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WHY COLLEGE MATTERS

In a 1920 discussion of the value of higher education, Alfred Marshall reasoned that:

All that is spent during many years in opening the means of higher education to the masses would be well paid for if it called out one more Newton, Darwin, Shakespeare, or Beethoven.¹

Recently, however, more and more people have begun to openly question the value of additional spending on higher education. Former Secretary of Education William Bennett complained that:

most colleges promise to make you better culturally and morally, but it is not evident that they do. . . . There are good grounds for suspicion that some students are not getting their money's worth. Some people are getting ripped off.²

It is not easy to judge the value of a college education.³ But in these days of declining wages, slow economic growth, and government budget deficits, individuals and public policy-makers alike must be especially cautious about how they allocate their scarce financial resources. Many families must choose between sending a child to college and paying off the mortgage, or saving for retirement. Governments, too, must choose how much they will spend on higher education. Public monies given to colleges cannot be spent to improve health care, to hire more police officers, or lower tax burdens.

In order to make fair and equitable spending decisions, individuals and governments must carefully consider the benefits they receive for each dollar spent. In this chapter I review the economic and non-

economic benefits which accrue to both individuals and to their communities as their levels of higher education increase. My objective is not to produce a quantitative cost-benefit calculus. It is rather to describe in detail those things which individuals and communities receive in return for their spending on higher education.

In the second part of the chapter I explore why, if the benefits from increased levels of higher education are great, individuals and governments are so often unwilling to invest more of their resources in higher education. Specifically, I examine the role that price barriers and neighborhood effects play in discouraging the optimum level of personal and social spending on higher education. The chapter concludes with a look at why governments must act to compensate for the resulting underinvestment, and under-participation, in higher education.

THE PRIVATE ECONOMIC BENEFITS OF COLLEGE

Over the past thirty years, economists and social scientists have attempted to measure the economic benefits of a college education in a number of ways. The most common of these approaches is to compare the characteristics of those who have attended college with those who have not. After controlling for other factors, the difference between the two groups is assumed to be causally related to educational experience. These studies ask such questions as: All else being equal, do college graduates earn more? Are college graduates more satisfied with their jobs? Or do college graduates contribute more to the national economy?⁴

While such studies can add a great deal to our understanding of the value of college, their results must be viewed with some caution. The difference in the earnings of the two groups may be the result of some third cause. For example, college may serve as a screening device that identifies individuals with certain qualities and abilities. It could be that these traits, and not the college education, are responsible for the person's success. It is thus possible that college graduates would receive similar benefits without ever attending college.⁵

The Changing Link Between Higher Education and Personal Income

Everyone knows that college graduates earn more than those without a degree, but the size of that wage gap is large and growing.⁶ Table 1.1 shows

Table 1.1
*Median Annual Earnings of Persons Age 25 and Over by Education
 and Sex, 1992 (in 1994 dollars)*

	High School Graduates	Some College, No Degree	B.A. Degree Or More
Female	\$11,520	\$16,611	\$26,527
Male	\$22,887	\$27,850	\$42,869

Source: U.S. Department of Commerce, *Money Income of Households, Families, and Persons in the United States, 1992*, table 24.

the 1992 average annual earnings of persons over 25 by education and by gender. Among males, college graduates earn almost 78 percent more than high-school graduates. While women earn less than men at all education levels, female college graduates earn nearly twice that of female high-school graduates.

The economic benefits of a higher education are thus substantial when viewed in the aggregate. Those benefits are even more pronounced when they are broken down by the age of the worker. The economic benefit of a college education seems to accelerate over time. Table 1.2 shows that among male full-time workers with only a high-school diploma, those between 55 to 64 years of age earn 20 percent more than those aged 25 to 34. Among those with a college degree, however, workers aged 55–64 earn 32 percent more than workers aged 25 to 34. At a lower level, the same is true among female workers. Older female workers (55–64) with a high-school degree earn about 5 percent more than younger high-school graduates. But older college graduates earn about 10 percent more than younger college graduates. This is evidence that while a college education helps younger workers secure a higher paying job, it also helps them to move up the earnings ladder once they have begun working.

The private economic returns on higher education have remained substantial since 1970. But, as shown in table 1.3, the size of those benefits has varied widely. In 1970, the mean earnings of a male college graduate were 45 percent higher than those of a high-school graduate. That gap closed throughout the 1970s and reached a low of about 42 percent 1980. For females, the wage gap remained at about 85 percent. This decline in “college wage premiums” for males was sufficient to suggest to some that the market for college-educated workers was saturated and that a college education was no longer a good investment.⁷

Table 1.2
*Median Annual Money Income of Persons Age 25–65 by Education, Sex,
 and Age, 1992 (in 1994 dollars)*

<i>Females</i>			
<i>Age</i>	<i>High School Graduates</i>	<i>Some College, No Degree</i>	<i>B.A. Degree Or More</i>
25–34	\$12,948	\$16,461	\$26,134
35–44	14,937	18,136	29,094
45–54	16,093	20,406	32,159
55–64	13,522	17,767	28,765
<i>Males</i>			
<i>Age</i>	<i>High School Graduates</i>	<i>Some College, No Degree</i>	<i>B.A. Degree Or More</i>
25–34	\$21,137	\$22,743	\$33,763
35–44	27,020	32,246	46,687
45–54	29,657	36,161	51,515
55–64	25,274	31,292	44,715

Source: U.S. Department of Commerce, *Money Income of Households, Families, and Persons in the United States, 1992*, table 29.

This decline in the gap between the earnings of college and non-college male workers prompted Caroline Bird, among others, to argue that when both costs and benefits were considered, higher education was no longer a sound investment.⁸ In her 1975 book, *The Case Against College*, Bird argued that a man who graduated from Princeton in 1972 could be expected to earn \$199,000 more over his working life than a man with just a high-school diploma. But if that high-school graduate had taken the \$34,000 it would cost to attend Princeton for four years and invested it in an account that earned 7.5 percent interest, he would have more than \$1.1 million by the age of 64. In comparative terms, Bird calculated that the high-school graduate would, in the end, have \$528,200 more than the earnings of a male college graduate.

Richard Freeman reached a similar conclusion in *The Overeducated American*.⁹ Writing in 1976, he attributed the decline in college wage premiums to the large influx of baby-boomers entering the work-force in the 1960s and 1970s and the increasing percentage of those workers who had completed college. Freeman speculated that the number of college

Table 1.3
Median Annual Money Income of Persons Age 25–65 by Education and Sex, 1970–1992 (in constant 1994 Dollars)

<i>Females</i>			
<i>Year</i>	<i>Four-Years High School</i>	<i>One–Three Years College</i>	<i>Four or More Years College</i>
1970	\$12,207	\$13,365	\$22,170
1975	12,010	14,264	21,984
1980	10,597	13,516	19,796
1985	11,170	15,125	23,660
1990	14,024	18,400	25,527
1992	14,009	17,541	27,896

<i>Males</i>			
<i>Year</i>	<i>Four-Years High School</i>	<i>One–Three Years College</i>	<i>Four or More Years College</i>
1970	\$34,350	\$40,150	\$49,802
1975	33,536	37,398	47,703
1980	29,102	32,332	41,615
1985	26,079	30,867	43,869
1990	25,285	30,867	42,067
1992	24,040	28,378	42,782

Source: U.S. Census Department, *Current Population Reports, P-60 Total Money Earnings in 1992 of Persons 25 Years Old and Over by Age, Race, Hispanic Origin, and Work Experience.*

graduates was simply growing faster than the number of jobs demanding a college education. The resulting oversupply was driving down wages and reducing the value of college as an investment.

But the predictions of a continuing decline in the value of a college education proved to be dramatically wrong. During the early 1980s, the economic value of a college education began to rise rapidly again. By 1990, the college/high school earnings differential had risen to a record 78 percent for males and 99 percent for females and was continuing to climb.

The widening earnings gap in the 1990s is not entirely good news for college graduates. Table 1.3 also illustrates that the growing difference between the wages of the two groups is not so much that college graduates are doing well, but that the earnings of high-school graduates have fallen

precipitously. In 1975, the average annual earnings of full-time year-round workers over 25 with four years of high school was \$27,694. By 1992 that same group was earning almost 8 percent less. On the other hand, the full-time worker with four years of college was earning \$38,787 in 1975. By 1992, their earnings had risen by a modest 6 percent. As wages of the two groups moved in different directions, the gap between them has grown.

Indeed, what most characterizes the changes in returns to education in the last decade is the dramatic earnings' decline experienced by those without a degree. This development is explored in *The Forgotten Half* by the W.T. Grant Foundation.¹⁰ Here researchers found that the real earnings of male college graduates dropped 6 percent between 1973 and 1986, but high-school graduates lost 28 percent. Men with less than a high-school degree lost a staggering 42 percent in real earnings. In the words of McKinley Blackburn, David Bloom, and Richard Freeman, "For some—mostly young, less educated, and blue-collar men—the 1980s job market was a disaster."¹¹

Variations in Family Income by Level of Education

While the impact of education on personal income is substantial, its impact on family income is even greater. More highly educated people tend to marry more educated people and, when both are employed, this reinforces the income differentials. Table 1.4 shows the median family income of American families by the level of education of the householder. The message it presents is unmistakable. When it comes to higher education, more is always better. The income of families headed by someone with an associate's degree is 26 percent higher than families headed by a high-school graduate. The difference is 67 percent between families headed by someone with a bachelor's degree and a high-school graduate.

Higher Education and Wealth Accumulation

Increased personal income is only part of the economic advantages experience by those who have attended college. Frank Levy and Richard Michel estimate that the net wealth of those families headed by a young person (25–34 years old) with at least some college is 66 percent higher

Table 1.4
Median Family Income by Educational Attainment of Householder, 1992
(in 1994 dollars)

<i>Educational Attainment</i>	<i>Median Family Income</i>
Less Than 9th Grade	\$19,089
High School—No Diploma	\$23,438
H.S. Graduate	\$36,003
College—No Diploma	\$43,021
Associates Degree	\$45,570
Bachelors Degree	\$60,129
Masters Degree	\$70,689
Doctors Degree	\$80,120
Professional Degree	\$97,620

Source: T. Mortenson, *Postsecondary Education Opportunity* 19 (January), p. 13.

than that of families headed by a young person with a high-school education or less.¹²

More specifically, Levy and Michel find that college-educated families own a much wider range of assets than the less educated. They were twice as likely to have an Independent Retirement Account and more than twice as likely to have such non-liquid assets as precious metals, jewelry, or art.¹³ The value of their liquid assets was more than twice that of the less educated. While they held more investment debt, the size of their retail debt was considerably smaller.¹⁴

College-educated families also tended to have more expensive homes and the net equity of those homes was 27 percent higher than less-educated families. This is true in spite of the fact that the importance of home equity is greater among the less educated. Home equity accounts for 64 percent of net wealth among the less educated and only 40 percent among the more educated. This leaves the families of the non-college educated as considerably less diversified in their financial assets. So if real housing prices fall, these families will experience a disproportionate decline in their net wealth. As such, this gap in wealth accumulation serves to reinforce and extend the growing gap between the financial situations of those who have attended college and those who have not.

These trends have important implications for both individuals and for the nation. For individuals, a college education has become the key to economic success. As Levy and Michel put it:

For those with the ability and the initiative, a college education seems the surest way to compete in the labor market. The same will be true for the children of today's young parents.¹⁵

For the nation, increasing the college participation rate is a key to long term economic health, John Bishop and Shani Carter argue that to achieve this, "cost-effective ways of stimulating a substantial increase in the supply of college graduates are needed."¹⁶

THE PRIVATE NON-ECONOMIC BENEFITS OF HIGHER EDUCATION

Individuals benefit from higher education in many non-economic ways as well.¹⁷ In *How College Affects Students*, Ernest Pascarella and Patrick Terenzini have compiled the findings of 2,600 studies conducted over twenty-five years. Their results show the vast and varied ways in which individuals are affected by higher education. College, it seems, has a major impact on nearly every aspect of the lives of students in both the short and long terms.

There is evidence which suggests that college has a positive impact on the entire character of a student's working life. College graduates have better working conditions,¹⁸ receive greater fringe benefits,¹⁹ have better health and live longer lives,²⁰ have lower rates of unemployment,²¹ lower rates of disability,²² and make better investment decisions.²³

But quite apart from its direct impact on their work and earnings, college has been shown to have an important impact on the cognitive development of students. Verbal skills, quantitative skills, oral and written communication skills, and critical thinking skills all improve as a result of college.²⁴ Students who have been to college simply know more, and can think more clearly, than those who have not. While the consequences of this general intellectual development can be seen very soon upon completion of college, the positive affect remains visible throughout their lifetime.²⁵

Not only does college contribute to cognitive growth, but it alters the way individuals see themselves. College has a strong positive impact on a student's self-esteem and sense of psychological well-being.²⁶ College graduates are more likely to have an internal locus of control.²⁷ Others studies find them to be more aesthetically and culturally sophisticated,

meaning they have an increased interest in art, music, reading, and discussion of philosophical issues.²⁸

College seems to impact individuals in ways which positively affect others as well. It has been found to increase a person's tolerance for diversity and to be associated with a greater concern for human rights.²⁹ Conversely, college graduates are less likely to hold authoritarian or ethnocentric values.³⁰

The benefits of a college education even extend to the next generation. College graduates have fewer unwanted children,³¹ lower infant and child mortality rates,³² and their children perform better in school.³³ In summarizing the previous research on the intergenerational impact of college, Parcarella and Terenzini conclude that:

The more fully an individual develops his or her intellectual faculties and career opportunities through investment in education, the more likely that individual is to believe in the importance of developing similar intellectual facilities and career opportunities in their children. Thus, other factors being equal, highly educated parents are more likely than less educated parents to raise children who themselves recognize the value of education.³⁴

Perhaps the most inventive and insightful of the hundreds of studies of the impact of higher education on individuals is David Schuman's *Policy Analysis, Education, and Everyday Life*.³⁵ Unlike the numbers and formulas which provide the grist for most other studies, Schuman conducted long unstructured interviews with more than a dozen carefully selected people who had been to college many years before. He asked them to explain in their own words the impact that college had had on their everyday lives.

What they said points to the complexity of the college experience and the difficulties of measuring its impact fully. Most of the participants benefitted financially from college, but a few did not. Some were disappointed and frustrated with what they learned or failed to learn. Some wished it would have never ended and others wondered if they would have been better off if they had not gone at all. What is interesting, however, is that college served as a turning point in the lives of almost everyone. It was a time and place where they learned how to better fit into the world and create a meaning for their life.

In his conclusion, Schuman argues that to isolate college as the critical factor in anyone's life is almost always wrong.³⁶ The impact of higher education cannot, and indeed, should not, be sorted out from countless other influences. He observes that among those people he interviewed:

Education is one of those things that threads through the public and the private. It ties the person to his or her surroundings. Education, for those with it, frequently provides a sense of being in the world that helps shape and give meaning to a day.³⁷

Whether it is a benefit as concrete as reduced crime or as ethereal as an aesthetic sense, there is strong evidence that going to college has a positive impact that ranges far beyond simply increased wages and wealth accumulation. While these benefits cannot be translated into a monetary value, it seems clear that for most, attending college significantly enhanced and enriched their lives.

THE PUBLIC BENEFITS OF COLLEGE

Showing that individuals receive benefits from a given activity is not sufficient to establish the need for a public subsidy to make that activity affordable to everyone. Collecting rare coins or exercising at a health club can provide substantial benefits to an individual, but few would argue that the public ought to help bring the costs of these activities down to encourage wider participation in them. In order to justify using public funds to remove price barriers to colleges, it must also be shown that a substantial public or social benefit arises from increased participation in higher education. Next, I examine the many, often unrecognized, benefits that increased levels of higher education have on the health of the economy and the quality of life enjoyed by all Americans.

Higher Education and National Economic Growth

Certainly, educated people bring economic benefits to the societies in which they live. They get better jobs, earn higher wages, and pay more taxes. Raising the educational level of society also tends to raise the productivity of workers in a manner that adds to the economic returns of all

factors of production and those benefits extend beyond those who have directly participated in that education.

In his comprehensive analysis of the determinants of national income between 1929 and 1982, Edward Denison finds increases in higher education to be a major source of national economic growth.³⁸ He observes that the continuous upward shift in the educational background of American workers upgraded the skills and versatility of the labor force and produced a steady and sometimes steep increase in national income. Denison finds that the impact of education can be seen in several ways. Individuals working in a particular occupation perform their work better as a result of more education. The availability of more educated workers also facilitated a shift in the economy from low-skill, low-productivity industries to high-skill, high-productivity industries. Further, Denison notes that education helps workers to find, recognize, and secure the job they do best. He explains how education heightens a person's "awareness of job opportunities and thereby the chances that he is employed where his marginal product is greatest."³⁹ In sum, a more educated work-force is better able to learn and use the most efficient production practices.

Increasing education levels are a central element behind increases in national income. Denison estimates that between 1929 and 1982, more education per worker was responsible for 23 percent of the nation's economic growth. An additional 20 percent was accounted for by "advances in knowledge," much of which is presumably linked to higher education.⁴⁰ Based on a reexamination of Denison's work and ten similar studies, Leslie and Brinkman estimate that "education may contribute as much as 50 percent or more to growth in the economy, and higher education, may constitute almost half of this."⁴¹

While this is a substantial contribution, G. Psacharopoulos has argued that these "growth accounting" studies actually underestimate the contribution of education.⁴² This is because they ignore the necessary support that education provides for the development of technological change. He describes how the interaction between education and other factors of production serves to encourage national economic growth. This raises the productivity of the domestic economy and increases its competitive position in the world economy.

The impact of technological innovations and advances in knowledge is often the direct result of university-based research. So too, the process of technology transfer and application is facilitated and some-

times driven by institutions of higher education. Because of this, increases in the level of higher education in the nation can have the unrecognized benefit of making their less-educated co-workers more productive.

The economic impact of education thus extends well beyond increased personal income. As the international economy becomes more competitive, higher education will be crucial in maintaining America's competitive position relative to the rest of the world.⁴³ Increased higher education will produce a more skilled and productive work-force that is capable of retaining the high-wage, high-status, jobs that might otherwise move to Europe or Asia. In addition, more education will enable America to stay on the cutting edge of innovation, developing the new products and technologies that determine who wins and who loses in the global marketplace. In the years to come, the United States may not be able to maintain its economic position by simply maintaining its present level of education. Indeed, in the next decades Americans are likely to need more education just to keep up with the rest of the world.

Higher Education and Community Development

There are presently over 3,500 institutions of higher education in the country,⁴⁴ not counting the more than 7,000 vocational and proprietary schools. Their combined expenditures are in excess of \$100 billion per year.⁴⁵ Each of these colleges has an important impact on the economy of the surrounding community and, in sum, on the national economy. Taken together, they form one of the nation's largest industries.

Measuring the economic impact of a college or university involves separating the economic activity attributable to the college from the activity which would have taken place in the absence of the college. While accurately estimating this figure is difficult, the dozens of such studies which have tried to do so have generally reached a common conclusion. Each dollar of expenditure by a college has a local economic impact which is well in excess of one dollar. The magnitude of that impact is a function of both the type of institution and the volume of that institution's expenditures.

Community colleges have the least economic impact on a community. This is because more of their students are already residents and therefore would have been a part of the local economy whether or not there was a community college. Still, economic-impact studies have found that for the average community college each dollar of expenditures

by the college (general expenditures plus auxiliary enterprises) produces about \$1.60 of business volume in the community. Perhaps even more important, each one million dollars of expenditures (expressed in 1986 dollars) creates fifty-nine local jobs.

The economic impact on the community of four-year colleges is significantly larger. This is because they bring in more external wealth in the form of student spending, private research funding, and net tax revenues. Leslie and Brinkman estimate that for the average four-year college, each expenditure dollar produces about \$2.20 of local income and each million dollars of expenditures (in 1986 dollars) produce about sixty-seven jobs. Among private institutions and large research universities, the ratio of spending to local incomes and jobs is still greater.

While most studies find that higher education has a substantial impact on a local economy, Barry Bluestone has argued that they often consider only a portion of the real economic impact of public spending on higher education.⁴⁶ Bluestone notes that most of these studies treat the college or university simply as an export base and not as an investment instrument. They identify the number of dollars spent by employees, students, and visitors as they make their way through the community. But colleges also educate a local labor force that remains in the community. As such, the real impact of the college is much greater. Studies need to include a measure of the potential future earnings flow which results from the added earning power to the students, who benefit from having been educated at the college, to gain an accurate picture of the full impact of a college or university on a community or region.

Bluestone conducted a study of the economic impact of the University of Massachusetts–Boston (UMB) on the economy of Massachusetts. In conducting that study, he attempted to determine the overall “rate of return” for the state government from each dollar invested in public higher education. What he discovered was that:

if you treat the state government as though it were a private bank, one finds that investments in UMB have not only been economically prudent, but indeed highly profitable in a strict business sense. Our best estimate suggests that for every \$1 spent by the Commonwealth on UMB (including both current and capital spending), UMB students will earn *additional* income over their lifetimes which will generate for the state \$1.57 in personal income and sales taxes (in discounted value terms). This is an equivalent to an investment that pays 8.9 percent

nominal rate of return. If the state government were a private bank or industrial concern, it could hardly make a better investment than in the students it implicitly subsidizes.⁴⁷

It is difficult to forecast precisely future increases in income based on increased levels of education. But there is certainly compelling evidence that, in the aggregate, increased education produces increased income for individuals. That increased income, in turn, generates additional tax revenues for the community, the state, and the nation. When the additional state revenues resulting from increased spending on higher education are considered, it is reasonable to conclude that government money allocated to higher education produces a real return to the taxpayers. As such, it is not an expenditure in which all the citizens subsidize those few who are in school. Each tax dollar spent now, generates far more than a dollar increase in future government revenues.

Higher Education and Neighborhood Effects

The social benefits of an educated population extend far beyond the creation of jobs and a more productive work-force. The college experience produces an increase in socially desirable behaviors and a decrease in socially disruptive behaviors. It also has a positive impact on the way people think about themselves and the world. As such, increased participation in college would be beneficial to society even if it produced no increase in individual or aggregate income.

The most elusive benefit to the public from increased higher education is the positive impact it has on the personal values and aspirations of individuals. To the extent that a higher education tends to make one's neighbors more open minded, alert, physically healthy, interested in the community, and more tolerant of differing views, most people believe that a well educated society would be a better society. As such, it is important to most parents not simply to obtain a good education for their own children, but to assure that one's neighbors' children are also educated. Economists call these benefits neighborhood effects—the desire of individuals to exist in a world with good neighbors.

Here again Leslie and Brinkman have compiled an impressive review of the studies which show the benefits to the public of increased rates of higher education.⁴⁸ Increases in college education are associated with reductions in many of the major domestic programs which now plague the

country. Crime rates fall as education levels increase and the ability to avoid becoming a victim of crime increases.⁴⁹ Increases in education are correlated with lower public welfare and Medicaid costs.⁵⁰ College graduates are more likely to do volunteer work in community agencies and give to charities.⁵¹ College graduates are more likely to vote,⁵² and more likely to be informed about, and involved, in civic affairs.⁵³

In summing up the public benefits of higher education, the Carnegie Commission on Higher Education put it quite well:

Among the more highly educated, there is a greater sharing of aesthetic and cultural values, more political involvement, and a greater sense of tolerance towards diverse points of view. These factors contribute to social cohesiveness and tend to reinforce the procedures of a political democracy.⁵⁴

As such, the rate of college education in a community is the cause of, or at least highly correlated with, many of the factors most Americans associate with a high quality of life.

Future Work Force Needs

There is not an unlimited need for college graduates. If the supply of graduates begins to exceed the demand for graduates in the labor market, employers will bid down wages and the economic premiums will disappear. As such, policy-makers must be careful to recognize the dynamic nature of wages in a market economy. Some studies suggest that the nation may already be producing too many graduates for the needs of the labor market. One recent study found that between 1980 and 1990, about 20 percent of college graduates in the labor force were either educationally under-utilized or unemployed.⁵⁵ Moreover, a study by the National Center for Education Statistics indicate that almost 40 percent of the graduates awarded bachelor's degrees reported that *they thought* a degree was not needed to obtain the job they held a year after graduation.⁵⁶

In spite of this evidence, however, most studies reach the opposite conclusion. These studies show that the demand for college graduates has grown rapidly since 1979 and is continuing to grow.⁵⁷ In their 1991 study, John Bishop and Shani Carter contended that the demand for college graduates grew extremely rapidly in the 1980s and the resulting shortage bid up the wages of graduates.⁵⁸

Daniel Hecker points to the changes in the U.S. economy which drove the wages of the less educated downward and increased the relative value of a college education.⁵⁹ During the restructuring of the U.S. economy which has occurred since 1980, many high-wage jobs which required only a high-school diploma disappeared or were taken by those with more education. Employment in the largely non-collegiate fields of manufacturing and mining peaked in 1979 and 1981 respectively. The number of production jobs in these two areas declined by 2.3 million during the 1980s. During those same years, however, employment growth was above average in retail, finance, insurance, real estate, and health services. While those industries provided many new jobs for high-school graduates, they often paid less than the manufacturing and mining jobs which were lost.

College graduates, on the other hand, have slowly increased their earning level since 1980. This was even true for college graduates employed in fields which did not require a degree a decade ago. Hecker notes that "in every occupational group and in almost every individual occupation" college graduates had a higher increase in earnings during the 1980s.⁶⁰ For example, between 1983 and 1990 the earnings of mechanics and repairers with a college degree or more increased by 42 percent. Earnings of those with a high-school degree or less increased by only 21 percent. The economic transformation was thus rewarding college graduates regardless of their field of employment.

These changes point out that the benefits which accrue from higher education are not static. As our social and economic systems change, so too does the demand for, and the benefits of, higher education. Most studies also show that while the benefits of higher education are great today, the benefits of higher education may be even larger in the years ahead.

In *Work Force 2000*, William B. Johnson attempted to predict the labor market demands in the year 2000.⁶¹ While the future occupational mix of an economy is difficult to estimate, Johnson uncovered some important trends which suggest that a much larger percentage of the jobs of the future will have a much greater need for higher education than do today's jobs. Johnson predicts that "job prospects for professional and technical, managerial, sales, and service jobs will far outstrip the opportunities in other fields."⁶² The demand for lawyers, scientists, and health professionals will grow even faster. In contrast, jobs for machine tenders, assemblers, miners, and farmers will decline over the next decade.

Among the fastest-growing jobs, the trend toward higher education requirements is striking. The study finds that of all the new jobs created

between 1984 and 2000, more than half will require some education beyond high school and almost a third will be filled by college graduates. In 1984, only 22 percent of all jobs created in 1984 required a college degree. That percent increased to 30 percent for jobs created between 1984 and 2000. Johnson also estimates that the median education level required by these new jobs will be 13.5 compared to 12.8 for current workers. These findings are supported by projections made in 1990 by the U.S. Labor Department.⁶³

Bishop and Carter go even further. They estimate that in the 1990s, "the shortage of college graduates that prevailed in the 1980s will definitely not end and will almost certainly grow."⁶⁴ They go on to warn that:

Absent a policy response to stimulate the supply of college graduates, difficulties in recruiting highly skilled workers will force the economy off the up-skilling path generated by the growth scenarios we have simulated, and the rapid up-skilling of the 1970s and 1980s may slow considerably.⁶⁵

Moreover, these estimates are based on the assumption that the new jobs created will require the same education levels required for that occupation today. However, recent experience shows that the education requirements are also growing within each job category. If this trend prevails, the level of education needed for the jobs of the next decade will be greater than those projected.

The forces that are shaping the world economy make it increasingly difficult for American workers to succeed in the job market without a college degree. As economic change accelerates in the next decade, more workers will need a higher education simply to have access to useful job training. Economist Lester Thurow makes the point that

technology has moved in directions that require a much more educated and more skilled work force. To make today's complex semiconductor chips, a company must use statistical quality control. To use statistical quality control, every production worker must master it. To do so requires learning some simple operations research, but to learn what must be taught, workers must know algebra. Americans are not used to a world where ordinary production workers have to have mathematical skills.⁶⁶

From the point of view of the worker, higher education will become a prerequisite to compete in the future labor market. For the nation, having highly educated workers will be an essential ingredient in maintaining a high-productivity/high-wage economy.

WHY COLLEGE AFFORDABILITY MATTERS

Inasmuch as increased participation in higher education creates such wide-ranging benefits, it is in the interest of governments to find ways to encourage college attendance. But this is a difficult task. Most studies find that college participation is largely a function of students' traits such as social class, occupational ambition, or the parent's educational level.⁶⁷ Accordingly, a fully effective strategy to increase participation in higher education must address the complex factors which shape the ambitions of young children and structure their opportunities.

But as policy-makers struggle to increase college participation in the short term, there is little they can do directly or quickly to alter these sociological conditions. However, common sense suggests that economic factors also play an important role in the decision to attend college. If this is true, one way to increase participation in higher education is to decrease its price. Focusing on economic incentives to increase college attendance has particular appeal to policy-makers because they have several tools they can use to alter net college prices. Both the tuition levels charged at public colleges and the availability of student financial aid can be readily controlled.

If government efforts to regulate the net price of college can be shown to have the desired impact, they can serve as a means to increasing the private and public benefits which accrue from increased participation in higher education. However, in their efforts to make college affordable to everyone, governments must overcome three separate problems.

Affordability Problem #1: The Cash-Flow Problem

In many ways, the decision to go to college is just like any other personal investment decision. The potential student must balance the price and the risk against the return which accrues over his or her lifetime. Students will attend college if they judge the potential benefit of the investment to be greater than its cost. They will not attend if higher education appears to be a poor investment.

The problem many potential students face, however, is not that they feel the price is too high but that they do not have access to the funds necessary to invest in a college education. They have few personal resources to pay for college and thus must borrow. But such individuals may

have a difficult time in securing college loans because they lack sufficient collateral to secure the loan. Both potential borrower and potential lender may recognize the economic value of the investment, but lenders will still be hesitant about making education loans. This is because if the borrower is unable to repay, the lender cannot repossess their education in the same way it can a car or a business.⁶⁸

The inability of students to pay the up-front price of college results in a net under-investment in higher education. In describing this situation McPherson and Schapiro observe that:

In the absence of adequate private credit markets, those who do not have access to sufficient personal resources will fail to invest in a college education that will more than pay for itself; as a result, some socially worthwhile investments will not be undertaken, and the productivity of the economy as a whole will suffer.⁶⁹

In solving this problem, the challenge is to develop programs which allow students to invest in their education today and defer payment until later in life when their earnings will be greater. Government help to pay for college is thus more like a cash advance to future wage earners than a public subsidy to lower income families.

One way to correct the problem is for the government to intervene in the operation of private markets to correct the resulting under-investment. This is done by insuring the availability of private loans to potential students and/or their families. Today, this function is performed by the federal government through the provision of loan guarantees and direct loans.⁷⁰

Affordability Problem #2: Paying for Public Benefits

If individuals had to pay the entire price of college, there would be substantial under-investment in higher education, even if individuals could easily finance those costs. Each potential student, when deciding whether or not to invest in a college education, compares the *private* costs with the potential *private* returns. The individual usually does not consider the many public benefits of higher education as a return, since he or she receives no private gain.⁷¹ Thus governments have a compelling interest in keeping the net price of higher education affordable, in order to stimulate college participation.

Today, governments use two forms of subsidies to stimulate private investment in higher education and to increase college attendance. First, state governments provide subsidies directly to public colleges and universities which allow them to charge tuitions that are substantially below the actual cost of the education. These subsidies lower the price for everyone, which makes higher education a more attractive investment for individuals. Second, the federal and state governments provide grants and low interest loans directly to many students. These financial aid programs provide grants to low-income students that reduce the actual price of college, and loans to almost all students that provide the up-front money necessary to enroll. Together, these government subsidies reduce the posted price of higher education, and give more students the resources to invest.

While the public subsidies are available to all college students they go largely to younger citizens and are paid largely by older citizens. Thus, they represent a redistribution of wealth not only between income groups but also between generations: each generation pays for the education of the next. As members of each successive generation graduate and enter the work-force, they become the taxpayers that continue the cycle. The result is a kind of reversed Social Security system, in which one generation of workers provides the education for the next generation. As Allan Ostar describes the process:

The parental generation pays, primarily through state taxes, for the education of young people who attend public postsecondary institutions. Then, members of the younger generation, as college graduates, enter the work force, earn income, quickly become taxpayers, and in their productive years pay, in turn, for the higher education of the next generation. The investment in education is thus constantly renewed: by paying taxes each generation accepts responsibility to increase educational opportunity for successive generations.⁷²

Affordability Problem #3: An Equal Opportunity Society

At least since the 1960s, it has been the explicit objective of the federal government to insure that every American has an equal opportunity to participate in the economy and the society. In this regard, college price barriers pose two separate obstacles to the creation of an equal opportu-

nity society. First, the very existence of price barriers denies lower-income and disadvantaged students the opportunity to attend college. For those who view education as a right, this alone is enough to justify government efforts to insure that all Americans have access to the resources necessary to attend college.

The second obstacle to equal opportunity posed by college price barriers is even more important. Increasingly, a college education has become a prerequisite necessary to take advantage of many other social and economic opportunities. Either implicitly or explicitly, a college degree is now necessary to enter most professions, to obtain most high-paying jobs, and to hold many positions of status within the community. If lower-income or disadvantaged students are systematically denied access to college because they lack financial resources, they are also denied access to the lifetime of opportunities which follow from going to college.

In order to reach the goal of providing an equal opportunity to find a good job, earn a good living, and become full participants in community affairs, all Americans must first have access to the education necessary to compete for these rewards. This, in turn, requires that a college education be within the reasonable financial access of everyone. This does not mean that everyone should go to college. Many people have neither the desire nor the ability to pursue a higher education. It simply means that all those who have the ability and the desire to attend college, must have the financial resources necessary to meet the price. Put simply, as long as college price barriers remain, the goal of equal opportunity can never be achieved.

PUBLIC UNDERSTANDING OF THE VALUE OF HIGHER EDUCATION

In this chapter, I sought to show the wide range of benefits, often unrecognized, which accrue to individuals and communities as levels of higher education increase. Next, I explained how, in the absence of corrective government actions, there will be an under-investment in higher education especially among low- and middle-income families. This occurs because potential students may lack the liquid capital necessary to pay college prices and because potential students are unwilling to bear the full costs without a public subsidy. The result is that the national goal of building an equal opportunity society cannot be achieved.

The evidence examined here points to the next set of questions. If increasing college participation produces such benefits, and if governments have at their disposal mechanisms which have been shown to compensate for the under-investment in higher education and raise college participation rates, why are public subsidies not more effectively used today? Put another way, if removing college price barriers is so important, why have government efforts to achieve that goal been so ineffective? The rest of this book is devoted to answering these questions. In the following chapters I examine the many and varied government efforts to remove college price barriers. I examine how those programs have attempted to overcome the affordability problems outlined here and, in turn, how they have altered college participation rates over the past three decades.

A NOTE OF CAUTION

Removing college price barriers, and hence increasing participation in higher education, is not the only step which needs to be taken to increase the wages of American workers and improve the productivity of the American economy. It may not even be the most important step. Not everyone has the abilities and motivation to succeed in college. Moreover, even studies which predict an increased demand for college graduates in the future recognize that a large percentage of jobs will never require conventional higher education.

The point made here is much more narrow. Increasing college participation brings substantial benefits, both economic and non-economic, to individuals and communities. But today, price barriers limit the college attendance rates of lower-income students and result in a national under-investment in higher education. Removing those price barriers will certainly increase participation in college. But it will not mean that everyone can, or should, go to college. As price barriers are removed, those who have the ability and the desire to go to college, but who had previously found college to be unaffordable, will now have the opportunity to enroll. Those young people who had become discouraged by their family's inability to pay the price of college, might be encouraged now that higher education is within their reach. Simply removing price barriers, however, will have little impact on those who lack the skills, intellect, or motivation to attend college.