Supplemental Figure Notes

Two decades of change in federal and state higher education funding

Figure 1

Major federal higher education programs referred to in the top graphic include Pell Grants and other financial aid grants, research funding to institutions, veterans' educational benefits, federal institutional appropriations, and other federal grant programs. Federal higher education spending excludes the fiscal impact of student loan programs, capital expenditures, and higher education-related tax expenditures. For federal higher education programs that require state or institutional matching funds, the data reflect only the federal share. These data may not account for all federal spending for higher education-related programs because no central accounting system captures such expenditures. Federal appropriations data reflect funding received by higher education institutions during the fiscal year ending Sept. 30, 2017, and include spending that flows to public, nonprofit, and for-profit higher education institutions and their students.

In the bar graphic, "All other" includes such items as the Children's Health Insurance Program, institutional and community care for the mentally ill and developmentally disabled, employer contributions to pensions and health benefits, economic development, state police, and parks and recreation. The data in the bottom graphic include state spending that flows to public, nonprofit, and for-profit higher education institutions and their students. All 50 states are included; the District of Columbia is not.[1]

Figure 2

"Other federal financial aid grants" include Federal Work-Study, Federal Supplemental Educational Opportunity Grants, and Iraq and Afghanistan Service Grants. "Other federal grant programs" include the TRIO programs, Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP), Graduate Assistance in Areas of National Need, Child Care Access Means Parents in School, and other institutional aid programs. For federal programs that require state or institutional matching funds the data reflect only the federal share. Under GEAR UP, the U.S. Department of Education must award grants to states to support early outreach and services for low-income students.[2] States, in turn, may award these funds as need-based financial aid grants.[3] Owing to data limitations, however, this figure does not exclude funds used in this manner. Therefore, an unknown portion of the $337 million in GEAR UP funds may also be included in state financial aid grants.

Data have been adjusted to conform to the academic year: July 1, 2016, through June 30, 2017. Federal appropriations data reflect funding received by institutions during the fiscal year ending Sept. 30, 2017. Federal research funding data come from the Survey of Federal Funds for Research and Development (R&D), an annual census completed by the federal agencies that conduct R&D programs,[4] which is the primary source of information about federal R&D funding in the United States. These data include financial support for science and engineering research projects and development at higher education institutions provided through grants, contracts, and cooperative agreements. Research obligations of six agencies—the departments of Defense, Energy, Agriculture, and Health and Human Services, and the National Aeronautics and Space Administration and National Science Foundation—represented nearly 92 percent of total federal research obligations to universities and colleges in fiscal years 2015–17.

These data include spending that flows to the public, nonprofit, and for-profit institutions and their students. In the case of the state general-purpose appropriations, data also include spending that flows to statewide governing boards.

Figure 3

Data are adjusted to conform to the academic year (July-June) and for inflation using the Bureau of Labor Statistics' Consumer Price Index and are presented in constant academic year 2017 dollars. State spending includes federal funding from the State Fiscal Stabilization Fund of the American Recovery and Reinvestment Act, but how those dollars break out across state spending categories is unclear.

Figure 4

To compare data from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) over time, Pew used data from the Delta Cost Project, which has been adjusted for survey reporting differences over time to allow for multiple-year comparisons. The latest year for which data are available is 2015. Revenue in this chart reflects federal and state government funding received by public, nonprofit, and for-profit institutions. This includes categories such as financial aid grants, research grants, and general-purpose appropriations. "State revenue" does not include public institutions' revenue from tuition and fees or operations such as residence halls or college stores. Federal and state revenue may be understated by an unknown amount because it is unclear how institutions classify some federal and state financial aid grants, including Federal Supplemental Educational Opportunity Grants, Federal Work-Study, and Iraq and Afghanistan Service Grants, when reporting to IPEDS. The data have been adjusted so that Pell Grants are included under federal revenue for all public, nonprofit, and for-profit institutions. Owing to data limitations, federal funding provided to states through the State Fiscal Stabilization Fund of the American Recovery and Reinvestment Act is not included in this chart. "Fiscal year" in the Delta Cost Project's data refers to an institutional fiscal year. Each survey year, IPEDS directs institutions to report funding received during their most recent fiscal year ending before Oct. 1. Data are adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index and presented in constant federal fiscal year 2015 dollars.

Figure 5

Pew's analysis broke out Pell Grants by institution type using the Department of Education's Title IV Program Volume Reports, which identify grants by institution and by "public," "private-nonprofit," or "proprietary" (private-for-profit) schools. Data are available quarterly and were combined to get annual data for 2017. Pell data include funding support for tuition and fees, books and supplies, and living expenses.

Expenditure data for research and development come from table 5 of the Higher Education Research and Development Survey, which is the main source for information on R&D expenditures at colleges and universities within the U.S.[5] Using classifications from the National Center for Education Statistics' Integrated Postsecondary Education Data System, Pew's analysis categorized each school as public, private non-profit, or private for-profit. Research funding shown in this chartbook does not equal 100 percent because a small percentage of federal funds flowed to institutions of higher education that did not fit classification parameters.

Data limitations precluded breaking out all federal spending on veterans' higher education programs. However, since 2009, spending on the Post-9/11 GI Bill has accounted for most such spending. (See Figure 6.) Data on Post-9/11 GI Bill spending have been converted from fiscal year to academic year for the purposes of this study. These data include spending only on tuition and fees. A small number of schools did not receive Post-9/11 GI Bill funds or did not have data available for fiscal 2016, and Pew's analysis assigned these a zero, which was factored into the calculation.

Figure 7

The federal government provides grant aid to students, which is largely based on financial eligibility, as well as loans to students and parents. This chart represents the volume of student loans either issued directly to the borrower or guaranteed by the federal government. Loans are provided via the William D. Ford Federal Direct Loan Program (commonly known as direct loans), Federal Perkins Loan Program, and other programs. Pew's analysis is not meant to assess the cost to the federal government of sponsoring these loans. Federal loan data come from the annual College Board's report, "Trends in Student Aid," are adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index, are presented in constant 2017 dollars, and include loans to students at public, nonprofit, and for-profit higher education institutions.

Figure 8

Higher education tax expenditures in this analysis closely follow those in the Congressional Research Service report "Higher Education Tax Benefits: Brief Overview and Budgetary Effects" (August 2018). They are the Hope, Lifetime Learning, and American Opportunity tax credits (including the refundable portion where applicable); Education Individual Retirement Accounts; deductions for student-loan interest and higher education expenses; qualified tuition programs; exclusions for scholarship and fellowship income (normal tax method), interest on savings bonds redeemed to finance educational expenses, and employer-provided educational assistance; parental personal exemption for students age 19 or older; and the discharge of student loan debt. The Tax Cuts and Jobs Act of 2017 eliminated personal and dependent exemptions from 2018-25; that does not affect this analysis because these exemptions were still in effect through 2017. Data include tax expenditures that benefit students attending public, nonprofit, and for-profit higher education institutions. Annual tax expenditure values are drawn from the most recent U.S. Treasury tables that include the referenced year. Data are adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index and presented in constant 2017 dollars.

Changes made to the modeling related to family structure affected Treasury Department data for 2017, which resulted in a spike in estimates, including for the parental personal exemption for students age 19 and over, because more returns were filed and more exemptions were claimed on the new model compared with the old.[6]

Figure 9

Federal and state revenue may be understated by an unknown amount because it is unclear how institutions classify some federal and state financial aid grants, including Federal Supplemental Educational Opportunity Grants, Federal Work-Study, and Iraq and Afghanistan Service Grants, when reporting to the U.S. Department of Education's Integrated Postsecondary Education Data System

(IPEDS). “Fiscal year” in the IPEDS data refers to an institutional fiscal year. These data reflect funding received by public higher education institutions during their most recent fiscal year ending Sept. 30, 2017. “Net tuition and fees” include all tuition and educational fees charged to students minus discounts and allowances, defined as the portion of all financial aid grants applied to tuition and fees. Federal, state, and local revenue categories include legislative appropriations and agency grants and contracts, such as research or financial aid grants. “Self-supporting operations” include revenue from the operation of campus services (e.g., residence halls, intercollegiate athletics, and college stores), hospitals, and independent operations. “Private gifts, investment revenue, and endowment income” include revenue received from private and affiliated organizations; realized and unrealized gains and losses on investment returns, dividends, and rental or royalty income; and endowment income, including restricted and unrestricted funds and funds held in trust by others. “All other” includes capital appropriations, grants, gifts, and other miscellaneous revenue.

Figure 10

About 1 percent of all public higher education institutions report using standards of the Federal Accounting Standards Board (FASB) and so may not include Pell Grants when documenting federal revenue received. In Pennsylvania and Delaware 36 percent and 27 percent, respectively, Pell Grant funding flowing to public schools is reported using these standards and so is included under other revenue categories. As a result, federal revenue is understated and the precise amounts are unknown. In other states that use FASB standards, the share of Pell Grants not accounted for under federal revenue does not exceed 0.1 percent of overall Pell Grants received by public institutions and does not affect the total institutional revenue received by each state.

Net tuition and fees are overstated and state revenue is understated by unknown amounts in Colorado, because of the manner in which IPEDS captures the state’s general-purpose appropriations. Pew’s analysis of IPEDS data found that higher education institutions in Colorado reported the lowest amount of state revenue ($2,769 per full-time equivalent, or FTE, student) among all the states because Colorado’s higher education funding system causes most state dollars to be reported under tuition and fees rather than under revenue. This difference in accounting methods used by Colorado causes this study to find that Vermont has the lowest amount of state revenue ($3,769 per FTE) among all states. Higher education institutions in the District of Columbia received the highest amount of what IPEDS classifies as state revenue at $24,556 per FTE student.

“Fiscal year” in the IPEDS data refers to an institutional fiscal year. These data reflect funding received by public higher education institutions during their most recent fiscal year ending Sept. 30, 2017. “Net tuition and fees” include all tuition and educational fees charged to students minus discounts and allowances, defined as the portion of all financial aid grants applied to tuition and fees. Federal, state, and local revenue categories include legislative appropriations and agency grants and contracts, such as research or financial aid grants. “Self-supporting operations” include revenue from the operation of campus services (e.g., residence halls, intercollegiate athletics, and college stores), hospitals, and independent operations. “Private gifts, investment revenue, and endowment income” include revenue received from private and affiliated organizations; realized and unrealized gains and losses on investment returns, dividends, and rental or royalty income; and endowment income, including restricted and unrestricted funds and funds held in trust by others. “All other” includes capital appropriations, grants, gifts, and other miscellaneous revenue.

Endnotes

[1] Where data include estimates for U.S. territories, this Pew analysis has removed those territories.

[2] Code of Federal Regulations, Title 34 – Education, Part 694—Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP), https://www.govinfo.gov/content/pkg/CFR-2012-title34-vol4/xml/CFR-2012-title34-vol4-part694.xml; U.S. Department of Education, "Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)," last modified Oct. 24, 2018, https://www2.ed.gov/programs/gearup/index.html

[3] A. Hegji, "The Higher Education Act (HEA): A Primer," updated Oct. 24, 2018, Congressional Research Service, https://fas.org/sgp/crs/misc/R43351.pdf.

[4] "Research and development" includes all direct, indirect, incidental, or related costs resulting from or necessary to perform R&D by private individuals and organizations under grant, contract, or cooperative agreement.

[5] The survey collects information on expenditures by research field and funding source, as well as other information, and applies to all institutions that have expended at least $150,000 in separately accounted-for R&D in the fiscal year.

[6] U.S. Treasury staff, email with Rebecca Thiess, associate manager, The Pew Charitable Trusts, Feb. 11, 2019. Treasury's use of a new base year for its model, as well as additional modeling related to family structure, resulted in more returns being filed and exemptions claimed on the new model when compared with the old, which affected the department's estimates for fiscal 2017. This led to a higher forgone revenue estimate for the parental personal exemption for students age 19 and over than in previous years.