be laid off during cyclical downturns. As a society improves the level of education of the individuals who make it up, that society also creates a wealthier and less vulnerable population. These patterns have been documented over time for virtually every group and country throughout the world. Even individuals in the most disadvantaged groups in a society benefit from higher levels of education. Recent figures from the Current Population Survey (1999) show that the average college graduate in the United States earns about 70 percent more than the average high school graduate.

The structure of schools. Much of the discussion in the policy arena today revolves around the choice between public and private school structures. The voucher movement is one attempt to use public money to fund private schools in order to obtain the best of both worlds. As Shultz points out in his introduction, most individuals regard education as a right. He also argues, though, that the right to education does not necessarily require that education be provided by public schools, even if they are funded by a public entity such as the locality, state, or federal government. The charter school movement is a partial reaction to the pressure for private schools and vouchers in general.

Andrew Coulson provides an interesting account of private and public education in a historical context. Coulson argues that, surprisingly, the move toward private education is not a modern phenomenon, and furthermore, the historical record provides evidence that private schools actually work better than public schools. He criticizes current educators for having ignored the historical record and cites a number of examples.

In the 1960s and 1970s, the federal government undertook a multibillion-dollar experiment called "Follow Through." The evidence from this study was that direct instruction produced the best outcomes, but the nation ignored the findings.

Coulson believes that the rejection of empirical testing of new methods has contributed to a dismal record of stagnation and decline in achievement over the past one hundred years.

The historical record is quite interesting on this point. In both the United States and in England in the late 1700s and 1800s, a significant majority of citizens could read and write despite the fact that the state played little role in fostering the spread of literacy.

Coulson suggests that schools perform two functions. The first is to further individual goals that make the person a better worker and more able wage earner, creating skills, and simply providing academic knowledge. But in addition, there are social aspects to education that have to do with harmony, participation in the democratic process, and creating equality of educational opportunity. Coulson believes that state schools are actually worse at providing for the social objectives than are private schools, primarily because independent schools serve a diverse community's needs, whereas public schools induce people to fight over the nature of a uniform curriculum. As an example of this, he suggests that state funding, which was introduced into the Muslim world in the eleventh century, eliminated the tolerance that had been enjoyed in Muslim education up to that point. Furthermore, the evidence on comparison between private schools and public schools suggests that public schools tend to be more segregated than private schools. For example, students in private schools are more likely to choose lunch partners from other races than are students in public schools.

As a solution to the problems, Coulson suggests five policy prescriptions: parental choice, parental financial responsibility, freedom for educators, competition between schools, and a profit motive for schools. Unlike many advocates of private schools, Coulson opposes vouchers because he believes they are inconsistent with furthering these five goals. If nothing else, they remove or reduce parental responsibility in providing for the education of their own children. Instead, he proposes privately financed scholarships and philan-

thropic tax credit programs, which he believes will induce enough giving to fund a significant private sector.

When it comes to educating minorities, Thomas Sowell also criticizes educators for not having looked at the evidence. Sowell states that there is a great deal of evidence that minority students can, and in fact do, perform very well. He provides the example of a number of high schools that performed well despite the fact that the children were poor. Dunbar, in Washington, D.C., Public School 91 in Brooklyn, and St. Augustine, a Catholic school in New Orleans, all fit into this category. These schools have work and discipline in common. Although this is not the only model for success, Sowell believes that there is no reason to assume that because students come from low-income or minority households they will necessarily fail.

Sowell describes his own experience in a school in Harlem. When he was a student, the Harlem schools performed no worse than schools from the lower East Side. In fact, the Harlem schools produced a number of individuals who, like Sowell himself, were very successful. He points out that the black middle class came only from these schools, since initially there was no black middle class. All of the black students went to schools with other poor students.

That having been said, Sowell is concerned that children growing up in Harlem today will not have as great a chance to rise as people of Sowell's generation, primarily because they will not receive the solid education that he received. The problem is exacerbated because education is even more important today than it was when Sowell attended school.

School Funding

Paul Romer asks why vouchers have not been politically successful, even though most economists believe they are an efficient way to fund schooling. Romer's answer is that the delivery system for the product and public support for its financing are not independent. The basic idea is that when parents are confronted with students in their own district

who do not do well, they are more likely to vote for public support of education than when they do not encounter those students. A voucher system, he argues, although perhaps efficient, would likely result in less overall funding, and especially less funding of those students who have the greatest need on their own.

Romer argues that there is underinvestment in education because of free-rider effects in any voluntary system of transfers to education. Suppose that a community would like to have a more equal distribution of income and that providing education for economically disadvantaged students is the best way to bring that about. Each person in society may want this to happen, but no one individual has the right incentives to pay for it. Each would prefer to let others pay for education, resulting in overall underfunding of education. To solve the free-rider problem, it is necessary to fund publicly.

The situation is exacerbated by the opening up of trade, which tends to result in even greater pressure for income inequality. As technology moves across borders, those with the highest levels of human capital are most able to take advantage of the new technologies.

Finally, when individuals are separated from those who are in need, their compassion is less likely to result in actual transfers. Thus, programs that tie the welfare of the most disadvantaged to the welfare of those with whom interaction is greatest, namely, our own children, are most likely to generate support.

FAMILY AND EXPECTATIONS

Most recognize that in addition to the school, the family is important in a child's educational development. Jennifer Roback Morse, however, argues that the current structure may actually undermine the ability of the family to augment what is done in schools to develop a child's investment in human capital. The current view, she claims, is that the primary connection between the parents and children is one of

a transfer of resources from the parent to the child. Under this view, the school's role is to supplement that transfer by moving resources from schools to children. She argues an alternative view: that the school should enhance, or at the least not undermine, the parent-child relationship.

She points to a number of policies that weaken the relationship between parents and their children. The move toward universal preschool, the push for school breakfast programs, and the hostility of public school systems to home schooling are all policies that make it more difficult for parents to interact with their children. The school becomes a supplier of resources, often in opposition to the interests or wishes of the family.

Morse's essay documents the importance of parental guidance in the development of children. She bases her argument, at least theoretically, on Friedrich Hayek's notion that local control is better than central control because those in the local situation have better information. Using evidence from eastern Europe, Morse documents the difficulties that arise when children are not brought up in a loving family environment. There is significant evidence from the United States that children of single parents are more likely to have problems. If nothing else, the time input alone has an effect, and single parents cannot devote as much time to their children as two parents can, despite the fact that some single parents spend more time with their children than some parent couples.

The point of Morse's discussion is that children need relationships more than they need resources, and the terms of the debate should be shifted. It is silly, she claims, to argue that there is not a hierarchy of family types in terms of effect on the child's subsequent development. The posture of neutrality among family types should be dropped. She believes that the term "broken home," rather than more politically correct expressions, is appropriate. It reflects the poignant reality from the child's perspective that life has been disrupted. In addition to everything else, Morse argues that

high parental expectations of children are just as important as the other elements that parents can provide.

So, what are the policies? First, school choice should be encouraged because it forces parents to think about their children's education. Second, policies that crowd out the family should be avoided. For example, we should shift the emphasis away from providing day care toward making it possible to keep mothers at home with their children. Similarly, universal school breakfast programs have detrimental side effects because they allow families to ignore the dysfunction of not having breakfast together. Finally, some policies can actually encourage family involvement with their children. Morse describes a school lunch program where mothers were required to help. If nothing else, this brought the parent to the school once or twice a month. Indeed, other school participatory programs are useful in this context. To the extent possible, parents should be encouraged to be mentors for their children.

A number of authors in this volume mention expectations, and no one focuses on expectations more vividly than does Shelby Steele in his essay entitled "Educating Black Students." Steele tells the story of the fictional Charlie Parker, who cannot learn to play the saxophone because he is from a disadvantaged household without the benefit of a white person's education. The real Charlie Parker, of course, became a premier musical figure without help from whites for two reasons that Steele views as advantages. First, Parker enjoyed the disinterest of the larger society as a whole. Second, he was held to standards of excellence. Steele believes that it is a mistake to make the education of blacks the concern of others. To do so suggests that blacks are inert people. Under such a view, others act, and blacks are acted upon.

Steele defines "agency" as a situation where responsibility is taken over others, as parents do for their children. Thus, parents exercise agency when they select the schools that their children will attend. But agency involves determination and commitment. The first sign that a group has taken

agency over an area is that it impersonally enforces a rigorous standard of excellence. Steele argues that black student performance has been weak, not because whites have failed, but because blacks have not taken agency over the academic development of their children as they have in areas such as music and sports. Excellence is demanded in music and sports, standards are high, and blacks succeed. In education, the reverse has been true. Sometimes the culture in the black community actually discourages excellence in academics by calling excellent students "white wannabes." Steele continues to say that the same is true of white America, which has not demanded the same standards of excellence for blacks as it requires of whites. In order to bring about excellent education for minorities, Steele believes that it is essential to enforce personal accountability and the highest standards.

POLICY ISSUES

Is More Money the Solution?

The usual way to deal with problems in the public sector is to assume that increasing expenditures will solve the problem. This has been true in education as much as in any other area. In education, at least in recent years, the focus has been primarily on reduction of class size. But there is a large literature suggesting that altering class size has no effect on outcomes.[1] There are a few studies, however, that do find important class size effects. Alan Krueger (1998, 1999) and Joshua Angrist and Victor Lavy (1999) find that reducing class size has beneficial outcomes. Since reducing class size is one of the key policy proposals at both federal and state levels and since this policy implies very large costs to taxpayers, it is important to understand the data before a blanket policy of class size reduction is introduced.

Why do some studies find effects whereas others do not? The answer to the puzzle is that classroom education is what economists call a "public good." That is, one child can benefit

from a teacher's instruction at the same time that another benefits from the same instruction. If both listen attentively to the lesson, then both can obtain the human capital being provided by the teacher.

The problem in the real classroom is that students do not always listen attentively to the teacher's instructions, and in a public-good setting of this sort, when one child acts out, he reduces or eliminates the instructional component of that moment in the classroom for all the other children in the class. Of course, educators are well aware of this, and it is the reason why preschool children are placed in smaller classes than are most college freshmen. (In fact, as an undergraduate at UCLA, I was in a class with two thousand other students who watched the professor on television in four rooms that seated five hundred each.) Much of the controversy can be eliminated once it is understood that education is a public good subject to negative spillovers from each of the students.[2] The difficulty arises from the pairing of better students with larger class sizes. As a result, even if class size effects were important, they would be difficult to observe in data from the real world, because the better-behaved and presumably more able students are in large classes. The less-well-behaved, and presumably younger students, are in smaller classes. When researchers examine large classes, they find that educational outcomes are sometimes better in the large classes than in small classes. The reason, however, is that students are not randomly assigned to these classes but are sorted according to their ability, with the better students in the large classes. So, the failure to observe class size effects may simply be a result of ignoring the fact that larger classes are associated with better students.

To see this, consider an extreme case. Advanced placement students are often found in very large classes because these students are relatively well-behaved and sit quietly through instruction. At the other end of the spectrum are students with behavior disorders, who tend to be placed in small classes. A naive analysis would find the large classes

with the able students outperforming the smaller classes with the less able students. This does not mean that reducing class size for the able students would not have beneficial effects, nor does it imply that increasing class size for the disruptive students would not have harmful effects. But it does mean that such effects will not be observed in studies that cut across class sizes.

Does this mean that reducing class size is the solution? Not at all. In fact, the best studies tend to find that to the extent class size effects are important, they are not universal. Disadvantaged children, either as a result of economic status or learning ability, are most likely to benefit from smaller class sizes. Similarly, younger children are also likely to benefit from smaller class size.

Finally, a point made by Eric Hanushek is that teacher quality is an extremely important determinant of educational performance. In fact, in his Texas study, Hanushek finds that putting a child in a good teacher's classroom is much more important in terms of affecting student learning than almost any other factor.

The immediate policy question, then, is how we can raise teacher quality. Although money is not everything, money is almost certain to make a difference in this case. Data from 1999 show that teachers on average earn about 77 percent the salary of the average college graduate. This has resulted in a smaller selection of candidates for teaching jobs than would be the case if teaching salaries were higher. Indeed, Caroline Hoxby at Harvard has shown that the average SAT scores for public school teachers are well below the median for the country as a whole. When the individuals who became teachers were actually applying to college, they themselves were in the lower half of performers on the standard college entrance tests. This is not particularly surprising, since teachers are so poorly paid relative to other college graduates. It is true, of course, that teachers have more leisure during the summer than do individuals in other occupations, but it is also likely that increasing teachers'

salaries would draw a larger number of people to the profession, and schools could then choose more selectively. In addition, schools would have an easier time replacing those teachers who turned out to be less-than-effective in the classroom.

Federal versus Local Administration of Schools

The reality is that most of the money going to education comes from the state and not from the federal government. Indeed, the largest federal program accounts for only about fourteen billion dollars nationwide. The state education budget in California alone is triple that figure. Thus, it is difficult to expect the federal government to do much to influence education policy, which is made primarily at the state and local level. There have, however, been some attempts to use federal muscle to influence local educational decisions. Before analyzing such policies, it is important to ask whether having federal policies is appropriate, or whether they are better left to the state.

There are three arguments against allowing the federal government to play an important role in educational policy. First, when the federal government is guiding the nation's education policy, the stakes are much higher than is the case when localities are guiding the education policy. The impact of educational policy at the national level is far greater than that at the local level. For example, if all schools were required to use the same textbooks for a particular subject in a particular grade, the profits associated with inducing a federal level administrator to choose a particular publisher's book would be far greater than those associated with inducing any single local administrator to do the same. As a result, lobbying pressure would be far greater if power was centralized and federal agencies more subject than local ones to capture.

Second, even if federal authorities make what everyone believes to be the right decision, centralizing decisions to the federal level creates an extremely risky situation. When deci-

sions are made at the local level, a wrong decision does not result in a nationwide disaster. When decisions are made at the federal level, making a mistake in education policy does not just affect the students in a given locality but could be devastating to an entire generation of the nation's students. Furthermore, there would be no way for Americans to escape such a policy. If a locality made a bad decision, parents who were seeking to improve the welfare of their children at least would have the option of moving out of that locality to another public school setting. Federal requirements would allow no such movement, and competition among districts would be stifled.

Third, unless the federal budget for education is increased dramatically, it is unlikely that policies at the federal level will have the teeth required to get policies implemented. States and localities will be willing to comply with federal policies only insofar as the amount that will be lost by failing to comply exceeds the costs imposed on the districts by the policies themselves. Thus, localities will be willing to make small changes, but the federal government's ability to influence local policy will be greatly limited by small amounts being transferred to localities.

EVALUATION OF SOME SUGGESTED POLICIES

Politicians offer ideas for educational policy changes almost as frequently as they make speeches. A number of those policies are considered here.

National Exams

One of the most frequently mentioned policies is instituting a required national examination. There are a number of positive aspects to this proposal, the most obvious of which is that it would become easier to hold schools accountable for their teaching. If the standard is the same for everyone, then comparison becomes much more straightforward.

The major problem is that a national exam requires centralization. The choice of questions would be hotly debated, because some questions would favor certain groups and teaching philosophies, while others would favor other groups and different teaching philosophies.

Even if a good and just exam were created, the policy would still suffer from the problem of putting all eggs in one basket. Suppose, for example, that despite all our best intentions, we end up testing knowledge in areas that turn out to be unimportant and ignore areas that are extremely important. A national exam ensures that we do this for the whole nation for good or bad. Given the fact that views on education change over time, it is dangerous to induce an entire country to acquire knowledge in one specific body of material.

Technology

With the coming of the information age, one of the more fashionable suggestions is to introduce technology into the schools. Many districts have already funded Internet connections in the classroom, and others have applied for grants and assistance to make an electronic educational environment feasible. Although it is difficult to argue that additional resources do not have some value, the evidence on technology has been, at best, weak, and more often negative.[3] Although the details of why technology can also have a perverse effect on academic achievement are not yet known, some have suggested that technology acts as a substitute rather than a complement to more traditional methods of learning.

One nice feature of introducing technology into the classroom is that it may assist in maintaining the student's attention span. The big negative is that students may spend their time in chat rooms on the Internet rather than working more traditional math problems with pencil and paper. Given our current state of knowledge, it is difficult to argue that a great deal of public money should be spent on introducing technology into the classroom.

My own personal experience as a teacher for over twenty-seven years backs this up. I find that instruction using the blackboard is far more effective than that using overhead transparencies or even slick PowerPoint presentations. Writing on the blackboard is a signal to students that a point is particularly relevant, and it constrains the instructor to present the material at a rate closer to that at which students can absorb the material. An overhead or slide presentation often offers too much information in one short interval and, by overwhelming the students, ends up putting them to sleep.

Accountability

Few policy makers, including those who are part of the education community, would actually argue against accountability. The main problem, however, is defining appropriate standards for accountability and knowing which factors to take into account.

Suppose that we ignore the arguments of the previous section and simply institute a uniform test against which schools are compared. A number of problems remain. First, schools that have students from wealthier and more educated homes are likely to obtain higher test scores even if the school in question is contributing no more to a child's education than other schools in the sample. In other words, demographic characteristics of the student population are likely to have significant effects on test scores. Presumably, society is interested in added value associated with education and not merely a certification that schools have been able to attract a bright group of entrants. Local to the Hoover Institution, Palo Alto schools are known for the high test scores of their students. Is this because the schools are doing a good job, or is it because a large proportion of the students are the children of Stanford faculty or other professionals?

Second, some schools have more resources to work with than others. It is unreasonable to expect that schools operating on a per-student budget that is half that of other

schools will be able to produce the same quality of educational output. Going back to the previous argument if nothing else, it will be much more difficult to attract quality teachers on a smaller budget than one that allows higher teacher wages to be paid. The richest districts will have the ability to cherry pick among teacher applicants.

As a potential solution, it is possible to look at gains in scores. A district that has the good fortune to have high-achieving students and/or deep pockets can be asked to make the same percentage gains in achievement as those of poorer or less-well-positioned schools. Thus, a school with an initial average test score of 600 would be required to move its students to 660, while a school that had initial test scores of 500 would be required to move its students to 550. Although something along these lines sounds fair, it penalizes schools that have done well in the past. For example, consider a school that has done the best possible job for its students. As a result, test scores are high, students are happy, and graduation rates are among the highest in the nation. It may be very difficult to add to its stellar record, simply because all the appropriate steps have already been taken. Such schools would be penalized by a system that looked for change rather than levels of performance.

What, then, is the solution? Conceptually, it is necessary to hold demographic characteristics of the student body and resources available to the schools constant. This requires comparisons among similarly situated schools. Although it is straightforward to do this statistically, there remains one major problem. The differences that one observes in test scores across schools are as likely to reflect unobserved differences in school or student characteristics as they are to reflect differences in the actual performance of the school itself. For example, in comparing a school in one part of a wealthy town to another part of that wealthy town, the differences in the test scores obtained by the students are likely to be small. Those small differences may reflect differential performance of the two schools, or small differences in the

characteristics of the students who live in different parts of the town. Thus, accountability, although important, is not easily implemented. It can be an important part of the policy equation, but it must be implemented by those who have a sophisticated knowledge of statistical methods as well as educational practices.

One way around the problem is to allow more choice for students. This does not necessarily require private schools, but allowing mobility between schools would provide good signals of how well a school is actually performing. If students tend to move from School A to School B, then one can conclude that students feel that they get more out of School B than School A. Although it is still possible that other factors are involved, this is probably the best indicator that School B is doing a better job than School A in educating students.

HOW SHALL WE DEFINE OUTPUT?

There are a number of ways to measure the performance of a school. The most frequently used measure is student test scores, but many others have been referred to in the past. Literacy rates among students of a certain grade level, high school completion rates, and the proportion going on to college are all indicators of student achievement, but they indicate different things. The measure of output chosen can affect whether a school is viewed as good or bad and can also affect the strategies adopted by a particular school.

Suppose that a school is judged on literacy among its eighth grade school population. That school will attempt to get every child to some basic level of reading, but it will not focus on helping particular students excel in reading. Nor does the school have strong incentives to focus on mathematical skills, because they are not measured by the standard literacy tests.

Suppose instead that we judge a school or school district by the proportion of students who graduate from high school. This would cause the school to focus on those students right on the margin between staying and dropping out.

The poorest students would be ignored because they are unlikely to be swayed into remaining in school by policies that a school could implement. The best students would also be likely to be ignored because they are not at a high risk of dropping out. As a result, schools target a particular part of the student population, in this case at the low, but not the lowest, part of the achievement distribution.

At the other extreme, one can imagine basing an assessment of school performance on the proportion of students who go on to college, or even on those who go on to elite colleges. Such an output measure would influence schools to focus on the better students in the class, perhaps to the disadvantage of those in the middle or bottom of the class.

Another measure of school performance looks at the bottom line: how do schools affect subsequent earnings or the occupational distribution of their students? For many purposes, this is exactly the right measure of school performance. The problem with this measure is that it is very difficult to obtain, and even when possible, it comes only after a very long lag. By the time the students have earnings to report, the school may have already changed its policies many times over.

OTHER POLICIES

A number of state governors have suggested policies that might help make their schools more effective. Most involve some subsidy or transfer program.

Some have suggested that more money be given to schools so that they can create advanced placement classes in schools that primarily teach disadvantaged children. Although this may be a nice addition to such schools, we return to the issues discussed in the previous section. Are we more concerned about bringing the middle students up to the top, or about bringing the bottom up to the middle? My sense is that it is the latter, and this sense is backed up by statistics on high school dropout rates. In disadvantaged schools in

low-income and minority areas, dropout rates are extremely high, suggesting that the target probably should be basic literacy skills and high school graduation rather than college placement.

Another suggestion is to give bonuses and forgivable loans to teachers who agree to teach in currently poorly performing schools. The issue here is whether this simply serves to shift teachers around or actually recruits more able individuals into the teaching profession. If the policy only shifts teachers around, then it is hardly clear that moving teachers who were effective in good schools to schools with much more poorly performing students will actually improve educational output. Even if it does so for the disadvantaged students, one has to ask what the effects will be on the students that they have left behind. To the extent that such policy actually improves the quality of individuals entering teaching, it is probably a worthwhile social investment. The problem is that the amount of time it takes for such a policy to work is significant, and it is far from obvious that the inducement into teaching will be large unless the bonuses are themselves quite large.

Other policies provide for college assistance to middle- and low-income families. This is a politically attractive policy, but it does not target the problem. There is little evidence to support the view that too few people go to college. The private rates of return to college are high but commensurate with other investments that have similar risk. Furthermore, college students seem to capture most of the return to their investments in their own college education in the form of higher earnings, which suggests that there is not a great necessity to help out at this end. Obviously, there are some students who are precluded from going to college because of the inability to raise resources. This is a small problem, however, relative to the one that plagues those who never get to the college level at all. Once again, moving the students who are at the bottom to the middle is probably a more important social goal than moving those in the middle to the upper middle.

CONCLUSION

This book covers a large number of issues. Education is a complicated but important topic. It is our hope that the essays included here will shed light on what education does, on various ways to structure education, and on lessons that can be learned from the past, as well as help us understand how much can be accomplished in the future.

NOTES

1. See, for example, Eric A. Hanushek, "Conclusions and Controversies about the Effectiveness of School Resources," *Economic Policy Review* IV (March 1998b): 11-27. Hanushek finds little evidence that anything, including class size reductions, matters. See also James Coleman and Thomas Hoffer, *Public and Private Schools: The Impact on Communities* (New York: Basic Books, 1987) and James Coleman, Sally Kilgore, and Thomas Hoffer, *Public and Private High Schools* (Washington, D.C.: National Center for Educational Statistics, 1981). These two studies report that Catholic schools with larger class sizes produce better students than public school classes against which they are compared.
2. The argument is spelled out in detail in Edward P. Lazear, "Educational Production," *Quarterly Journal of Economics* (August 2001): 1–27.
3. See Joshua Angrist and Victor Lavy, "New Evidence on Classroom Computers and Pupil Learning" (NBER Working Paper 7424, November 1999).