

# An Overview of American Higher Education

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## Summary

This overview of postsecondary education in the United States reviews the dramatic changes over the past fifty years in the students who go to college, the institutions that produce higher education, and the ways it is financed. The article, by Sandy Baum, Charles Kurose, and Michael McPherson, creates the context for the articles that follow on timely issues facing the higher education community and policy makers.

The authors begin by observing that even the meaning of college has changed. The term that once referred primarily to a four-year period of academic study now applies to virtually any postsecondary study—academic or occupational, public or private, two-year or four-year—that can result in a certificate or degree. They survey the factors underlying the expansion of postsecondary school enrollments; the substantial increases in female, minority, disadvantaged, and older students; the development of public community colleges; and the rise of for-profit colleges. They discuss the changing ways in which federal and state governments help students and schools defray the costs of higher education as well as more recent budget tensions that are now reducing state support to public colleges. And they review the forces that have contributed to the costs of producing higher education and thus rising tuitions.

The authors also cite evidence on broad measures of college persistence and outcomes, including low completion rates at community and for-profit colleges, the increasing need for remedial education for poorly prepared high school students, and a growing gap between the earnings of those with a bachelor's degree and those with less education. They disagree with critics who say that investments in higher education, particularly for students at the margin, no longer pay off. A sustained investment in effective education at all levels is vital to the nation's future, they argue. But they caution that the American public no longer seems willing to pay more for more students to get more education. They therefore urge the higher education community to make every effort to find innovations, including creative uses of information technology, that can hold down costs while producing quality education.

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**T**his overview of the American higher education system offers a broad picture of who pursues education beyond high school and for what purposes. What schools do these students attend, for how long, and with what result? Who pays for all this education? In answering these questions, our aim is to provide a useful context for readers as they pursue understanding of the particular topics discussed in more depth in the rest of this issue of *Future of Children*.

Our focus is undergraduate education, and we leave aside other important aspects of some higher education enterprises, including research, graduate, and professional education, and commercial sports entertainment. Because our major interest is in public policy, we give primary attention to the sectors where governments' role in finance is greatest: public colleges and universities and the for-profit education industry. These are also the institutions attended by more than 80 percent of postsecondary students.<sup>1</sup>

Over the past fifty years, the American college scene has changed dramatically. For example, the bulk of formal job training in this country now occurs in places called *colleges*. The great majority of U.S. high school graduates now pursue some form of education after high school, a path that has become substantially more common over time. These days, more undergraduate students are enrolled in community colleges than in public universities.<sup>2</sup> And among students who are attending private institutions, close to a third of them now attend places run for profit.<sup>3</sup>

None of these things was true fifty years ago. The size and scope of the changes suggest that a brief review of what American higher

education was like in the early 1960s, and of all that was about to happen to it, would not be out of place.

## Changing Context for Higher Education

The early 1960s was a time of quiet ambition in American higher education. The baby boomers were beginning to overcrowd grade schools and high schools, but the tidal wave of postwar births had not yet hit college. Undergraduate education was operated mainly through private nonprofit colleges and through public four-year institutions financed by state governments. Degree-credit enrollment in for-profit colleges was too small to track. The Soviet Union's lead in the space race (Sputnik was launched in 1957) strengthened the American will to develop a more educated population. But despite the modest inroads made by Dwight Eisenhower's National Defense Student Loans, public consensus held that the federal government had no continuing responsibility to pay for college. Total tax revenues as a share of personal income were about where they are now, but there was then no strong national movement to push taxes down. Indeed, looking at state, local, and federal taxes and spending combined, the national budget was in surplus, with taxes and spending amounting to 26 percent and 23 percent of gross domestic product, respectively.<sup>4</sup>

With a prosperous economy and relatively small cohorts of students graduating from high school (the high school class of 1960 was born in 1942, when many would-be fathers were in the service), state investments in expanding college opportunity seemed both smart and fiscally feasible—at least for those whose planning horizons were short enough to overlook the impact of the baby boom. Behind the broad optimism of the early

1960s, with the public's widely shared belief in the efficacy of government and confidence in the value of higher education, were less encouraging realities. Access to higher education was radically unequal, whether measured by family income or by racial and ethnic background. And the opportunities for second chances in education, now taken for granted in American higher education, were far less abundant fifty years ago.

It was in this environment that Clark Kerr, president of the University of California, put forward his bold "master plan," which promised to put a publicly funded college experience within financial and geographic reach of every high school graduate in the state. This ambitious plan was in line with other governmental commitments undertaken in that post-World War II era, such as the Interstate Highway System in the 1950s, the space program in the early 1960s, and Medicare in 1965. The states, following California's example, took the lead on the commitment to higher education, but the federal government soon stepped forward as well, first with the Higher Education Act under Lyndon Johnson in 1965 and then with the introduction of the Basic Educational Opportunity Grant program (later renamed Pell Grants) under Richard Nixon in 1972.

By the mid-1970s, many of the major elements of governmental provision and support for higher education were in place, with all states operating systems of public universities, colleges, and community colleges with tuitions subsidized by state appropriations. The federal government provided grant aid to students of all ages, with grant awards keyed to the ability of students and families to pay. States too began to develop programs of need-based aid (and later merit aid) awarded directly to students, supplementing state

operating subsidies to public institutions. And the federal government expanded credit availability by offering loans to students at subsidized rates and putting the cost of defaults on the federal books.

The pattern of expansion in numbers of students and in governmental support that began in the early 1960s continued in the following decades. Growth in student demand fed increased state and federal spending, even as new help in paying for college fed enrollment growth. Expanding student populations, changes in the range of offerings students wanted from colleges, and novel forms of governmental support for higher education increased the size, the number, and the kinds of institutions providing undergraduate education services. These three strands of evolution—in students, in finance, and in institutions—intertwined in complex ways. In focusing first on student access and success, then on paying for college, and last on producing college education, we also pay attention to the interlinking of these three strands.

## **Student Access and Success**

A half-century ago, college was not seen as the natural next step for most American young people who finished high school. American factories were thriving, unions were strong, and a high school graduate could reasonably expect to move right into a stable job that would support a family and allow the purchase of a car and a house. But the idea of postsecondary education was starting to catch on, and by 1960, about 45 percent of recent high school graduates began college somewhere.<sup>5</sup>

By 2009, that picture had changed. Factory jobs had become scarce, the cultural expectation that women would stay at home while men were breadwinners had faded, and

society increasingly recognized an obligation to open educational opportunities to members of disadvantaged minorities. By 2009, 70 percent of high school graduates enrolled in some form of postsecondary program shortly after completing high school, and the range of options available to them had become much broader. The absolute number of high school graduates was also expanding over much of that period as the baby boomers and then their children arrived at the college door. As a result of a growing population and higher attendance rates, the number of people enrolled in postsecondary education grew spectacularly, from about 4 million in 1960 to more than 20 million in 2009.<sup>6</sup>

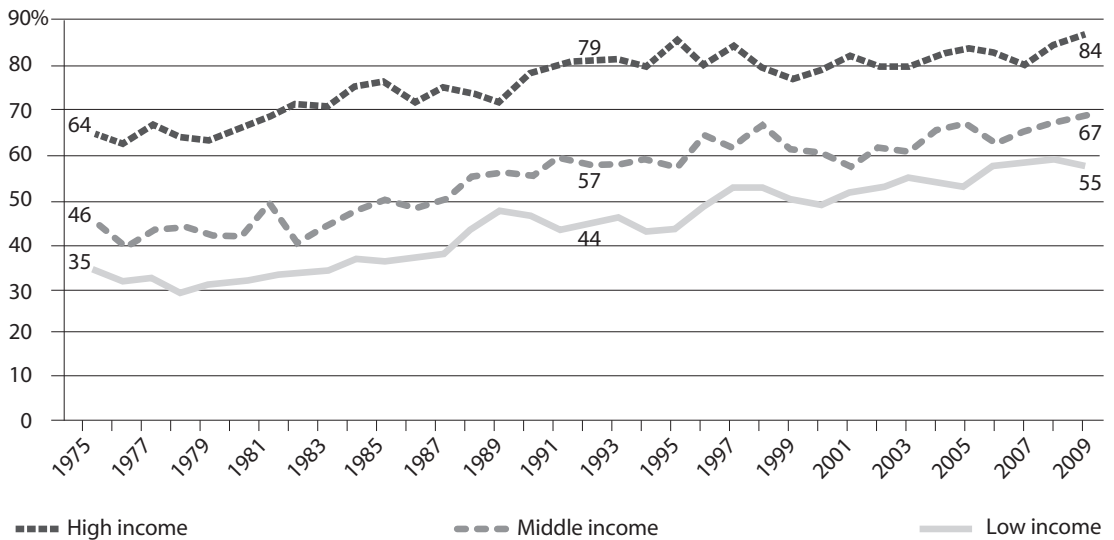
Over those fifty years, big changes had occurred not just in the numbers of people who went to college, but also in who went. In 1960, only 37 percent of the students enrolled in degree-granting colleges and universities were women; by 2009, women's share of enrollment had grown to 57 percent.<sup>7</sup> The changes in enrollment patterns by gender have generated considerable discussion about the increasing opportunities open to women, as well as concern over the extent to which men are falling behind. Aside from these social issues, however, this change has not created significant new challenges for colleges and universities, because women students come from largely the same families and have the same backgrounds as men.

Other demographic changes have shaken things up more. One set of changes involves shifts in the relative enrollment of "traditional" and "nontraditional" students. As recently as 1970, just over a quarter (28 percent) of postsecondary students were older than twenty-four. That share had risen to 42 percent by 1990 and has been largely stable for the past twenty years.<sup>8</sup> This shift

is no doubt explained at least in part by the greater availability of federal grant and loan funds that help adults manage the costs of college attendance. (These changes in funding are discussed later in this article and in the article in this issue on student aid by Susan Dynarski and Judith Scott-Clayton.<sup>9</sup>) Part-time enrollment, often also considered nontraditional, has grown as well. The share of students enrolled part-time rose from about one-third (32 percent) in 1970 to 43 percent by 1990, and then it too stabilized; in 2009, 38 percent of all enrollees were part-time.<sup>10</sup>

The growing share of nontraditional and low-income students in the college population has brought many changes in higher education, including declines in the average level of academic preparation of students and in their ability to finance postsecondary education without generous assistance from federal, state, and local governments, as well as from institutions themselves. Perhaps no demographic shift has been as visible or as consequential for the colleges and for society as the movement of the college population from being largely white to having substantial representation of students of color. In 1976, non-Hispanic whites made up more than four-fifths percent of all students; by 2009, this figure had dropped to less than two-thirds.<sup>11</sup> This trend reflects the expansion of the Hispanic population as a share of all Americans. Moreover, the enrollment rate among Hispanic high school graduates fluctuated around 50 percent from the early 1970s through 2000 but has since increased to around 60 percent. The proportion of black high school graduates going to college has also risen over this time period, from about two-fifths in the mid-1970s to just under three-fifths today.<sup>12</sup> Other significant factors explaining this trend no doubt include some

Figure 1. Share of Students Enrolled in College Immediately after High School Completion, by Family Income



Source: Susan Aud and others, "Condition of Education 2011" (U.S. Department of Education, National Center for Education Statistics, 2011).

Note: The figure shows the share of high school completers enrolled in two- and four-year colleges in the October immediately following high school completion.

improvement in the educational opportunities available before college to persons of color and greater availability of financial aid resources to enable lower-income minority students to finance college attendance. The increasing importance of postsecondary credentials in the job market has also played a role (a point discussed later in this article).

College enrollment rates have risen gradually over time for all demographic groups, but as figure 1 shows, gaps in enrollment rates across high school graduates from families at different income levels have persisted.<sup>13</sup> In 1975, there was a 29 percentage point gap in college enrollment rates between students from high-income families and those from low-income families. By 1993, that gap had grown to 35 percentage points. Progress between 1993 and 2003 brought the gap back to 29 percentage points, just where it had

been thirty-four years earlier. This persistently large differential in college-going for more and less affluent families is an indication that despite the growth of financial aid and other efforts to expand educational opportunity, the enrollment prospects of children remain highly dependent on the financial circumstances of their parents.

Children from economically disadvantaged families confront challenging conditions right from birth—in neighborhood and family circumstances, in social service provision, and in the educational opportunities available to them. These differences are large enough and influential enough to make it clear that the gaps in college enrollment and educational attainment do not result solely—or even primarily—from inability to pay for college. Even controlling for academic preparation, however, large gaps in enrollment and even

larger gaps in degree attainment persist across demographic groups.<sup>14</sup>

The increasing demands on postsecondary education are to a large extent attributable to the demands of the labor force. An increasing proportion of jobs, and particularly of jobs that pay a living wage, requires higher skill levels than most high school graduates demonstrate, as well as credentials beyond a high school diploma. Indeed, Claudia Goldin and Lawrence Katz argue convincingly that the growing payoff to higher education since 1980, an integral aspect of rising inequality in the distribution of income, can best be explained by a slowdown in the growth of the skilled labor force, which has not kept pace with growing demand.<sup>15</sup> At least partly in response to these higher returns, the fraction of high school students beginning some form of postsecondary education has risen substantially over time. Over this time period, however, the postsecondary education sectors that have grown most rapidly are the community colleges and for-profit institutions that offer vocationally oriented programs such as technical or professional associate's degrees or occupational certificates, as well as in some cases more traditional academic programs.<sup>16</sup>

American higher education has probably not for a long time, if ever, been as thoroughly traditional as “Joe College” mythology supposes, and the degree of disappearance of traditional students is likewise frequently exaggerated. Still, the shifts have been substantial, and they reflect the changing needs and goals of a population seeking postsecondary education and training for an economy and society that are themselves in rapid flux.

### Understanding College Completion

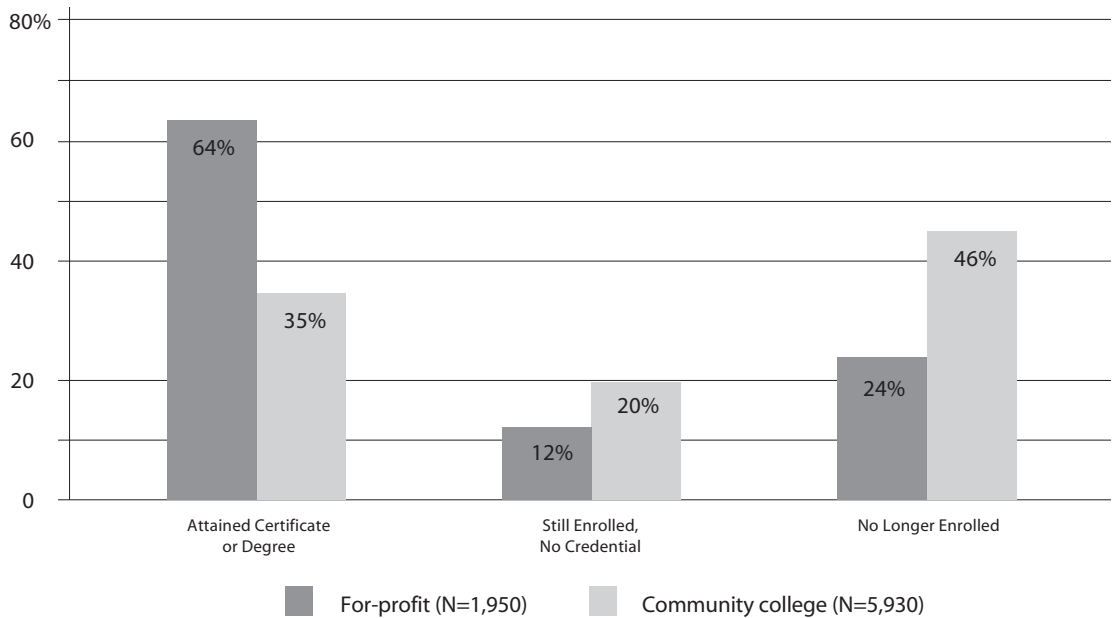
The range of credentials students pursue makes the definition of college “success”

elusive, a fact that has been particularly challenging for community colleges to manage. Even for basic success measures such as completion rates for various degree programs, available national data have limitations. A recent report from the American Council on Education that evaluates the sources of data on completions finds that no national database delivers a graduation rate accounting for all students. The report emphasizes, however, that valuable information can still be gleaned from available completions data.<sup>17</sup>

Data collected from the Beginning Postsecondary Students (BPS) study, which follows cohorts of first-time college students for six years after their initial enrollment, track those students' persistence, time to degree, and degree(s) earned. Findings from the most recent BPS cohort, which is composed of students who first enrolled in the 2003–04 academic year, indicate that about one-third of the students who began at public two-year institutions had earned a credential after six years, while nearly half had not received a credential and were no longer enrolled at any institution of higher education (figure 2). Among students beginning at four-year institutions, about two-thirds had earned credentials after six years and about one-fourth were no longer enrolled.<sup>18</sup>

Studies controlling for multiple factors influencing college graduation rates consistently show that academic preparation, as measured by test scores and high school grades, and family background—parental educational attainment and family income—are both significant determinants of college success. In addition, women are more likely to graduate than men.<sup>19</sup> On average, students from disadvantaged minority groups enter college with weaker high school preparation and have parents with less income and fewer

Figure 2. Attainment and Persistence at Any Institution



Source: Alexandria Walton Radford and others, "Persistence and Attainment of 2003–04 Beginning Postsecondary Students: After 6 Years" (U.S. Department of Education, National Center for Education Statistics, 2010).

Notes: Estimates include students enrolled in Title IV–eligible postsecondary institutions in the fifty states, the District of Columbia, and Puerto Rico. The category "Attained Certificate or Degree" includes students who by spring 2009 had attained a certificate, associate's degree, or bachelor's degree as their highest degree. The category "Still Enrolled, No Credential" includes students who in spring 2009 were enrolled at institutions of higher learning but had not attained a degree or certificate from any institution. The category "No Longer Enrolled" includes students who in spring 2009 were not enrolled at any institution and had not attained a degree or certificate from any institution.

years of schooling than other students. These factors account for much of the difference in graduation performance between disadvantaged minority students and others. Even after adjusting for these factors, however, black men tend to have lower graduation rates than others, for reasons that are not well understood.<sup>20</sup>

Meaningful comparisons of college graduation rates over time are hard to make, largely because the populations of students and schools have changed so dramatically. At any given time, students with stronger high school and test score records are more likely, other things being equal, to attend college. As a larger share of young people completes high

school and a larger share of those completers participates in postsecondary education, the academic preparation of college students who are enrolling at the margin will be lower than average. As a result, the average preparation of students entering college declines.

The issue is not that high school students are performing worse now than they did in the past; rather, it is that relatively less well-prepared high school graduates are attempting college in increasing numbers. Level of preparation is not an easy thing to measure or summarize, but scores on the National Assessment of Educational Progress (NAEP) tests—subject-matter assessments administered to nationally representative samples of

fourth-, eighth-, and twelfth-graders—provide a reasonable indicator. The format of the NAEP tests has changed very little over time, so the results offer a good long-term picture of trends in academic achievement. As it turns out, NAEP data suggest that the academic achievement of seventeen-year-olds stayed nearly constant from 1971 to 2008.<sup>21</sup> In short, students are not doing more poorly in high school than they did in the past (something that older Americans love to believe); rather, students in the lower part of the high school achievement distribution are being encouraged more than ever before to acquire more education. Americans also expect or want high schools to be more effective in preparing people for college than they used to be, but this goal has so far been difficult to achieve.

A fascinating recent study by John Bound, Michael Lovenheim, and Sarah Turner sheds light on this issue.<sup>22</sup> In a careful comparison, they found that the share of students attaining a college degree within eight years of first enrolling fell by about 5 percentage points (from 45 percent to 40 percent) between cohorts entering in 1972 and those entering in 1992. Part of the decline can indeed be explained by the entry of less-prepared students into college, but Bound and his colleagues found that a bigger factor was a reduction over time in the level of resources provided to students at the postsecondary schools that less-prepared students were more likely to attend (primarily community colleges and less selective public universities). In a similar study, the same authors looked at increases over the past thirty years in the amount of time students take to acquire bachelor's degrees. Again, they found that the phenomenon is best explained by declines in collegiate resources at public institutions outside of the most selective group of

institutions.<sup>23</sup> As they noted, the supply side of higher education needs to be taken into account in understanding declining graduation rates and increases in time to degree.

Barring dramatic improvements in high school achievement, it seems inevitable that, as enrollments expand, the need for developmental education (or remediation) as well as academic and personal support services in colleges increases. In 2007–08, 36 percent of first-year undergraduate students took at least one remedial course. This lack of preparation affects all postsecondary sectors, with remedial participation ranging from 26 percent among students in private nonprofit four-year institutions to 42 percent among public two-year college students during that year.<sup>24</sup> The range of support services institutions offer has also become much broader than the strictly academic coursework that the term *remediation* calls to mind. When the term first came into use, it mainly referred to the courses that older, returning students might need to familiarize themselves with content they had not been exposed to in years. Nowadays, remediation also includes courses for recent high school graduates who are judged not to have mastered basic English or math skills in high school. In addition to remedial academic coursework, many institutions are offering support services such as child care and transportation programs that aim to indirectly improve student outcomes by easing pressures in nonacademic areas of student life. In later articles in this issue, Eric Bettinger, Angela Boatman, and Bridget Terry Long discuss the many existing student support programs as well as new reforms that promise to improve student persistence and outcomes; and Andrea Venezia and Laura Jaeger discuss transitions from high school to college.<sup>25</sup>



Table 1. Median Annual Earnings of Male Full-Time Wage and Salary Workers Aged 25 and Older by Educational Attainment (Constant 2011 dollars)

Year	Less than high school	High school graduate	Some college or associate's degree	Bachelor's degree or higher
1990	\$30,254	\$39,802	\$46,990	\$64,209
1995	26,445	38,622	45,434	64,370
2000	27,572	40,124	46,936	69,251
2005	27,250	39,051	45,863	69,841
2010	26,070	38,085	45,327	71,343

Source: Bureau of Labor Statistics, unpublished data.

Many of the changes discussed here have accompanied a shift away from “college” as primarily an academic pursuit for a relatively small proportion of the population to a set of diverse pursuits in postsecondary institutions valuable to a broader range of people. Many students are engaged in vocational training, not traditional academic study. These students, particularly the students who are adults with labor market experience, would have been considered job-training participants—but not college students—fifty years ago. The growth in the for-profit sector represents one aspect of this change, but community colleges also offer many programs that prepare people for specific roles in the labor market. Under this broader understanding of college as including any institution-based postsecondary education or training, the need for more people with at least some college training in the rapidly changing labor market is not difficult to understand.

### The Value of a College Degree

For most of the past fifty years, job opportunities for college attendees have been relatively stronger than those for people with less education. But for a time during the 1970s,

the concept of the “overeducated American” gained credence. In a 1976 book by that title, Richard Freeman argued that the returns to a college education had declined enough to make both individuals and society as a whole question the value of sending so many people to college.<sup>26</sup> This downturn proved to be a blip, however, and by 1980, median weekly earnings of four-year college graduates were 41 percent higher than those of high school graduates. The gap has grown dramatically since then, to 65 percent in 1990, 76 percent in 2000, and 83 percent in 2010.<sup>27</sup> The difference in earnings between those with some college and those with no college has not experienced the same growth. Table 1 shows that the inflation-adjusted earnings of people with “some college or an associate’s degree” actually fell between 1990 and 2010. These figures are difficult to interpret because they include both certificate and associate degree holders, as well as those who enrolled in college but did not receive a credential. One possible explanation for the pronounced income disparity between the highest and lowest ends of the educational attainment spectrum, however, is provided by Claudia Goldin and Lawrence Katz, in their account

of how an environment of rapid technological change places a high premium on skill.<sup>28</sup>

The earnings gap is often taken as a handy indicator of how much better off individuals will be if they pursue college than if they do not. But research shows that people who attend and complete college are systematically different from those who do not. Perhaps those underlying qualities are the ones that really matter, and college-goers would be more successful than others even if they skipped college. But careful statistical analyses controlling for as many individual characteristics as possible suggest that the earnings gap does provide a reliable estimate of the financial benefits of a college education.<sup>29</sup> (Evidence about rates of return in both monetary and other terms is addressed in the article by Philip Oreopoulos and Uros Petronijevic in this issue.<sup>30</sup>)

The earnings gap has increased over time. Earnings of four-year college graduates outpaced inflation over the two decades from 1990 to 2010, while earnings declined for other groups. As Table 1 indicates, median earnings for full-time workers with at least a bachelor's degree increased by 8 percent from 1990 to 2000 and by another 3 percent from 2000 to 2010, after adjusting for inflation. For high school graduates, the median income grew 1 percent in the 1990s, followed by a 5 percent decline between 2000 and 2010. Back in the 1970s, Lester Thurow suggested on the basis of data like these that for many people, college education was less the road to prosperity than a "defensive necessity."<sup>31</sup>

## Paying for College

For more than a century, the costs of supplying undergraduate enrollment have been shared among governments, families (through tuition and the forgone earnings of students),

and philanthropy. But both the mix among these funders and the mechanisms of support have shifted substantially over time.

Philanthropic support is more significant for private nonprofit education than for the other sectors, although some public research universities now have major fundraising programs. Because the philanthropic role has changed less in recent decades than has the role of governments and tuition payers, and because our focus is on public policy issues, we do not discuss it further here.

It is natural to think that families, through tuition, are paying the bulk of undergraduate education costs, especially when the fancy prices of a relative handful of elite private institutions are as influential as they are in shaping public impressions about the costs of college. These impressions are misleading. Recent trends in the "published," or "sticker," prices of various categories of institutions are the starting point for untangling this story. The published prices for postsecondary schools have been rising more rapidly than the prices of most other goods and services for many years. The average price of a year at an in-state public four-year college rose to \$8,244 in 2011–12 from \$2,242 (in 2011 dollars) thirty years earlier—an annual growth rate of 4.4 percent beyond inflation. The growth was somewhat less extreme for public two-year colleges, where the average price after adjusting for inflation rose from \$1,070 to \$2,963 (or 3.5 percent a year beyond inflation). Private nonprofit colleges saw a similar rate of increase on a much higher base price. The average price tag went from \$10,144 (in 2011 dollars) in 1981–82 to \$28,500 in 2011–12.<sup>32</sup>

These price increases are not easy to reconcile with the dramatic increases in

enrollment, particularly the increases in participation among low-income and minority students. Key parts of the explanation are that the majority of students do not actually pay the sticker prices and that loans have increasingly become available to help them manage the prices they do pay. The wedge between the published prices and the actual prices students pay comes in the form of grant aid and, to an increasing extent, tuition tax credits. In 1981–82, grants averaged about \$2,490 (in 2011 dollars) per postsecondary student. By 2011–12, students received an average of \$6,994 apiece to help them pay for college.<sup>33</sup>

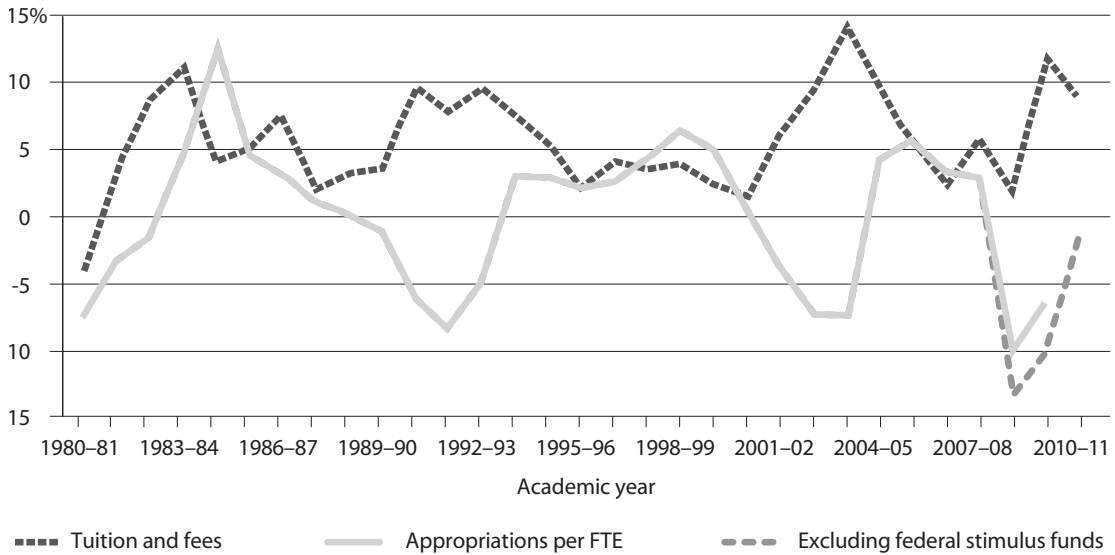
In other words, a significant portion of the increase in tuition has been covered by grant aid from federal and state governments and by grants (sometimes referred to as tuition discounts) from colleges and universities themselves. Since the start of the recent economic crisis, the federal government has been particularly instrumental in keeping the net price of college from rising rapidly along with sticker prices. Spending on the federal Pell Grant program more than doubled from \$15.9 billion (in 2011 dollars) in 2007–08 to \$34.5 billion in 2011–12.<sup>34</sup> Between 2007 and 2010, the subsidies the federal government provided to students through tax credits and deductions rose from \$7.2 billion (in 2011 dollars) to \$18.8 billion, in large part through the introduction of the American Opportunity Tax Credit.<sup>35</sup>

Student aid comes primarily from the federal government and from colleges and universities themselves, but states also play a significant role. In recent years, state governments have provided approximately \$9 billion annually in student grant awards, a number that pales beside the almost \$80 billion in state appropriations to postsecondary institutions, although state student grant aid awards

have grown faster over time.<sup>36</sup> In contrast to appropriations, which lead to subsidized tuition levels enjoyed by all in-state students enrolled at an institution, state grant funds are awarded selectively, generating different net prices for different students. As recently as 1990, about 90 percent of state grants were based at least to some extent on the financial circumstances of the recipients.<sup>37</sup> Since 1993, several states, particularly in the South, have instituted “merit-based” grant programs targeted to those with high levels of academic achievement in high school, often without any consideration of financial need. Need-based state grant aid has grown slightly in recent years, increasing by \$14 per full-time equivalent undergraduate (in 2011 dollars) between 2000–01 and 2010–11, although that increase was smaller than the growth in non-need-based grants, which increased by \$52 per full-time equivalent undergraduate over the same period.<sup>38</sup>

The grant aid that helps keep college prices within reach is only one element in the difference between what college education costs to produce and what families pay. Historically, the states have had the main governmental responsibility for providing access to higher education, which they have accomplished primarily by appropriating funds for public colleges and universities, covering part of the cost of institutional operations directly. This approach helps both families that cannot afford to pay the unsubsidized cost as well as more affluent families that can. With the rapid expansion in state-run higher education during the 1960s and 1970s, an expansion fueled by the economy and by the baby boom, state appropriations came to form an increasingly important source of financial support for public postsecondary institutions, constituting 44 percent of their total revenue in 1980. Since then, however, this share has

Figure 3. Annual Percentage Changes in Tuition and Fees and State Appropriations for Higher Education 1980–81 to 2010–11



Source: Sandy Baum and Jennifer Ma, “Trends in College Pricing 2011” (New York: The College Board, 2011).

Notes: Tuition and fees are adjusted for inflation; state appropriations are per full-time equivalent (FTE) student.

steadily declined, falling to 38 percent in 1990, to 32 percent in 2000, and to 22 percent in 2009.<sup>39</sup>

Whether the trend has been positive or negative, state appropriations have always been cyclically sensitive, growing more slowly or shrinking when tax revenues are down. This somewhat “feast or famine” pattern of state funding for higher education wreaks havoc on long-term planning for the schools. Moreover, since the financial crash of 2007–08, famine has been the rule. The playing out of this cyclical pattern over the long term is shown in figure 3.<sup>40</sup> The tendency for slow growth or decreases in state appropriations and rapid increases in tuition to occur at about the same time is apparent. Less obvious is the tendency for successive peaks in appropriations to be lower.

In recent years, the challenge facing state universities has gone beyond a declining share in state support per student to an actual decline. While the patterns vary considerably across states, overall funding has failed to keep up with the rapid growth in enrollments, and state appropriations per full-time equivalent student were almost 25 percent lower in inflation-adjusted dollars in 2009–10 (\$7,100) than their level a decade earlier (\$9,300 in 2010 dollars).<sup>41</sup> This pattern will likely be mitigated temporarily when the economy and state tax revenues recover, but there is no obvious reason to expect a reversal anytime soon in the long-run trend.

While the state role first waxed and then waned, the federal role in funding students has increased dramatically since 1960. As we noted at the outset, during the 1960s and 1970s, an era of historic growth in the

scope of many government activities from health care to foreign policy, the federal government came to embrace a continuing role in financing undergraduate higher education, intended largely to complement state efforts. Before then, federal support for higher education generally had taken the form of nonpermanent programs such as the GI Bill, which helped underwrite the college ambitions of returning veterans. The steps that gradually led to the creation of what came to be called the Pell Grant program—a program that has always had the structure, but never the legislative mandate, of an entitlement—were decisive. The Pell program established a permanent source of funding targeted at enabling college access for students from low-income families. Its introduction heralded the federal government's entrance as a key player in the higher education finance scene and signaled that it would be there to stay. Indeed, the Pell program has awarded grants to disadvantaged students for the past forty years, growing from a \$5.7 billion (in 2010 dollars) program serving 1.9 million students in 1976–77 to a \$36 billion program serving more than 9.1 million students in 2010–11.<sup>42</sup>

Most federal grant aid is well targeted on low- and moderate-income students. Half of the \$36 billion in Pell Grant funding in 2010–11 went to adult students (those age twenty-four and older) with limited resources.<sup>43</sup> Two-thirds of the funds to students dependent on their parents went to those from families with incomes below \$30,000.<sup>44</sup> The characteristics of the students receiving this aid have changed quite dramatically, however. In 2010–11, 56 percent of Pell Grant recipients were age twenty-four or younger and 25 percent were over age thirty. In contrast, thirty years earlier, 78 percent of recipients were twenty-four or younger and only 9 percent

were over thirty.<sup>45</sup> This is true even though the majority of college students are still under twenty-four.<sup>46</sup>

The federal focus on improving access to college for those with limited resources has been diminished in recent years by the addition of federal tax credits and deductions for tuition payments. These programs were designed to mitigate the burden of paying for college for middle-income families. Since the introduction of tuition tax credits in 1998, many parents and students too affluent to qualify for federal grants have received help with their college bills. Until 2009, these credits were nonrefundable and thus had no value for people without income tax liabilities. In 2009, however, 40 percent of the credit became refundable, allowing some low-income students to benefit from the tax credits. At the same time, an increase in the income cap on eligibility directed a larger percentage of the subsidy from the tax credit subsidy to taxpayers with incomes far above the median.

Although the federal government has assumed a larger role in financing postsecondary education over time, the downward trend in state funding has led to a real decline in per-student funding in higher education. Not only has this funding decline put upward pressure on public tuition, but it has also produced substantial downward pressure on production costs. To the surprise of many, the per-student expenditures on educating students at public institutions—the actual costs of supplying public higher education—have not risen much faster than general inflation in recent years. Education and related expenditures per full-time equivalent student increased at an average annual rate of about 1 percent beyond inflation at all types of public institutions from 2002 to 2008.<sup>47</sup> (Indeed, there is real reason to be concerned

that this downward pressure may be producing a decline in the quality of public higher education, as discussed in the article by Davis Jenkins and Olga Rodriguez in this issue.<sup>45</sup>)

Thus, although many people draw comparisons between production cost growth in public higher education and health care, the actual situations in these industries are quite different. In health care, “bending the cost curve” refers to slowing the rate of growth in costs per patient. In public higher education, given that production costs are increasing relatively slowly, the hope is not simply to slow cost growth further, but actually to produce an education of equal quality at lower cost—bending the cost curve until it points down. Without such changes, higher education requires more and more funding as the number of students enrolled increases.

Needless to say, this analysis has not been well received by the public. Public opinion polls suggest that most Americans do not distinguish between the cost of producing education and the prices people pay (and many pollsters don’t either). Americans tend to believe that colleges are wasteful and that cost-saving innovations are easily available. In a poll conducted in 2011 by Gallup on behalf of the Lumina Foundation, 70 percent of participants reported satisfaction with the quality of higher education, whereas 25 percent reported dissatisfaction. Tellingly, however, only 24 percent reported satisfaction with its affordability, while 75 percent reported dissatisfaction. Reacting to a claim that higher tuition is correlated with higher quality, 10 percent reported strong agreement with the statement, whereas 22 percent expressed strong disagreement.<sup>49</sup> Figures such as these suggest a prevalent belief that the same quality of higher education should be available at lower cost. But realistically,

in the absence of major innovation in technology or otherwise, the obvious options for lowering costs quickly involve things like larger classes, less qualified instructors, or reductions in amenities like attractive living quarters and high-profile sports teams—all steps that would disappoint many of the same people who are decrying higher prices. Questions about the prospects for improving productivity therefore loom large.

## Producing College Education

Before exploring the potential for improving productivity in education, we look first at the “supply side” of higher education services: who produces higher education, how is it produced, and what explains changes that have occurred in those areas? This side of higher education has received much less systematic attention from researchers than have the comparable demand-side questions about who attends college, where, and what influences their choices.

Over the past half-century, the types of institutions that produce higher education have changed quite a bit. The actual methods and technologies used in providing higher education services have also changed but less so than the population of producers. The biggest change in who produces postsecondary education has come about through the remarkable growth in community colleges, institutions that offer to most of their students two-year associate’s degrees or shorter certificate programs. Clark Kerr in 1960 called for the rapid expansion of such institutions in California, as part of the plan to put a higher education opportunity in reach of every high school graduate in the state. While two-year “junior” colleges were far from a new idea when Kerr wrote, before the community college movement hit its stride, they had been thought of largely as starter

institutions for students on their way to bachelor's degrees (or, particularly for women, as "finishing schools").

As the community college movement took hold in the 1960s, the driving force was the aim to put some postsecondary opportunity within easy geographic and financial reach of almost all students. The overwhelming emphasis was on "open access"—no or low admission standards, low tuition, and widespread geographic proximity. Thus, while community colleges were still intended to fulfill the "transfer" role of providing a gateway to four-year institutions, they were also understood to be intensely local operations that would meet the wide variety of educational needs in their particular communities. These might range from casual language instruction for people planning to travel (or simply seeking cultural enrichment) to focused vocational offerings to meet the needs of local employers. A continuing problem for community colleges, made more intense by the recent emphasis on college completion, is how to define "success" for students with such varied needs, qualifications, and interests. The growing range and variety of programming offered within a large urban or suburban community college also raises obvious challenges to managerial effectiveness and economic efficiency. To our knowledge, little systematic work has been done on these scope, efficiency, and effectiveness questions.

In quantitative terms, the magnitude of the change is easy to document. In 1963, the 740,000 students in public two-year institutions accounted for just 24 percent of public higher education enrollment; by 2009, more than 7 million students were in this sector—48 percent of all public college enrollments.<sup>50</sup> In recent years, some community

colleges have sought and in some measure gained the authority to grant four-year bachelor's degrees, in addition to occupational certificates and associate's degrees.<sup>51</sup>

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The community college movement predated, and perhaps to some degree stimulated, the interest of the federal government in providing funds for students to attend college. Certainly the broad geographic availability of community colleges offered parents an opportunity to envision a path for their children to college success that did not require them to leave home. Providing this option for disadvantaged students encouraged the idea that the federal government should support such students.

But if community colleges provided some of the impetus for federal grant funding of student expenses, rapid expansion of, and enrollment growth within, the private for-profit sector is almost certainly an effect of the growing availability of federally supported grants and loans. Once it became

possible for students whose families had essentially no resources to finance most of the costs of an educational program through grants and loans, a tremendous business opportunity opened up. Many for-profit suppliers rely heavily on Pell Grants and federal student loans; in an attempt to prevent institutions from relying entirely on these sources, the government since 1992 has required that these institutions get at least 10 percent of their revenues from other sources. (Funds provided to students to pay for education through the GI Bill, another significant source of funding, are not treated as federal funds for this purpose.) It seems clear that the for-profit sector could not have expanded as it has without the federal grant and loan programs. Few people in Congress at the time these programs were introduced foresaw a significant role for profit-seeking institutions, making this development a very large unintended consequence of the highly contentious decision in 1972 to provide funds to students directly as vouchers rather than through grants to institutions.<sup>52</sup>

The structure of the for-profit industry has evolved as the sector has grown. The first generation of for-profit institutions, many of which were small, so-called “mom and pop” operations, suffered a major shake-up when Congress introduced rules in 1990 to deny federal funding to colleges whose students defaulted at high rates on their education loans. But after a dip in their funding share, the for-profit higher education industry has come roaring back. Today’s for-profits include several large and publicly traded firms, some with major backing from leading investment banks. Having held a negligible share of higher education enrollments in 1960, the for-profit industry accounted for 6 percent of all full-time equivalent enrollment in the fall of 2001. This share grew rapidly, and by the

fall of 2011, it had reached 12 percent.<sup>53</sup> For-profit college enrollees also receive a significant share of federal student grant aid, with 21 percent of Pell funding in 2011–12 going to students at these institutions.<sup>54</sup> (Further discussion of for-profit higher education can be found in the article by David Deming, Claudia Goldin, and Lawrence Katz in this issue.<sup>55</sup>)

### The Costs of Production

As we have noted, a basic challenge in sorting out who pays for “college” is the underlying fact that the costs of producing higher education have generally risen faster than costs in other industries, tending to make the price of higher education rise over time. A fundamental element explaining this phenomenon was provided in William Baumol’s and William Bowen’s diagnosis of the “cost disease.” Their theory suggests that in an economy undergoing rapid technological change, a sector that is not being transformed needs to pay workers competitively relative to those in industries where productivity is rising. The result is that relative costs rise in industries that do not tend to experience large efficiency gains from technology, and hence prices rise too.<sup>56</sup> This basic force surely contributes to explaining the rising long-term trend in college costs. Undergraduate education is, by and large, still produced in roughly the same labor-intensive way it was fifty or seventy-five years ago, even as faculty and other staff in colleges have received wage gains in step with workers in other industries.

That said, the cost disease alone cannot explain the entire story behind college cost changes over time. Elite private colleges and universities have been engaged for decades in a competition to reduce class sizes and increase the amenities of both academic and recreational life, a competition driven



by a desire for prestige and an increasingly demanding clientele of very affluent parents. These improvements (which may or may not increase learning productivity) put pressure on other, less affluent institutions to compete, and so add to cost pressures. At public institutions, especially the less selective ones, college expenditures are constrained by available revenues, and clear evidence shows that when revenues are constrained, whether by restrictions in government support or by weak demand in the private sector, costs rise more slowly, as do faculty and staff salaries. When those constraints ease, spending rises. (In their article in this issue, Jenkins and Rodriguez discuss production costs in more detail, focusing specifically on broad-access public institutions.)

While both the cost disease and availability of revenues offer illuminating partial explanations for the rising costs of producing higher education, other contributing factors abound: the expense of equipping institutions with the latest technology; the cost of educating students who arrive unprepared for college-level work; the cost of complying with an increasingly complex array of government regulations; the rising price of health care; and competition for students that drives improved amenities at selective institutions. Absent a sustainable solution to overcoming the cost disease and the other sources of the rising costs of producing higher education, the share of a nation's income going to pay for higher education will tend to continually rise. This is the problem that families, governments, and donors have to work out.

Differences in how undergraduate education is produced are significant across types of institutions. At large universities in both the public and private nonprofit sectors,

much instruction in freshman and sophomore classes is provided through very large lectures combined with discussion sections led by graduate students. This instructional format is used much less in smaller four-year colleges, community colleges, and for-profit institutions, partly because a labor force of graduate students is generally not available. At these latter types of institutions, introductory classes are largely taught by individual instructors in classes that are much smaller than those at big universities, which may contain many hundreds of students.

Large for-profit institutions unbundle many of the components of the instructional process, with specialists developing curricular materials and syllabi centrally, while instructors (typically local practitioners in the field of the course) conduct classes. For-profit colleges also tend to provide students with less flexible program sequences and many fewer options and pathways than do community colleges. Some scholars have argued that this highly structured approach is a good one for busy students in need of guidance and aiming to acquire specific occupational skills.<sup>57</sup> The emergence of for-profit higher education is plainly a major development with great potential for both innovation and abuse.

Both the public and not-for-profit sectors have experienced significant change in who delivers educational services and under what employment circumstances. A major development has been the substitution of less costly and generally less well credentialed part-time and adjunct faculty for full-time tenured and tenure-track faculty. Ronald Ehrenberg reports that the share of faculty who are full-time fell from almost 80 percent in 1970 to 51.3 percent in 2007, with "the vast majority" of part-time faculty lacking doctorates. He

further reports that among full-time faculty, the share not on tenure or tenure track grew from 18.6 percent to 37.2 percent between 1975 and 2007. Although this overall trend is explained in part by the growth of community and for-profit colleges, movements in this direction are prevalent within all sectors of postsecondary education.<sup>58</sup> In particular, greater reliance on lower-paid adjunct and part-time faculty helps to explain how public institutions have managed to keep the rate of growth in production cost low in the past decade, even as reductions in state funding have caused tuitions to rise rapidly.

The differences in how education is delivered across sectors and in who is delivering educational services over time seem likely to be related to differences in educational productivity and effectiveness. Do students who are taught, say, introductory psychology in large, impersonal lecture classes have a more or less valuable educational experience than those who are taught in relatively smaller classes of perhaps thirty or forty students? Does having a doctorate relate to teaching effectiveness in undergraduate courses and, if so, in what direction? Regrettably, little is known about the answers to these and similar questions. One reason is lack of agreement on exactly how to define, let alone measure, the value of an educational experience. More broadly, study of instructional effectiveness in higher education has not been a major preoccupation of the professoriate.<sup>59</sup>

### **Innovation in the Production of Higher Education Services**

A looming question in the study of productivity in higher education is whether novel information and communication technologies have the capacity to dramatically improve the productivity of investments in learning. More needs to be known about both

the educational value of instruction in these nontraditional modes and their costs. The urgency of finding answers to these questions arises in large part from the continuing pressure to reduce the cost of production of public higher education, as Americans seem increasingly reluctant to pay the costs either through taxes or tuition.

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A major stumbling block in judging the promise of technological innovation in improving productivity is the wide range of conceptions of what “online learning” or “computer-assisted instruction” really means. Some conceptions amount to little more than the one-way delivery of videotaped lectures—in effect, educational television delivered over the Internet. Another conception is that of conducting face-to-face classroom interactions over live Internet connections, using tools such as Skype. Others conceive of sophisticated interactive computer programs that can substitute for instructors, to a greater or lesser degree, in interactions with students. Some people think of particular courses that are easy to “digitize” while other parts of the

curriculum are delivered in more traditional ways. Others speak of putting entire degree programs online. Each of these conceptions (and there are others) is likely to have a distinctive profile in cost and educational effectiveness. There may be differential impacts on learning for different groups of students. The one thing we know for sure is that any simple generalization about online learning is almost certain to be wrong. (For further discussion, see the article in this issue by Bradford Bell and Jessica Federman on e-learning.<sup>60</sup>)

The systematic evidence about the influence of any one of these highly varied forms of information technology on either costs or learning is meager.<sup>61</sup> A further and, in our view, quite serious challenge to assessing the effectiveness of online education is posed by a lack of clarity about the intended outcomes of many educational programs. In many cases, the “payoff” of a particular course is measured by some “learning outcome,” which is typically a test score. It would be natural to assume that the payoff from an entire educational program is simply the sum (somehow rendered in comparable terms) of the value of the learning outcomes in every course. But whether this assumption is plausible is not at all clear, except perhaps in the case of relatively circumscribed vocational programs. It seems likely, in other words, that significant interaction effects occur across the learning in different courses in, say, an undergraduate liberal arts curriculum. More generally, “becoming educated” might be viewed as an emergent property (in the sense used in biology) of an ensemble of educational experiences. The assumption that these interactions would work out similarly if all or a large fraction of those courses were delivered in a very different way is certainly not obviously valid. Much research is needed, and external pressures suggest it had best be done soon.

## Conclusion

Stepping back from the three dimensions of undergraduate education in the United States we have reviewed—the students, the financing, and the institutions—we want to return to the larger picture of how higher education has evolved and to the public policy issues about its future embedded therein.

The drive to expand America’s investment in higher education gained considerable momentum in the 1960s, and growing support from both federal and state governments was sustained into the 1980s. Then, growth in the public investment in higher education slowed, as governments reconsidered their priorities and a broader concern to curb government growth began to take hold. In the past decade, a growing worry has emerged that the national commitment to mass higher education may be unsustainable. Arguments are increasingly voiced that, particularly for students at the margin, investments in higher education no longer pay off and that college costs and prices are out of control.

Questions about both the effectiveness and the costs of America’s investments in postsecondary education certainly deserve careful examination. The proposition that high-quality education can be delivered at much lower cost through creative use of information technology warrants close study. A search for cost efficiencies in both federal and state programs that support higher education is desirable. The proposition that cost growth in higher education has made the nation’s investment in higher education unsustainable is hard to accept, however.

As we noted at the outset, in 1960, a convenient date to locate the beginning of concerted expansion in national investment in

higher education, consolidated government revenues amounted to 26 percent of GDP, and expenditures to 23 percent. The commitment to national investment in higher education accompanied other ambitious commitments to the country's infrastructure and human capacities. The interstate highway program of the 1950s, the race to the moon begun in 1961, and the creation of Medicare in 1965 are examples.

Sustaining and expanding these commitments led to an expanded role for government. From 1960 until the end of the 1990s, taxes as a share of the nation's economy gradually rose. Government spending, despite having exceeded taxes as a share of national income for much of that period, fell as a share of income through much of the 1990s, bringing the federal budget into balance at the beginning of the new millennium. Since then, taxes' share of the economy has declined while government spending has resumed its growth; both of those trends were exacerbated following the recession that began in 2007.

This story of national budget trends reflects, of course, factors much larger than those in higher education, but those trends provide a key backdrop to the public policy issues impinging on that sector. Much of the increase in government spending is driven by entitlements like Medicare and Social Security, by the fighting of wars, and by the growing burdens on states in financing medical care and other urgent needs. National revenue is heavily influenced by general pressures in both state and federal governments to force taxes down. Public spending on higher education has proven to be particularly

vulnerable because it is mostly discretionary, and, particularly at the state level, it has served as a kind of shock absorber for budgetary gaps whose sources lie elsewhere. The larger picture is that the nation seeks to sustain an expanding set of spending commitments on an ever-smaller tax base. The questions in point are not ones of whether higher education is "affordable" to the nation in some absolute sense, but rather, what sorts of public investments Americans choose to afford.

As we noted, Americans overall seem reluctant to accept the idea that they should pay more taxes to provide more education to more students. Instead the prevalent view seems to be that colleges and universities, especially those in the public sector, should simply find ways to do more with less. If nothing else, sheer political prudence requires colleges to redouble their efforts to accomplish just that, and to undertake those efforts in the most visible possible way. A great deal of evidence indicates that sustained, indeed expanded, investment in effective education at all levels is vital to the nation's future. As we reported, a substantial majority of Americans are confident about the quality of higher education, but a majority also believe it needs to be more affordable. Barring more financial support from governments, the only way to achieve more affordability without jeopardizing quality is to improve productivity. It behooves leaders in American higher education to search determinedly for productivity-improving innovations, while also striving to help the public understand the reasons why dramatic cost reduction that does not damage quality is not likely to happen overnight.

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