The Federal-State Higher Education Partnership

Rethinking the Relationship

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Public higher education in the United States is fundamentally a state-centered system, but the federal government contributes a growing share of the funding and increasingly seeks a role in influencing access, prices, and quality. Most public discussion focuses on undergraduate education, but the higher education system is complex, includes a diverse array of institutions, and serves multiple purposes. The division of responsibilities across levels of government, the way undergraduate and graduate education and research functions are funded and managed, and the variation across types of public institutions are the result of historical accident and political expediency, not thoughtful design.

A policy-oriented examination of the federal and state government roles in financing and overseeing colleges and universities is overdue. What are the rationales for involving multiple levels of government in the work of these varied institutions? Are state and federal interests in the diverse components of the system well aligned? Are there strategies modifying the federal-state partnership that would better serve the needs of students and of federal and state governments?

Most states operate a mix of research universities that, to a varying degree, house researchers with external—frequently federal—funding and educate large numbers of graduate and professional students, in addition to undergraduates; other four-year universities that are more focused on undergraduate education but generally also offer master's and sometimes doctoral degrees; and community colleges that focus on two-year associate degrees and short-term certificates in a mix of general academic and specific occupational fields. Four-year colleges offering almost exclusively

bachelor's degrees—common in the private nonprofit sector of higher education—are less common in the public sector.

Consistent with the Master Plan originally proposed by Clark Kerr and his colleagues for California (Master Plan Survey Team 1960), the types of institutions differ significantly in the selectivity of their undergraduate students. Like the University of California, research universities tend to accept only the most academically well-prepared undergraduates. Like the California state universities (formerly state colleges), most comprehensive or master's institutions enroll a broader range of students. And community colleges are open access, welcoming virtually all comers.

These institutions play different roles in and beyond their states. Community colleges are intensely local, with most of their students living within commuting distance of the campus. Many of the certificates and associate degrees offered are designed to meet local labor market needs. Local governments often provide a significant amount of the funding for these institutions.

Research universities, especially the most prominent ones, draw students from throughout the country and the world, produce graduates who are more mobile across states than typical Americans, and develop research with national or global impact.

The intermediate colleges are often the "workhorses" of the system, producing graduates who become teachers in the state's school districts, nurses in the state's hospitals, and mid-level managers of the state's businesses.

In addition to their distinct purposes and different groups of students, each type of institution typically has a different funding pattern and governance arrangement. Despite these differences, all these state systems and most of the institutions they comprise share a dependence on federal support.

Observers are split in their responses to federal funding for higher education. Some are concerned about whether the large federal investments we now make in higher education are justified. Others believe the federal government should take more responsibility for ensuring equal access to higher education across the nation.

Definitive answers to these questions are beyond the scope of this paper. Our modest aim is to provide a framework through which interested actors and analysts can begin constructive investigation to understand how this system performs and how it could perform better. Our starting point is that, given the different purposes and clienteles of public higher education institutions, the appropriate roles of state and federal governments in supporting and overseeing them might vary as well. For example, it is not clear that the federal role in supporting and monitoring public research universities should be the same as its role in community colleges. Without introducing needless complication, we believe productive discussion will be best advanced by acknowledging the unavoidable complexities of systems that serve millions of students pursuing different aims.

Variation across States

Each state has its own colleges and universities, which are partially funded by state appropriations (and, for many technical and community colleges, local property taxes). State residents generally pay lower tuition and fees than students who come from other states. State legislatures control institutional funding and have considerable authority over institutional governance structures. State governments also authorize and license the private nonprofit and for-profit educational institutions in their states.

But there is considerable variation across and within state systems. Nationwide, 35 percent of degree-granting postsecondary institutions are public, 34 percent are private nonprofit, and 29 percent are private for-profit. In 2014–15, the United States had 4,627 degree-granting postsecondary institutions, including 701 public four-year and 920 public two-year institutions.[1]

But among the seven states with the most public colleges and universities, 17 percent of Ohio's 60 public institutions, but only 4 percent of North Carolina's 75, are "high-research" universities. Eighty percent of Illinois's 60 public institutions are two-year colleges, compared with 27 percent of Pennsylvania's 62. Among the 12 states with 20 to 30 public colleges and universities, 17 percent of Mississippi's and 5 percent of Connecticut's and West Virginia's are high research; 71 percent of Arizona's and 41 percent of West Virginia's are two-year colleges.[2]

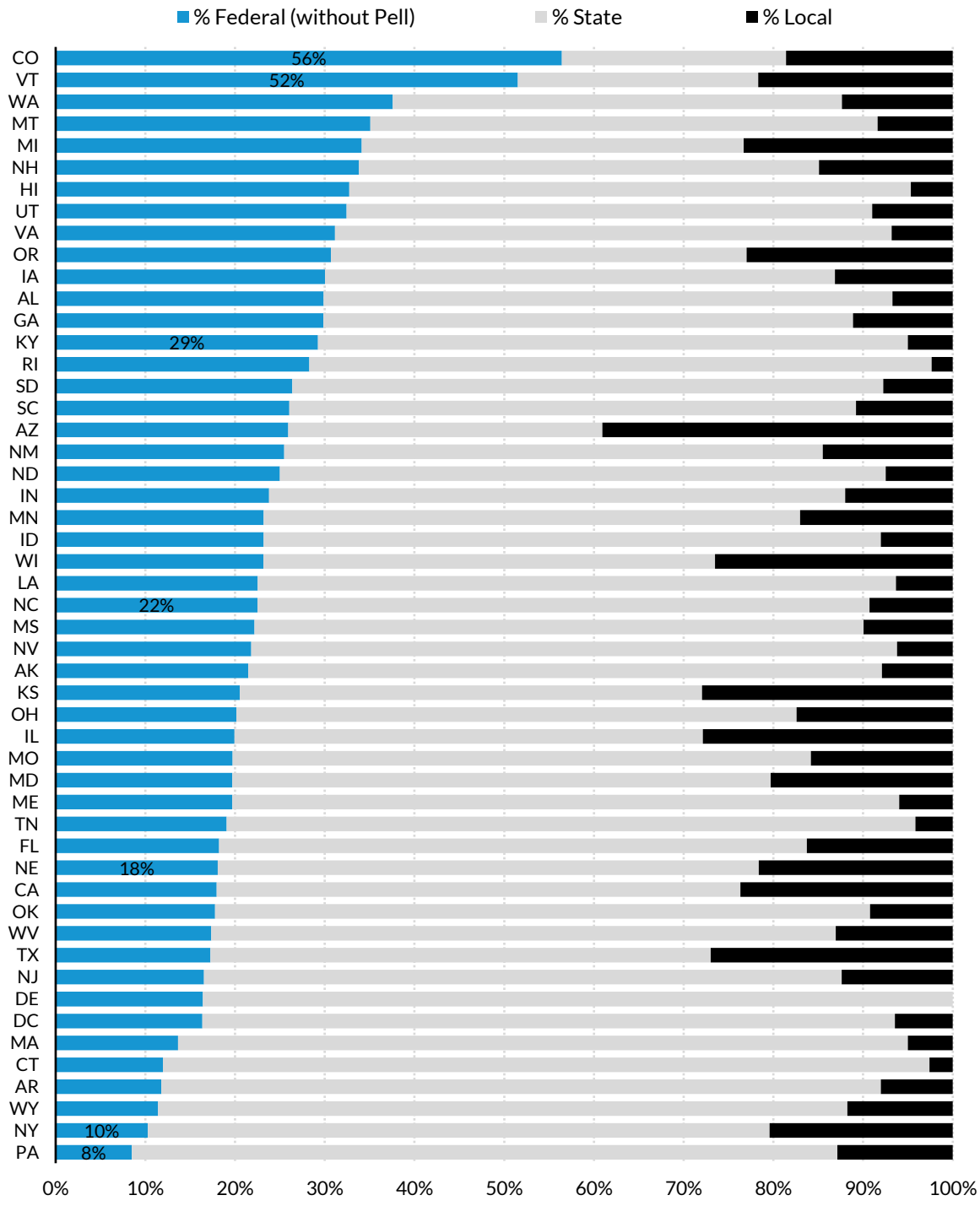
Tuition prices for in-state students at public four-year universities vary dramatically across the country. Students who live in Vermont or New Hampshire face published tuition and fees of almost $16,000 a year in 2016–17 to earn a bachelor's degree. Going out of state will not save money, as these students will pay out-of-state prices elsewhere. In contrast, average published tuition and fees at public four-year institutions are as low as $5,100 in Wyoming and $6,400 in Florida (Ma et al. 2016).

The percentage of government funding for public colleges and universities that comes from the federal government varies across states (figure 1). In 2014–15, institutions in Colorado and Vermont—states with very low per student state appropriations—received more than half their government funding from federal sources, even excluding Pell grants. In contrast, in Pennsylvania and New York, federal funding constituted 8 and 10 percent, respectively, of combined federal, state, and local government revenues. Adding Pell grants to the federal funding total raises the range of the federal share to 15 to 62 percent of the total.

Differences in state budgets and demographics are key factors leading to variation across states in the percentage of higher education funding coming from the federal government. In 2014–15, state and local appropriations per full-time equivalent student in public institutions ranged from $2,900 in New Hampshire and $3,200 in Vermont to $15,140 in Wyoming and $17,490 in Alaska, with a national average of $6,970 (Ma et al. 2015, figure 15b). With a national average of $1,060 in 2013–14, Pell grant dollars per public-institution college student ranged from $500 in Alaska and $590 in Wyoming to $1,410 in Tennessee and $1,680 in Mississippi.[3]

FIGURE 1.A

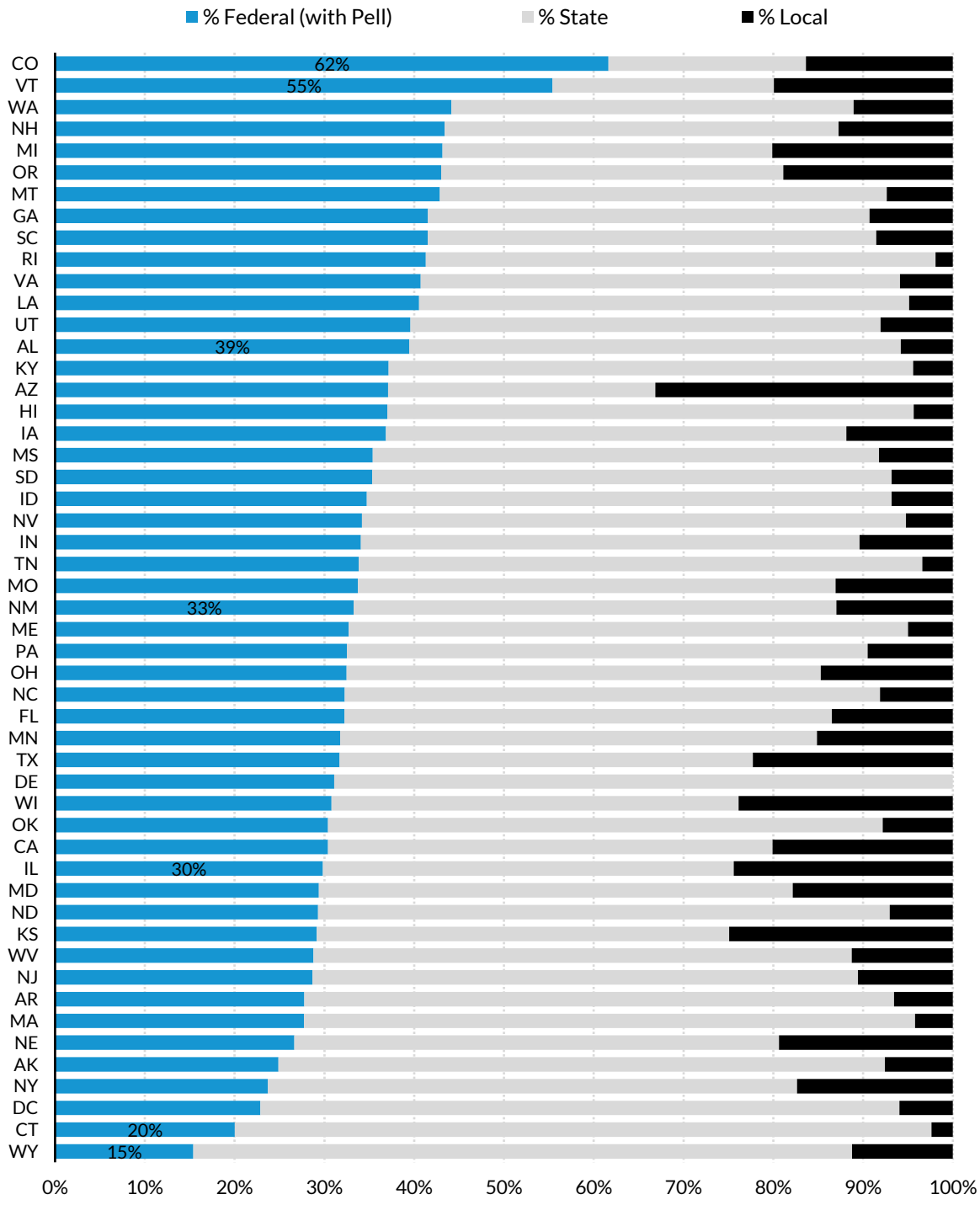
Distribution of Government Revenue Sources, by State, 2014–15, without Pell



Source: Integrated Postecondary Education Data System, 2014–15.

FIGURE 1.B

Distribution of Government Revenue Sources, by State, 2014–15, with Pell



Source: Integrated Postecondary Education Data System, 2014–15.

Brief History

Higher education looks different today than it did in the 1950s and in the early 1970s, when the federal government's role in funding college students took shape.

In 1959–60, 82 percent of the degrees awarded by postsecondary institutions in the United States were bachelor's degrees, 16 percent were master's degrees, and 2 percent were doctoral degrees (table 1). Associate degrees became prevalent in the 1960s and 1970s with the development of community college systems and have, for the past 25 years, constituted about a quarter of degrees granted. Another quarter of degrees awarded are graduate degrees. Even without considering the rapidly growing set of postsecondary certificates, awarded primarily by community colleges and for-profit institutions, bachelor's degrees now tell only half the story of US postsecondary education.

TABLE 1

Degrees Awarded by US Postsecondary Institutions, 1959–60 through 2013–14

Degree	1959–60	1969–70	1979–80	1989–90	1999–2000	2009–10	2013–14
Associate	0%	16%	23%	23%	24%	25%	26%
Bachelor's	82%	62%	54%	54%	52%	49%	49%
Master's	16%	17%	18%	17%	19%	21%	20%
Doctoral and professional	2%	5%	6%	5%	5%	5%	5%

Source: NCES, *Digest of Education Statistics 2015*, table 301.20.

In addition, when the Pell grant program was launched, more than 70 percent of postsecondary students were under age 24. Today that share is about 60 percent.[4] Less than 1 percent of students were enrolled in for-profit higher education—a fraction that rose to 10 percent in 2010 and is now about 8 percent.[5] Roughly half of high school graduates (83 percent of 18- to 24-year-olds were graduates) pursued college education immediately after graduation. Now, with 92 percent of 18- to 24-year-olds having completed high school, about two-thirds go straight into a two- or four-year college.[6]

From the mid-1970s to the mid-1980s, federal student aid, including grants and loans, was about half the size of state appropriations for higher education. Now, federal aid (including the dollar value of federal loans) is more than twice as large as state appropriations. Even excluding federal loans, federal student aid jumped from 28 to 46 percent of the total of state appropriations and federal aid between 2004–05 and 2014–15.[7]

The current framework for financing and overseeing higher education developed in an environment different from today's. College was principally an aspiration for students from families in the middle class and higher. There was a cultural expectation that parents who could afford to pay for college for their children should pay. Subsidized public tuition kept college within reach for middle-income and some working-class families. In private higher education, scholarships and grants, sometimes funded

from endowment earnings, permitted enrollment for a few exceptionally high-performing low- and moderate-income students.

From 1965 on, when Lyndon Johnson's War on Poverty and his 1965 Higher Education Act shined a spotlight on the limited opportunity low-income and minority students had for college education, policy discussions have focused on how to extend support for college students' education beyond the populations that had traditionally benefited.

Federally guaranteed loans, initially available only to students with demonstrated financial need, offered a chance for students from low-income families to pay for part of their education out of their later earnings. These loans also offered for the first time a realistic pathway for adults, who could not count on parental support, to self-finance part or all of their college expenses through debt.

But loans were not enough to put low- and middle-income families on a level playing field. How could the federal government get its own cash into the game? The Pell grant program answered that question and had several distinct features. First, Pell grants aimed to complement state subsidies, with states carrying the primary responsibility for the public financing of higher education. The grant did not cover the full price of enrolling at a public four-year college, but the $1,050 maximum award in 1974–75 was about twice the average annual tuition and fee price and covered two-thirds of the average $1,650 in tuition, fees, room, and board charges (Baum et al. 2016, table 8; Ma et al. 2016, table 2).

Second, the amount of a student's Pell grant was designed to be largely independent of what sort of school a student chose to attend.[8] The money was not directed to individual institutions or institutions of particular types. The money followed the student, and the federal government adopted a stance of neutrality toward students' choices. Students enrolled in for-profit institutions have been eligible to participate in federal student aid programs since 1972. Governing the institutions and promoting high quality were matters for the states and for the colleges, with students free to take their federal aid dollars to whichever accredited institutions they choose to attend.

Finally, Pell grants focused on students from families with the lowest incomes. This approach contrasts with that of state operating subsidies, which help keep payments down for most attendees, regardless of family circumstances.

Over the last half century, the initially small-scale programs of federal Pell grants and loans, aimed at filling a modest gap in the funding system, have grown dramatically. In part, this growth is because of their success in increasing college enrollment. In addition, the decline in per student state funding has left larger gaps for students and families that federal funding has partially filled. Eligibility for these programs has also expanded, so they now support millions of students from many backgrounds seeking postsecondary education. The number of Pell grant recipients grew from 1.2 million in 1975–76 to 5.2 million in 2005–06 and 6.7 million in 2015–16 (table 2). The percentage of undergraduates receiving federal Pell grants grew from 25 to 33 percent over the most recent decade (Baum et al. 2016).

TABLE 2

Federal Pell Grant Recipients, 1975–76 through 2015–16

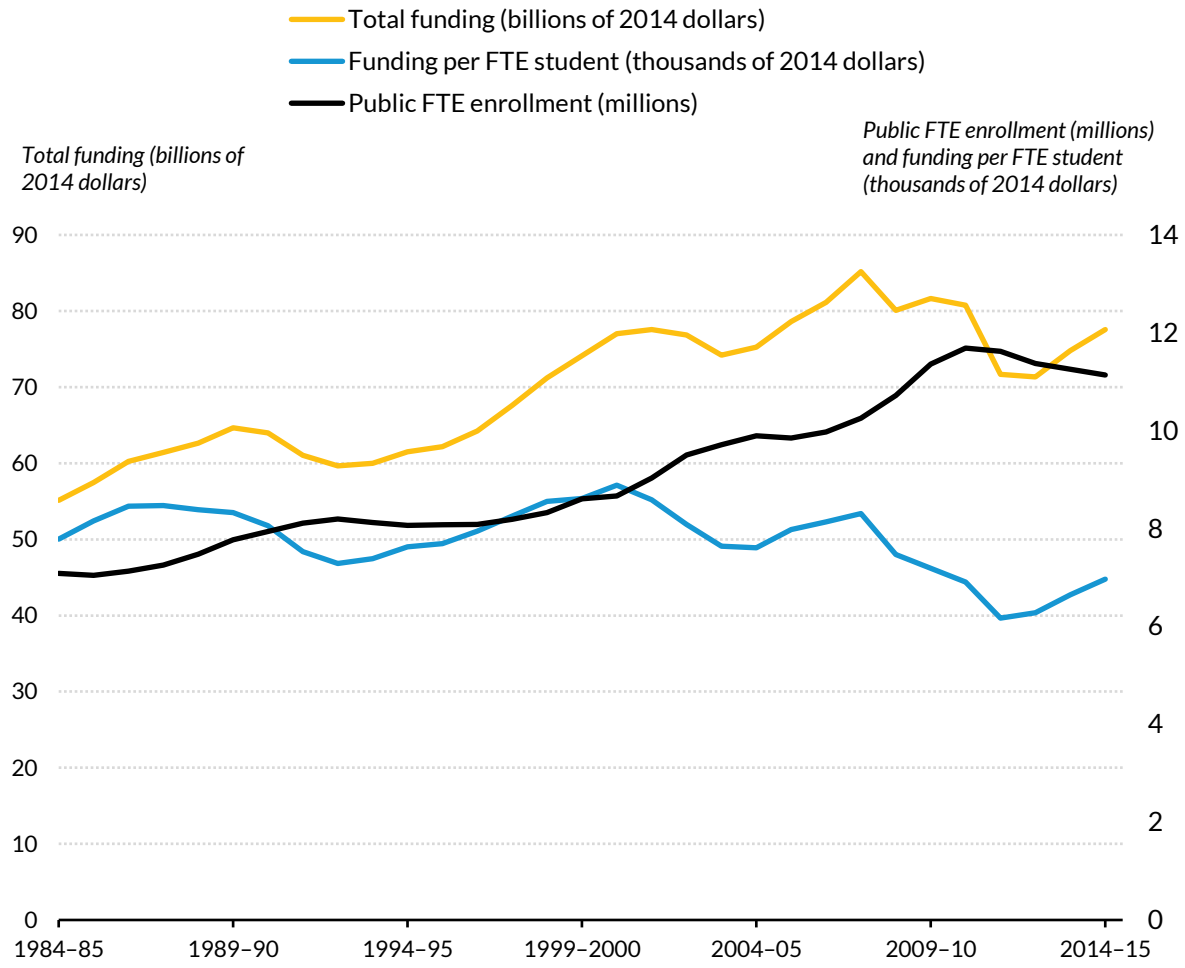
Year	Recipients (millions)
1975–76	1.2
1985–86	2.8
1995–96	3.6
2005–06	5.2
2015–16	6.7

Source: Sandy Baum, Jennifer Ma, Matea Pender, and Meredith Welch, *Trends in Student Aid 2016* (New York: College Board, 2016), table 5.

Although the immediate impact of the Pell program on enrollment of low-income students was limited (Hansen and Lampman 1974), the availability of federal grants and loans has contributed to dramatic enrollment expansion. Almost 90 percent of an expanded pool of high school graduates now have some experience of college within eight years of completing high school.[9] But this long-term expansion in enrollment has been one source of the squeeze in per student state funding that has contributed to tuition increases in public higher education (figure 2).

FIGURE 2

Total and Per Student State and Local Appropriations for Public Higher Education (in 2014 dollars) and FTE Enrollment in Public Colleges and Universities



Source: Jennifer Ma, Sandy Baum, Matea Pender, and Meredith Welch, *Trends in College Pricing 2016* (New York: College Board, 2016), figure 14b.
Note: FTE = full-time equivalent.

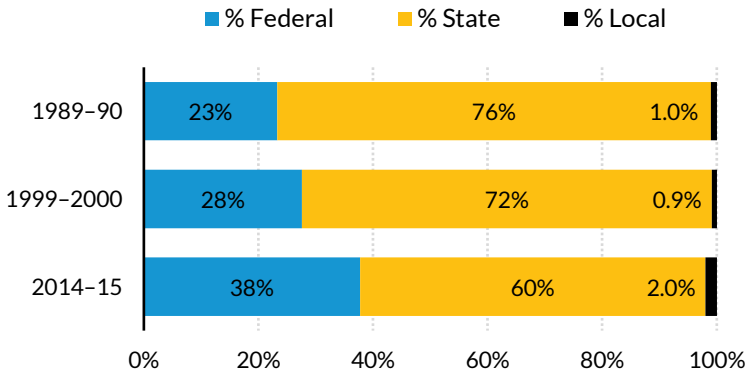
Understanding the changing balance over time between state and federal funding requires a view both of the failure of state appropriations to keep up with enrollment and of the increases in federal student aid. In addition to the Pell grant funds included in figure 1b, federal education tax credits and federal loans have grown dramatically in recent decades.[10]

Including federal grants and tax credits and deductions for students, but not loans, the federal share of revenues at public four-year institutions rose from 23 percent in 1989–90 to 28 percent in 1999–2000 to 38 percent in 2014–15. Including federal student and parent loans raises the federal share,

which grew from 35 to 48 to 58 percent over these years. Federal funding is a smaller share of revenues for public two-year colleges, but the pattern of growth is similar (figure 3).

FIGURE 3.A

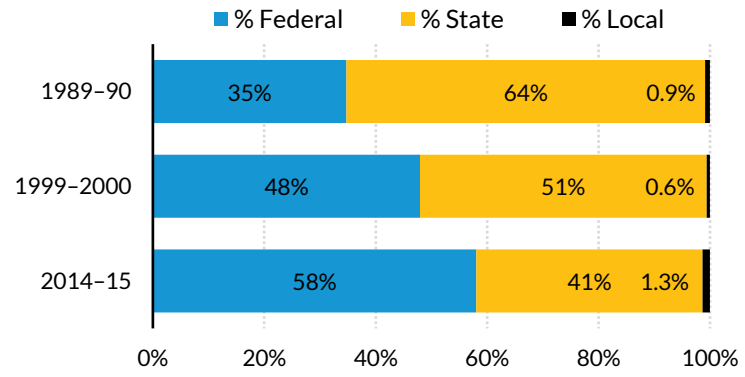
Federal Share of Revenues at Public, Four-Year Institutions, No Loans



Source: Integrated Postsecondary Education Data System (1989–90, 1999–2000, 2014–15).

FIGURE 3.B

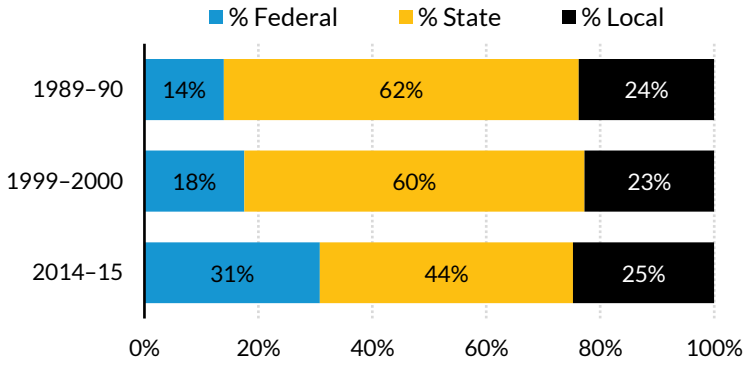
Federal Share of Revenues at Public, Four-Year Institutions, with Loans



Source: Integrated Postsecondary Education Data System (1989–90, 1999–2000, 2014–15).

FIGURE 3.C

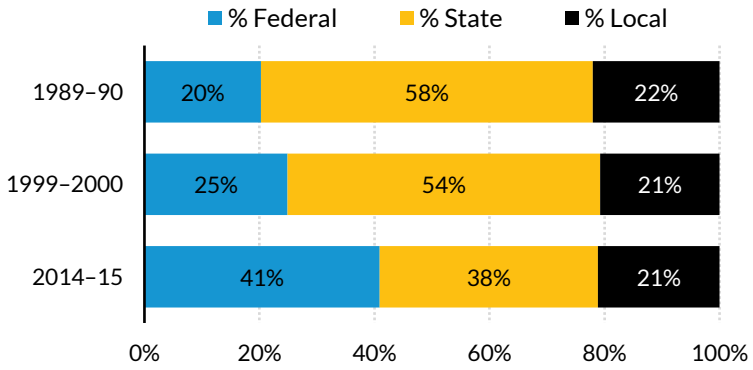
Federal Share of Revenues at Public, Two-Year Institutions, No Loans



Source: Integrated Postsecondary Education Data System (1989–90, 1999–2000, 2014–15).

FIGURE 3.D

Federal Share of Revenues at Public, Two-Year Institutions, with Loans



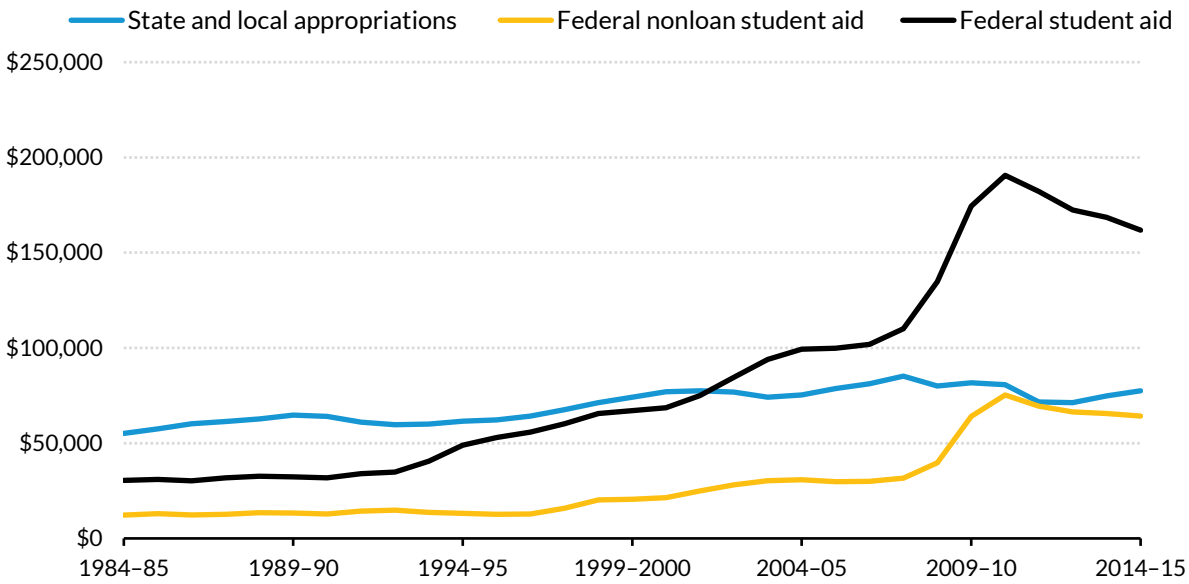
Source: Integrated Postsecondary Education Data System (1989–90, 1999–2000, 2014–15).

Within sectors, government funding varies across institutions. On average, two-year colleges receive considerably less state and local funding per student than universities (Ma et al. 2016, figure 16). And states have underfunded historically black colleges and universities (HBCUs) relative to predominantly white institutions (Mitchell 2013). The US Department of Education's Title III budget for educating underrepresented populations includes funds specifically for HBCUs. Since 1998, Title V of the Higher Education Act includes federal funding for Hispanic-serving institutions.

Overall, the portion of the costs of education covered by federal, not state, tax revenue has grown—not because of a consensus that the balance should change, but because state funding has not kept up with growing enrollments. The federal government has increased its financial aid to help students pay for rising tuition (figure 4).

FIGURE 4

Federal Student and State and Local Appropriations for Public Higher Education Institutions and Federal Student Aid over Time (in 2014 dollars)



Sources: Sandy Baum, Jennifer Ma, Matea Pender, and Meredith Welch, *Trends in Student Aid 2016* (New York: College Board, 2016); State Higher Education Executive Officers Association, "SHEF: FY2015" (Boulder, CO: State Higher Education Executive Officers Association, 2015).
Note: Federal student aid amounts include funds awarded to students in private nonprofit and for-profit institutions, in addition to public institutions.

The expansion of federal student aid and college enrollment generated some unanticipated consequences. In particular, the for-profit higher education industry was encouraged by this system of subsidies. Students attending these institutions could in many cases finance the full cost of their education with grants and loans, without any payment from their own or their parents' funds. Heavy reliance on third-party funds in an industry where product quality is hard to observe creates significant opportunities for exploitation, and some for-profit institutions have seized those opportunities. This development makes the need for government to impose accountability measures more pressing.

TABLE 3

Completion Rates by Race or Ethnicity and Family Income: Beginning 2003–04 Students

	Completed degree or certificate	Still enrolled	Left without a degree
		All sectors	
White	54%	13%	33%
Black	37%	20%	43%
Hispanic	41%	17%	42%
Asian	58%	19%	22%
Dependent students' parent income			
Lowest quartile	45%	17%	38%
Second quartile	54%	16%	30%
Third quartile	55%	14%	27%
Highest quartile	68%	12%	19%
		Beginning at public, two-year colleges	
White	39%	17%	44%
Black	26%	25%	49%
Hispanic	26%	21%	53%
Asian	40%	28%	31%
Dependent students' parent income			
Lowest quartile	33%	20%	47%
Second quartile	40%	21%	39%
Third quartile	41%	19%	40%
Highest quartile	42%	22%	36%
		Beginning at public, four-year colleges	
White	68%	11%	22%
Black	52%	19%	29%
Hispanic	55%	21%	24%
Asian	73%	13%	14%
Dependent students' parent income			
Lowest quartile	54%	16%	30%
Second quartile	64%	14%	22%
Third quartile	70%	11%	19%
Highest quartile	79%	9%	12%

Source: NCES, Beginning Postsecondary Students Longitudinal Study 2009.

The federal government now plays such a substantial role in funding higher education that a neutral posture toward institutional quality has become harder to maintain. The notion that the federal government should play a role not only in funding students to go to college, but also in assessing and improving educational quality is receiving more attention. Addressing quality might include assessing gaps in completion rates across socioeconomic and racial or ethnic groups, as well as overall learning outcomes. Among students who first enrolled in 2003–04, after six years, 43 percent of black students and 43 percent of Hispanic students had left school without a degree. This was the case for 33 percent of white students and 22 percent of Asian students. The racial and ethnic differences in completion are large even within the public two-year and four-year sectors. Similarly, dependent students from the lowest parental income group are less likely than others to complete their programs (table 3).

The federal government's interest in reducing these discrepancies might call for a larger role in monitoring the colleges and universities where it covers a significant portion of the costs. At the same time, an expanded role poses risks of federal efforts at regulation overreaching federal capacities and producing unintended negative consequences.

In other words, both the federal government's failure to adequately monitor educational quality and overzealous regulation carry risks. But the growing federal share in funding higher education and the dramatic changes in the role of higher education in society suggest a need to rethink the division of responsibility. Ideally, the system should be designed with a logical framework for the cooperative roles of federal and state governments in funding, monitoring, and improving public higher education.

The federal and state funding structures we have inherited were built on premises that are no longer valid. Ironically, a major factor in invalidating them is the lasting success of the programs, which has given them greater importance. It is time for a frank and open-minded rethinking.

Public Finance Insights into State and Federal Roles

In a federal system, there is always some lack of clarity about which level of government should finance and provide services. The theory of public finance economics says that the stabilization function of government—keeping inflation and unemployment in check—is best carried out at the national level. The federal government also has the greatest capacity to meet redistributive goals.

If one state implements generous benefits for low-income residents and a neighboring state does not, over time, those likely to be on the receiving end of the policy might migrate to the first state, while the wealthy migrate to the state without this agenda, where they can pay lower tax rates (Oates 1968). Even if this outcome is not a significant phenomenon in practice, states may fear this result, leading to a "race to the bottom" in state income support programs (Brueckner 1999). This reaction makes it difficult for states to sustain such redistributive policies. Historically, the federal government has been more responsive to the needs of the disadvantaged than many states. Social Security, Medicare, Medicaid, voting rights, and desegregation all came from the federal government to the states.

The provision of services, in contrast, is frequently best performed at the state or local level. Such an arrangement allows for differences in service quantity and quality, depending on local preferences. In theory, citizens can "vote with their feet" by moving to locations with the tax and spending regimes most to their liking (Tiebout 1956). Of course, mobility is not so simple in practice. In education, for example, some localities with ample resources can provide high-quality services with relatively little tax effort, while communities with less affluent populations struggle to provide adequate services. It's not that low-income people wouldn't prefer higher-quality education, but that they cannot afford to move into the communities offering the more desirable packages of services.

Moreover, it is not always socially optimal to have a wide variation in the level of public services offered. Again, education provides an obvious example. Because of the social benefits of an educated population, particularly in a society where mobility across state lines is common, it may not be in the

national interest for some states to offer inferior public higher education or to limit access to higher education to a small segment of the population.

States are likely to have a range of values, resources, and populations that will generate differing policies in many areas, including higher education. In the latter half of the 19th century and the first half of the 20th century, states had a strong stake in the contribution of their universities to the state's own economic and social interests. The curriculum and patterns of majoring in land grant universities were different in a farming state such as North Dakota than in a mining state such as Colorado. The hands-on instruction and assistance provided by agricultural experiment stations made the contributions of a state university to its citizens visible.

During World War II and in the wake of the technical advances of the 20th century in areas including electric power and electronics, the chemical revolution, the automobile, air travel, and so on, major universities became more visibly national assets. At the same time, the growing mobility of the educated population made it less likely that a student whom a state had invested in educating would stay home after college.

State public higher education systems vary in funding levels, tuition prices, state financial aid programs, the reliance on two-year relative to four-year institutions, the strength of research universities, and the percentage of high school graduates who enroll in college. Perspectives on the appropriate roles for the federal and state governments in financing and overseeing public higher education will depend on whether this variation is viewed as a valuable component of a diverse society or as a sign of inequity.

The federal student aid system is designed to increase access to higher education by providing subsidies to students who struggle to pay for college. This role is consistent with the federal role in the redistributive function of government. The state responsibility for developing and running colleges and universities is consistent with providing services compatible with the needs and desires of the local population.

But the decline in per student funding in most states and the dramatic variation across states, combined with the strong national interest in a more educated population and concern over access to quality postsecondary educational opportunities for all, raise questions about the division of responsibilities. Perhaps the gradual increase in federal financial responsibilities is appropriate. Perhaps the federal government should take more responsibility for ensuring the quality of the postsecondary offerings students across the nation are accessing with federal funds. Or perhaps the best role for the federal government is to provide stronger incentives for states to revert to their historical role in funding public higher education. Of particular note, it is likely that the appropriate role for the federal government in public higher education differs across the multiple functions and components of the system.

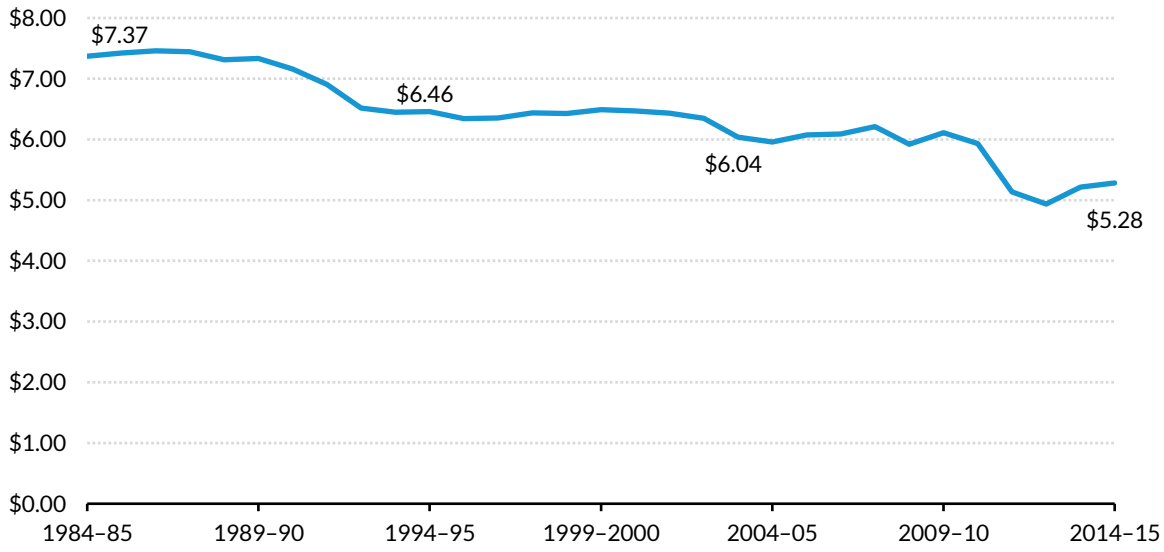
Articulating the Goals: One Size Does Not Fit All

Bachelor's Degrees

Some argue that postsecondary education is a state responsibility and that the federal government should leave the whole endeavor to the states. But in the face of declining state efforts to subsidize students, this approach would mean accepting that students in some states could become entirely responsible for financing their education beyond high school. Average state and local appropriations for higher education per $1,000 of personal income declined from $7.37 in 1984–85 to $5.28 in 2014–15 (figure 5). In the face of significant enrollment increases, appropriations per full-time equivalent public institution college student were 11 percent lower in inflation-adjusted dollars in 2014–15 than in 1984–85 and 22 percent lower than at the 2000–01 peak (figure 6) (Ma et al. 2016).

FIGURE 5

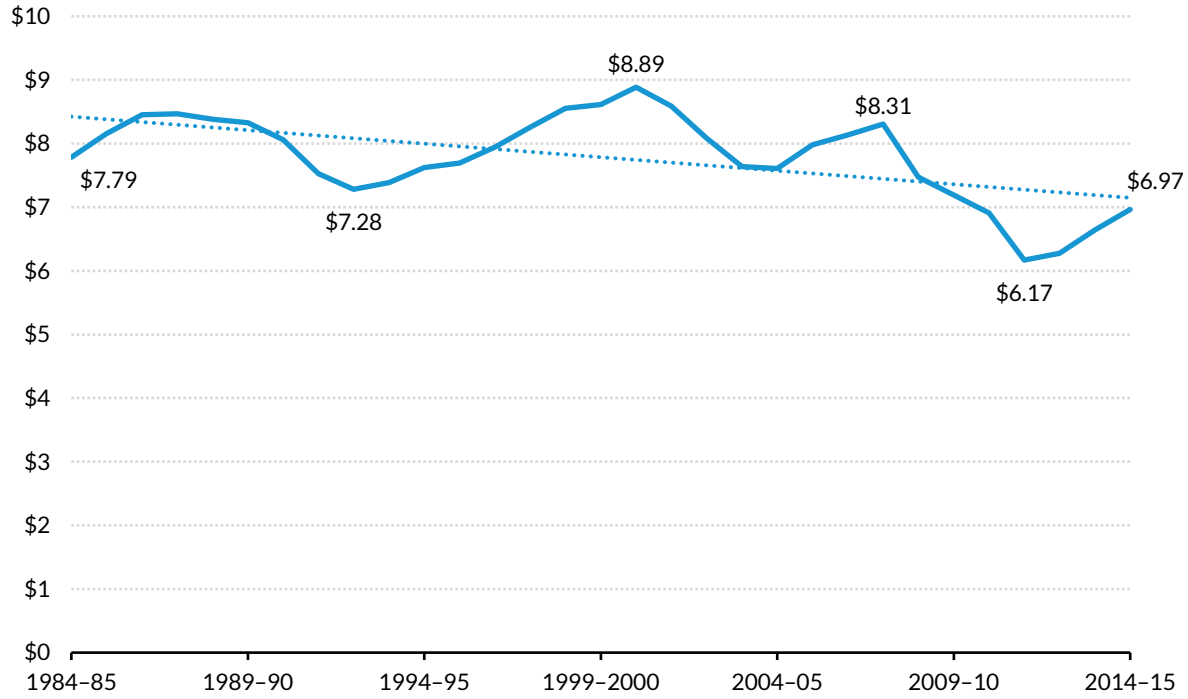
Average State and Local Funding for Higher Education per $1,000 in Personal Income, 1989–90 through 2014–15



Source: Jennifer Ma, Sandy Baum, Matea Pender, and Meredith Welch, *Trends in College Pricing* (New York: College Board, 2016), figure 15a.

FIGURE 6

Per Student State and Local Funding for Higher Education (in 2014 dollars), 1984–85 through 2014–15



Source: Jennifer Ma, Sandy Baum, Matea Pender, and Meredith Welch, *Trends in College Pricing* (New York: College Board, 2016), figure 14b.

Without federal involvement, many students could not access a college education. Moreover, a purely private market would not take account of the large and well-documented social benefits from a more educated population, and educational attainment would be lower than economic efficiency dictates. In addition, the fact that the federal tax system relies primarily on a progressive income tax increases the revenue increment from the earnings premium associated with educational attainment. Because of mobility across state lines and less progressive tax systems, states do not get the same long-term return from having a more educated population.

Assuming a national interest in significant public subsidies to undergraduate education, the federal government might be motivated to restructure the federal-state partnership for financing higher education by two goals. One goal is to increase subsidies to higher education in the belief that the added spending will produce benefits that more than justify the cost. The federal government can continue to increase its share of total postsecondary funding or can design an effective system of incentives to induce states to increase their funding, or at least not to allow it to continue to decline as enrollment grows.

A second goal is to induce both states and institutions to direct more funding toward making a college education accessible to low- and moderate-income students. Rather than targeting its funds to students with limited resources while remaining neutral about how states target their own funds, the federal government could develop strategies to influence the level and distribution of state funding. This more specific goal emerges partly from equity considerations. The nation needs at least a minimum number of college-educated workers, and the large personal benefits of higher education make diminishing financial barriers for those least able to pay a critical component of an equal opportunity agenda. There are also strong efficiency arguments for this goal, because denying access to education to those who can benefit wastes human resources and reduces productivity.

Strategies could include basing subsidies to states on their success in educating low- and moderate-income students, directly matching state need-based grant aid as in the now-defunct LEAP (Leveraging Educational Assistance Partnership) program, or providing funding directly to institutions (both public and private) that educate the target population of students.

States' goals for their higher education systems do not necessarily correspond to national goals. Most states recognize the vital role of higher education in developing a productive workforce. But funding policies and the statements of leaders indicate that some place a high priority on keeping talented students in the state, some focus on narrow occupational rather than broad educational goals, and some are concerned about increasing access and success among students from disadvantaged backgrounds.

Neither state nor federal priorities are immutable. It is reasonable to think that the federal government's commitment to increasing educational opportunities and willingness to put resources behind that commitment might be stronger than some states would like and weaker than others would wish.

One way to think of the partnership is to ask what the national goals are, how the federal government should design its role, and what kind of incentives it should provide to induce states to strive for the same goals. A different perspective would be to ask how the federal government can help states achieve their diverse postsecondary education goals.

Evidence about the role of higher education in contributing to economic growth and personal opportunity, the high payoff to both individuals and society of a more educated population and a more skilled workforce, and the compelling arguments for increasing access to opportunity make a strong case for a national effort toward achieving these goals. Only a strong federal effort—in its own policies and in incentives for states—can create a strong educational future for our nation.

Graduate Education and Research

The appropriate federal-state partnership in undergraduate education may not apply to graduate education and research. Broad public discussions of the appropriate financing and oversight roles for the federal government tend to leave these issues aside, focusing instead on opportunities for undergraduate education.

In 2013–14, postsecondary institutions received $77.3 billion in federal funding, including federal appropriations, contracts, and grants. These funds are paid to institutions, distinct from funds provided to students through federal grant and loan programs. Funds may be restricted to specific purposes, and much of the revenue is associated with federally funded research projects and centers. The decision to devote a major portion of the federal research and development effort to peer-reviewed research at independent universities rather than to focus on federally operated research centers emerged after World War II. This effort was marked by a great expansion in funding of what became the National Institutes of Health in the late 1940s and the creation of the National Science Foundation in 1950. Substantial funding also comes from other parts of the federal government, including the Departments of Defense and Energy. Although the factors that led to these organizational decisions were complex, among them were belief in the complementarity of graduate education and research and in the virtues of competition, as well as a belief that advances in basic scientific research would flourish in a decentralized framework that encouraged the free flow of ideas.

In 2013–14, 59 percent ($45.8 billion) of the federal funds provided by these and other federal sources went to 120 public and private institutions out of 3,293 degree-granting public and private nonprofit institutions in the country. The 84 public colleges and universities in this group received $25.7 billion—an average of $306 million per institution, compared with an average of $557 million for the 36 private nonprofit institutions in this group. The University of Washington in Seattle topped the list at $1.1 billion. The University of Michigan in Ann Arbor was second with $856 million. Seven universities in California shared $3.4 billion, 13 percent of the federal funding for public institutions around the country. In 13 states, no institution received the $118 million in federal funding required to make the list of the top 120.[11]

Largely because of variations in research intensity, the distribution of federal funding across states is uneven. The federal government funds research based primarily on proposals developed by faculty members. Basic research and other research with no immediate commercial application depend on federal funding and know no state boundaries. From a national perspective, there is no clear reason why every state should have its own research-intensive university. For the most part, the benefits of the research supported through the federal grant and contract system are widespread. The principal motivations for states to engage intensely in this activity include a desire to contribute to the general advancement of human knowledge and a judgment that operating a major research center has spillover benefits for employment and perhaps the creation of business opportunities complementary to research efforts. A third important motive may be to gain prestige from being the home of a major research university—not the best motive from an efficiency perspective. Another issue is that research and graduate education are often complementary undertakings, and some undergraduate students benefit from exposure to faculty engaged in research (Prince, Felder, and Brent 2007). As long as state residents have preference in the admissions process and a significant differential exists between the tuition and fees faced by in-state and out-of-state students, residents of states lacking high-quality research institutions have limited opportunities.

The graduate students studying at research-intensive universities are more mobile than undergraduates. The best physics students do not look to their state universities, but seek fellowships and assistantships at the top departments in both public and private nonprofit universities around the country. The national interest in producing physicists dominates the interest of any state in producing physicists to serve that state. But the pricing structure of the state-based system does not support this free flow of students.

State-based research-intensive universities and PhD studies are not grounded in the same logic as state-based undergraduate education. It is sensible that federal funding follows research capacity. And it would make sense to reconsider whether the funding and administrative patterns designed for undergraduate education are optimal for the nation's mission of creating and perpetuating a vibrant research agenda.

National research universities, owned and operated by the federal government, might make sense in principle, even though our decentralized system has many advantages. The federal government could develop and fund research universities as it does military academies. Both undergraduate and graduate students from all over the nation would pay the same price to attend. The universities could be at least as autonomous as state flagship public universities now are, but in addition to providing basic institutional funding, the federal government would be responsible for the universities' structure and quality. Creating universities based on this model could have emerged after World War II, as the federal government rapidly expanded its research investments in response to the Cold War and the remarkable power of the innovations developed during World War II (e.g., radar and atomic energy). Organizing federal research spending in this way might have had benefits in terms of greater central control of research agendas. On the other hand, it might have limited support for competing perspectives, and threatened assurances of academic freedom.

Subbaccalaureate Education

National community colleges would not make sense, even in principle. Because these institutions educate students from the local area with a focus on local labor markets, the national interest in states and localities providing accessible and high-quality education and training does not translate well into a centrally administered national system.

More than half the undergraduate credentials awarded each year are either short-term certificates or associate degrees. One estimate suggests that 30 percent of the jobs in the economy in 2020 will require a postsecondary credential, but not a bachelor's degree (Carnevale, Smith, and Strohl 2013). Concerns over the education level of the nation's workforce should focus not only on bachelor's degrees, but also on credentials that improve the income security of people who are not in position to get a BA. The national interest in increasing this type of educational attainment was at the forefront for the Obama administration, with its focus on community colleges.

But developing and providing occupational preparation is local. Many of the most successful community college programs involve close partnerships among community colleges, local organizations,

and local employers. Community college students enroll close to home. They do not investigate the best programs in their field around the country.

The national interest in this aspect of higher education is different from the national interest in research and graduate study, and the federal-state partnership should be tailored accordingly.

Nevertheless, the federal government has a clear interest in strengthening the nation's labor force and in supporting states and localities in developing successful programs. These are necessary components of an efficiently functioning economy. Moreover, there are clear equity considerations. The students who enroll in community colleges tend to be from less privileged backgrounds than those who enroll in four-year institutions, particularly selective colleges and universities. Many of these students come from backgrounds that have not prepared them well for a college education. They need strong financial, academic, and social supports to succeed. The federal government's role in reducing inequality in the United States is most visible in this segment of higher education.

Role of the Federal Government in State-Based Public Higher Education

Should the federal government try to diminish the differences across states in opportunities for undergraduate education? Currently, most federal grant aid to students does not depend on tuition, and the federal government provides no incentive to states to keep their prices down or to provide generous need-based grant aid to help students from less-advantaged backgrounds pay those prices.

Should the federal government take a more active role in ensuring educational quality? The current accrediting system, which determines which postsecondary institutions' students are eligible for federal financial aid, is widely viewed as ineffective (Ewell 2015). Completion rates across the nation are disappointing. Only 62 percent of students who first enrolled in public four-year colleges in 2010 and 39 percent of those who began at a two-year public college earned a credential at any institution within six years (Shapiro et al. 2016).

Our goal is not to set forth the optimal framework for modifying the federal-state partnership in financing and overseeing public higher education. But some potential considerations arise from the discussion above. One is the familiar distinction between "zero-sum" and "positive-sum" interactions. To the degree that negotiation or discussion turns on the question of who will pay the bills, the partnership takes the form of a zero-sum situation in which one side wins at the expense of the other. Negotiations over higher education funding in state budgets too often take this form, with individual institutions or sectors arguing for a larger share of the appropriations.

Often, bargaining can help both sides achieve gains, leading to a more promising positive-sum relationship. A more balanced outcome can be achieved when the parties share some interests and a recasting of a financial arrangement advances some of their common interests. Arguably, the original Pell grant program had this quality. The national government was strongly interested in helping low-

income families pay for college, and the states had a strong commitment to keeping college within reach of a broad population, if not necessarily the most disadvantaged, by keeping tuition relatively low. The ultimate decision represented a productive compromise: the federal government would fund student aid vouchers for students from low-income families, which allowed it to respond to that era's strong national political demand to fight unequal opportunity while leaving the states free to respond to their local constituents by providing general funding for public institutions. Today, as the nation searches for ways to renew the terms of the federal-state partnership, it will be important to look for areas of shared interests and to build toward outcomes that represent compromises and cooperation serving multiple goals. More funding to improve quality and affordability for students will strengthen the system, but better coordination could increase the effectiveness of all the money invested.

The division of responsibility between state and federal governments in supporting research universities may be illustrative. Much of the work in the leading universities is scientific research conducted with an eye to its national or even global impact, both in scholarly and in practical terms. This work is funded principally by the federal government, appropriately so given that few of the benefits are confined within the state where the research is undertaken.

Despite its large role in financing public research universities, the federal government currently has no role in such basic aspects of the research university's operations as admissions, pricing, financial aid policies, or fields of study. Given the strong national interest in the performance of research universities, perhaps the federal government should have a greater say in some of the responsibilities now resting with states. The federal government provides some funding to defray part of the general costs of operating the university through the overhead allowed on federal research grants. But it might be worth exploring the possibility of shifting more funding and more responsibility for research universities from the states to the federal government. Robert Birgenau and Frank Yeary have proposed that the federal government develop a "hybrid model," providing operating support to some public research universities in exchange for granting federal officials more authority over some aspects of university operations.[12]

This expansion in federal resources to support leading research universities, should it occur, should not be viewed simply as a windfall for research universities. Instead, if it makes sense for the federal government to take on greater responsibility in governing and financing leading public research universities, this change should involve strategies for overcoming the political barriers to freeing up more state funding for other public universities and colleges. Such an outlook invites both state and federal actors to conceive their roles not in terms of maximizing resources for the parts of the system they are most involved with, but instead to think about how to cooperate to get the best results for the system as a whole, encompassing all the goals the system is expected to achieve.

Addressing the issues facing undergraduate education should also come from the perspective of maximizing the success of the entire postsecondary system. But the federal role might differ from that involved in the promotion of research and graduate education. The federal government can develop effective policies for increasing state investments in undergraduate education and in opportunities for low- and moderate-income students. It could also accept greater responsibility for ensuring those

opportunities exist across the nation. The federal government might continue to focus on vouchers for students, legislating large increases to the Pell grant program to increase college affordability. If the goal is really to increase meaningful educational opportunities, this approach should be accompanied by more requirements for what states and institutions have to do to qualify for federal funds and better controls on where students can take their funds.

The federal government might determine that the unintended consequences associated with exclusive reliance on vouchers indicate a need for policies more closely integrated with state and institutional policies and practices. To ensure its funds achieve the goals of access and success for students, rather than lining the pockets of the owners of for-profit institutions or chasing the moving target of rising tuitions as states continue to underfund their institutions, the federal government might focus on

- subsidies to institutions,
- subsidies to states to fund institutions,
- matching funds for state need-based grant programs, and
- maintenance-of-effort provisions attached to federal funding programs to discourage states from using federal funds to replace, rather than supplement, their own funding.

The first step is to decide on broad goals and strategies, but each approach requires careful development of policy details. Balancing federal and state priorities requires balancing funding sources and ensuring integration of priorities.

Proposals for Direct Federal Funding to States and Institutions

When the federal government decided to increase educational opportunity for low-income students, it was not obvious that it would fund students directly instead of funding institutions. Forty-five years after the birth of the Pell grant program, it is easy to think that a program designed to target students with limited ability to pay, rather than just supplementing the across-the-board funding states provide to public colleges and universities, is the only—or most logical—way to reach this goal. But when these programs were first enacted, Congress debated the best strategy.

Over the past decade, several proposals for strengthening the Pell program have included suggestions for allocating some of the funds for subsidies to institutions that enroll and educate a certain number or share of Pell grant recipients. For example, the Rethinking Student Aid Study Group (2008) proposed that the federal government supplement Pell grants by funding colleges and universities directly in proportion to the Pell grants for which the students who succeeded at their institutions were eligible. The funds could be used for financial aid, but they might also subsidize

academic and social supports or other activities that would increase the number of low-income students earning credentials.

Various proposals have been designed to provide federal incentives for states to increase their funding and make college more affordable for low-income students. In 2014, the American Association of State Colleges and Universities proposed a federal matching program for states providing at least a minimum level of operating support for institutions (Hurley, Harnisch, and Nassirian 2014). The association joined other organizations to make an alternative proposal that the federal government provide block grants for education to states that guaranteed that full-time students eligible for the maximum Pell grant not be required to pay more than 10 percent of their (or their parents') discretionary income to attend public institutions in the state (AASCU et al. 2014).

The Committee for Economic Development proposed replacing current federal nonloan programs with a joint federal-state matching grant program. The report argued that rising tuition prices and the diversion of resources at other points in the system have resulted in the federal government being the sole actor in the system whose primary concern is enrollment rates of low-income students. The authors proposed replacing Pell grants and campus-based aid with a grant to states to be used exclusively for need-based grant aid portable across institutions and state lines. States would be required to match the federal funds with $1 for every $4 they received, and there would be limits on how rapidly states could raise tuition prices at their public institutions (Doyle 2013).

New America proposed creating a Pell bonus for public and private nonprofit four-year colleges that enroll a "substantial" share of low-income students and graduate at least half of them and a similar program for community colleges with graduation and transfer rates above a specified threshold.[13]

A familiar problem when the federal government contributes money toward an effort that states have under way is that of "maintenance of effort," or, as it has been called in the context of funding K–12 education through the Elementary and Secondary Education Act, "supplement and not supplant." Such rules have a strong rationale but raise difficulties for measurement and accounting. They can also induce perverse behavior while they are under consideration. For example, if a state anticipates that in 2020 it will have to spend at least as much as it spent in 2019, it will gain flexibility by spending as little as possible in 2019.

During the 2016 presidential contest, Bernie Sanders and Hillary Clinton advanced proposals for "free" college. Unlike proposals several governors have put forward for their states to self-finance free college, the proposals during the campaign were for an active and ambitious recasting of the federal-state partnership, with state and federal governments each contributing in set proportions to the cost of financing such an effort.

Two points from the 2016 proposals for free college help illustrate the complications of realigning state and federal fiscal responsibility for higher education. First, eliminating tuition can be seen as an extreme version of a strategy of lowering the price students pay for college by having the states and the federal government cover some of the costs of financing public colleges. Second, any arrangement that has federal funds being used to directly defray a substantial fraction of the costs of operating public

institutions is bound to involve federal officials in decisions about governance and administration of state-owned colleges, as well as addressing difficult questions about how federal support will be allocated across different types of institutions (e.g., research universities and community colleges). Plainly, the federal government cannot allow itself simply to "write a blank check" to finance whatever kind of public higher education system a state chooses. These dimensions of the problem were hardly discussed during the political campaign.

These diverse proposals suggest strong interest in reconsidering the optimal division of responsibility for public higher education in the United States between federal and state governments.

State Partnerships

Even without federal assistance, states could work together to strengthen higher education financing and reduce inequities across states. Many public institutions are attempting to increase their enrollment of out-of-state students to increase revenue and boost selectivity. Rather than competing for students who will pay higher prices, public institutions could foster cooperative arrangements that bolster institutional revenue and maximize opportunities for students.

Low-income students are less likely than others to go to college out of state, largely because many of these students, especially at community colleges, live at home and work at jobs locally to save money. In addition, most states do not provide grants to residents who enroll in out-of-state institutions. Most states also charge higher tuition to out-of-state students, although some regional compacts allow students in neighboring states to enroll at prices lower than the regular out-of-state rates.

Opportunities to attend colleges in other states tend to be restricted to affluent students in ways that raise equity concerns. In a state with a generally low-quality public higher education system, well-off students can go elsewhere, but students from low-income families are stranded. More generally, these arrangements tend to restrict the flow of students across state boundaries in ways that do not serve the students' interests and may not serve the states' interests either.

Some states have considerable excess capacity, and others face capacity constraints. Creative approaches to expanding existing agreements, reducing in-state and out-of-state tuition differentials, and finding innovative ways to increase cooperation among states—even absent federal involvement—could make the nation's public higher education system more efficient and more equitable.

Conclusion

Public colleges and universities have multiple functions, and there are strong arguments for tailoring federal-state partnerships to their distinct roles rather than designing one unified structure. Rather than just providing incentives for states to maintain or increase their funding for higher education, the federal government might seek to ensure all states provide quality educational opportunities for their populations, with a focus on access for less-advantaged populations. At the same time, the federal

government might seek to strengthen a set of research universities across the nation, discouraging states from diverting resources from the broader educational mission toward increasing the prestige of their flagship universities.

The federal government, states, and individual institutions share some goals for higher education. But institutions may seek increased prestige and more revenue by enrolling more out-of-state students, in conflict with the state's mission of educating its population. States may focus on bolstering their flagship research universities, siphoning funding from broad-access institutions carrying out the national mission of educational opportunity and a more skilled workforce. Explicit consensus on the nation's goals would facilitate developing an effective system of US public higher education.

The federal government essentially purchases research services from institutions. It also helps students purchase services by providing student aid as vouchers. It does not run institutions and has minimal responsibility for outcomes. But as federal money plays a larger role in funding students, the hands-off voucher program appears less and less adequate.

Perhaps the federal government should play a larger role in managing the nation's research and graduate education functions than its undergraduate education. The current system fosters competition among states for prestige in the production of PhDs and gaining research funding. There is a strong argument that as a result, we produce more PhDs than we need and deflect needed state resources from undergraduate education. At the same time, students who live in states with strong research universities have access to opportunities not available to students in other states.

The United States stands out among nations for the successes of its higher education system. But the shortcomings are increasingly obvious as state funding fails to keep up with growing enrollments and as conflicting goals lead to allocations of resources that are suboptimal for meeting national needs. As we rethink the ways federal and state governments can best cooperate to strengthen the system, we must keep the multiple missions of postsecondary education and the diversity of students and institutions at the forefront of the deliberations.

Notes

1. National Center for Education Statistics (NCES), *Digest of Education Statistics 2015*, table 317.10.
2. NCES, *Digest of Education Statistics 2015*, table 317.30.
3. US Department of Education, 2013–14 Pell Grant Program End-of-Year Report, table 21, https://www2.ed.gov/finaid/prof/resources/data/pell-2013-14/pell-eoy-2013-14.html; NCES, Digest of Education Statistics 2015, table 308.10.
4. NCES, *Digest of Education Statistics 2015*, table 303.40.
5. NCES, *Digest of Education Statistics 2015*, table 303.10.
6. NCES, *Digest of Education Statistics 2015*, tables 219.65 and 302.10.
7. "Grapevine," Illinois State University, College of Education, last updated February 6, 2017, https://education.illinoisstate.edu/grapevine/; (Baum et al. 2016, table 1).
8. Virtually all the original tuition sensitivity provisions were rolled back in the mid-2000s.

9. NCES, Education Longitudinal Study of 2002, PowerStats calculation.
10. Federal aid to veterans and active military, which increased from $2.4 billion (in 2014 dollars) to $15.2 billion in 2014–15, is not included in this total (Baum et al. 2015, table 1).
11. NCES, *Digest of Education Statistics 2015*, table 333.70.
12. Robert Birgeneau and Frank D. Yeary, "A New Model to Help Finance Higher Education," *Washington Post*, September 27, 2009, http://www.washingtonpost.com/wp-dyn/content/article/2009/09/25/AR2009092502468.html.
13. Amy Laitinen, Jason Delisle, Rachel Fishman, Clare McCann, Kevin Carey, Alexander Holt, and Stephen Burd, "Rebalancing Resources and Incentives in Federal Student Aid," New America Foundation, January 29, 2013, https://www.newamerica.org/education-policy/policy-papers/rebalancing-resources-and-incentives-in-federal-student-aid/.

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