

HIGHER EDUCATION FUNDING IN ARIZONA AND UTAH

A Report from the Office of the University Economist

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SUMMARY

In fiscal year 1998, public university funding accounted for 13.5 percent of the noncapital state government general fund budget in both Arizona and Utah. Since then, the university share has fallen considerably more in Arizona than Utah; the preliminary estimate of the share in fiscal year 2016 is 7.3 percent in Arizona and 12.3 percent in Utah.

Noncapital appropriations for public universities from the state government general fund, expressed per full-time-equivalent (FTE) student, are projected to be 29 percent lower in Arizona than in Utah in fiscal year 2016. This is a significant shift from the historical relationship. As recently as fiscal year 2011, appropriations per FTE student were about 30 percent higher in Arizona than in Utah.

This comparison of university appropriations per FTE student does not take into account differences in the university systems of Arizona and Utah. Each of the universities in Arizona is a doctoral-granting research institution, which is the most costly category of higher education to operate. Utah offers a range of universities that include lower-cost options. This helps to explain why Arizona's appropriations per FTE student were historically higher than in Utah, but makes the currently lower support in Arizona more remarkable.

Moreover, a much higher proportion of higher education students are enrolled in universities — versus community colleges — in Utah than in Arizona. However, broadening the analysis to state government appropriations for all of higher education also produces a misleading comparison. Community colleges in Utah are combined with universities into one system that is funded by state government. In Arizona, community colleges are separate from universities, with only a small portion of their funding coming from state government.

Thus, combined state and local government appropriations for higher education provide a more accurate comparison of the overall support for public higher education in the two states. The State Higher Education Executive Officers Association provides such a measure for the fiscal year 2000-through-2014 period. The educational appropriation per FTE student in Arizona was higher than in Utah from 2000 through 2010, by between 5-and-14 percent. By 2014, however, Arizona's figure was nearly 10 percent less than that for Utah. In 2014, Arizona's figure was 19 percent less than the national average, ranking 34th among the 50 states. Utah's figure was 10 percent less than average and ranked 27th. Among 10 western states, Arizona ranked eighth and Utah seventh.

The cost of living is almost the same in Arizona as in Utah, so adjusting appropriations for living costs has little effect on the comparison of the two states. Similarly, per capita personal income is nearly the same in the two states, so considering the ability of residents to pay taxes to support higher education has almost no effect on the funding relationship between the two states.

Commentary

Arizona and Utah are neighboring states, each with a politically conservative populace. Historically, the support for public higher education was similar in the two states. The educational appropriation per FTE student was below the national average in each state, as was average tuition per FTE student. Arizona was not as far below the national average as Utah on

either the appropriation or tuition per FTE student, at least in part because of the high reliance in Arizona on more-costly-to-operate doctoral-granting research universities.

Each state had a similar response to the severe recession that started at the end of calendar year 2007 and significantly reduced government revenues. Relative to the nation, the appropriation for higher education per FTE student fell in each state, while tuition per FTE student rose, at public institutions in fiscal years 2009 through 2011.

Since fiscal year 2011, however, Utah and Arizona have diverged on their public support for higher education. Relative to the nation, the educational appropriation per FTE student has increased in Utah while tuition per FTE student has dropped a little. In contrast, in Arizona, the educational appropriation per FTE student has fallen considerably, while tuition per FTE student has increased substantially. By fiscal year 2014, significant differentials had developed between the states in the educational appropriation and tuition per FTE student at public institutions of higher education. Based on the state government appropriation for fiscal year 2016 and recently announced tuition increases, the differentials between the states in public support and tuition appear to have widened much more.

The divergence between Arizona and Utah in public support for higher education has occurred too recently to expect to be able to measure ramifications from the differing policy choices. Increases in tuition at Arizona universities could make a four-year education too costly for some individuals. If so, it is likely that Arizona will lag behind in the educational attainment of its workforce. This could have a negative effect on economic development, particularly relating to 21st-century jobs requiring high skills and technical abilities. Even before relative declines in educational attainment are measured, the reductions in funding in Arizona for education — elementary and secondary as well as higher education — likely have reduced the state's economic competitiveness, especially for businesses that pay high wages and require highly educated and skilled workers.

A BRIEF COMPARISON OF ARIZONA AND UTAH

The purpose of this report is to compare public support, as defined by funding, for higher education in the neighboring states of Arizona and Utah. Of particular interest is state government general fund appropriations for universities. Since comparisons of states on any measure can be affected by differing conditions in the states, this section provides a general comparison of the two states before the funding data are discussed. Though Arizona and Utah share a border and are similar in some respects, significant differences also exist that should be considered when comparing support for higher education in the two states.

Arizona is 1.3 times as large as Utah in its land area, but its population is 2.3 times as much. While Utah does not have as dominant a population center as the Phoenix-Mesa-Scottsdale metropolitan area — which accounts for two-thirds of Arizona’s residents in contrast to 39 percent of Utah’s residents living in the Salt Lake City metro area — the percentage of the population living in a metro area is not much less in Utah than in Arizona.

Utah has a younger population than Arizona; its median age of 30.2 years was the lowest in the nation while Arizona’s figure was 36.8 in 2013.¹ The fertility rate is higher in Utah, as is its average household size. The percentage of residents who are foreign born is lower in Utah, as is the share of minorities. Non-Hispanic whites accounted for 80 percent of Utah’s residents in 2013, while their share in Arizona was 57 percent. The labor force participation rate among those age 16 and older was higher in Utah in 2013, with substantially higher participation rates among men in all age groups. The participation rate also was higher in Utah among women, except those between the ages of 25 and 44. However, a higher proportion of female workforce participants in Utah worked less than full time.

Median household income in Utah has been higher than in Arizona since the earliest data from 1950. The differential has varied over time and was particularly large in 2013 at 23 percent.² Similarly, the poverty rate has been lower consistently in Utah since the earliest data for 1970. In 2013, the poverty rate was 18.6 percent in Arizona but only 12.7 percent in Utah.

Because of the difference in household size between the two states, per capita personal income (PCPI) generally has been higher in Arizona than in Utah despite the lower household income in Arizona. As seen in Chart 1, PCPI has been higher in Arizona in most years, but the differential has varied over time. In 2014, the differential was only 0.3 percent. The cost of living is slightly higher in Arizona than Utah, leaving per capita income marginally higher in Utah after adjusting for living costs.³

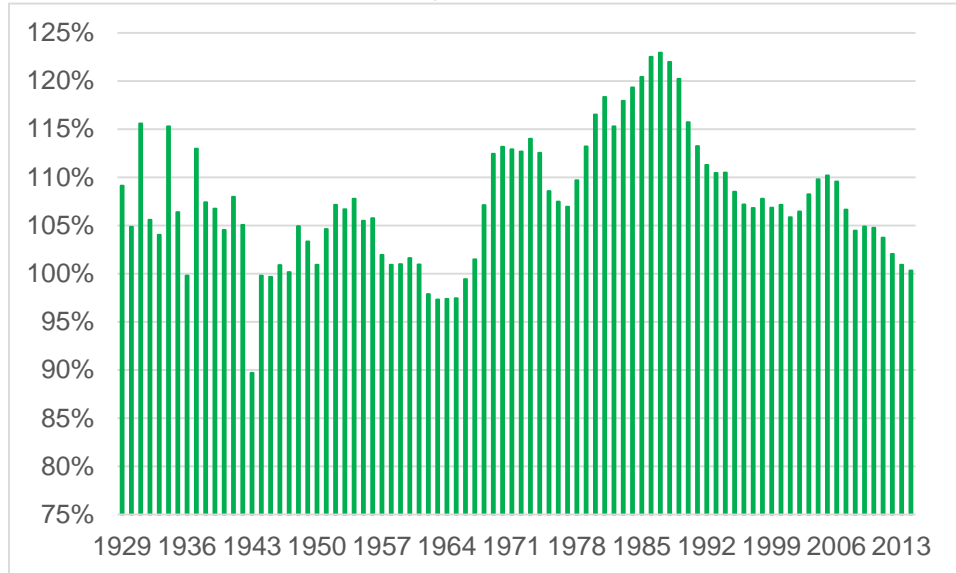
Educational attainment in Utah in 2013 was higher than in Arizona in all age groups 25 and older, measured both as the share with at least a high school diploma and the share with at least a

¹ Much of the information in this section comes from the American Community Survey, obtained from American FactFinder, <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Historical data are from decennial censuses. The U.S. Department of Commerce, Census Bureau, is the source of both.

² The differential in mean household income in 2013 is not as large at 13 percent.

³ The U.S. Bureau of Economic Analysis (<http://www.bea.gov/regional/index.htm>) recently began to provide cost-of-living data (“regional price parities”) by state. The 2012 regional price parities were 98.1 (1.9 percent less than the U.S. average) in Arizona and 96.8 in Utah.

**CHART 1
PER CAPITA PERSONAL INCOME, ARIZONA AS A PERCENTAGE OF UTAH**



Source: U.S. Department of Commerce, Bureau of Economic Analysis, <http://www.bea.gov/regional/index.htm>.

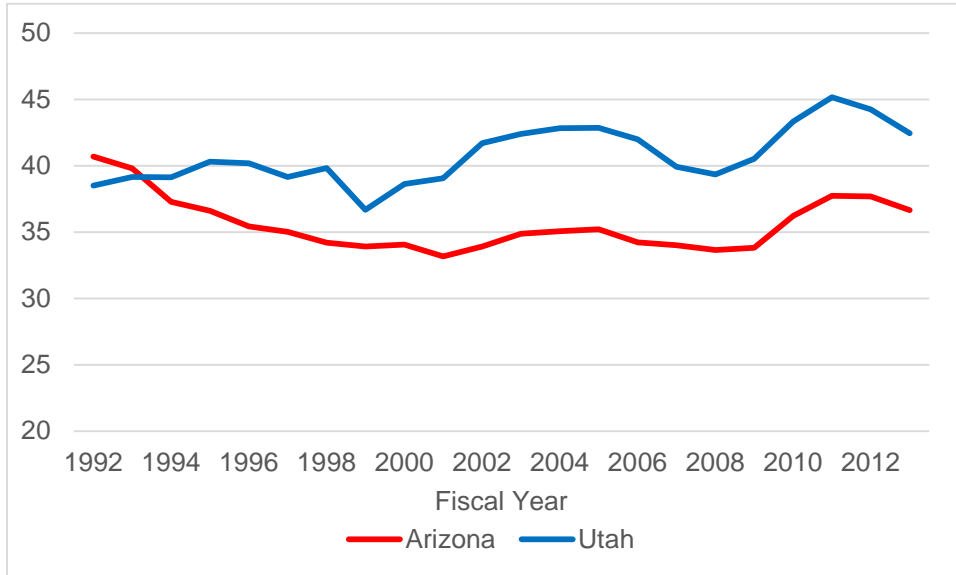
bachelor’s degree. Focusing on the share with at least a bachelor’s degree, educational attainment among those 25 and older was slightly lower in Utah than in Arizona in 1940, the earliest available data. However, by 1960, educational attainment was substantially higher in Utah than in Arizona and has remained higher since then. The differential in most age groups has been steady, but in the 65-and-older age group, attainment in Utah has gone from considerably below Arizona in 1980 to much higher in recent years.

Historical data are not readily available on the educational attainment of the workforce, but between 2005 and 2013 the educational attainment of workers between the ages of 25 and 64 was higher in Utah than in Arizona. However, the differential was not as great among workers as it was for all individuals in this age group. Utah currently has a target of 66 percent of its workforce obtaining at least a post-high school certificate by 2020.

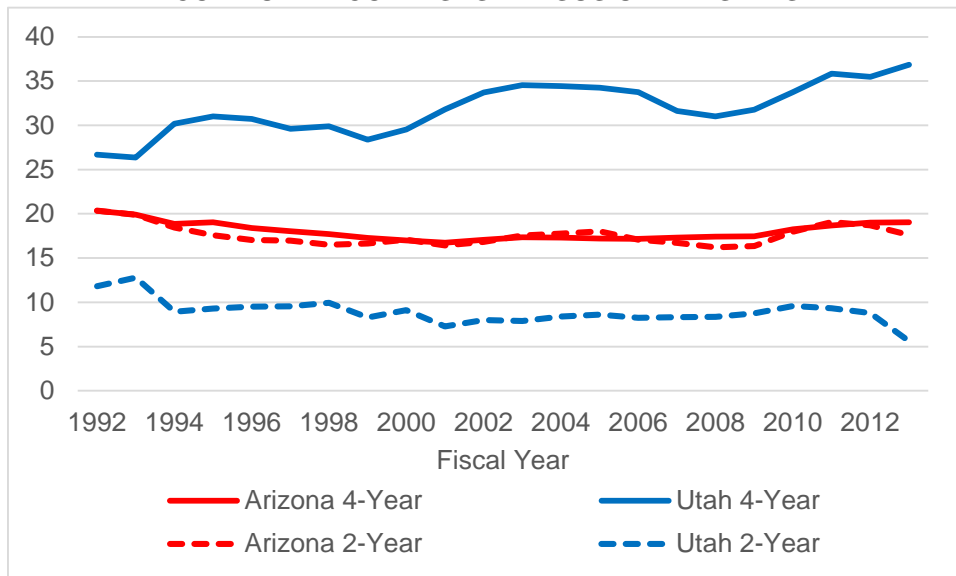
A combination of a higher share of its residents being of traditional college age and a higher proportion of young adults attending school in Utah results in its number of college students at public institutions being higher than in Arizona per 1,000 residents, as seen in the top graph in Chart 2. This marks a change from the historical relationship, in which full-time-equivalent (FTE) enrollment per capita was higher in Arizona than in Utah. Per capita FTE enrollment has dropped a little in Arizona while increasing in Utah since the mid-1980s. A longer time series is available using headcount enrollment (enrollment not adjusted for the number of credit hours taken). This indicates that enrollment per 1,000 residents in the late 1960s was only a little higher in Arizona than in Utah (44 versus 38 in 1967), but the figure jumped in Arizona to more than 70 between 1973 and 1975, while hardly increasing in Utah. Since then, the Arizona figure has dropped to 54, while the Utah figure has climbed to 59.

**CHART 2
FULL-TIME-EQUIVALENT ENROLLMENT AT PUBLIC INSTITUTIONS
OF HIGHER EDUCATION PER 1,000 RESIDENTS**

COMMUNITY COLLEGE AND UNIVERSITY TOTAL



COMMUNITY COLLEGES VERSUS UNIVERSITIES



Sources: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (enrollment, <http://nces.ed.gov/programs/digest/>) and U.S. Department of Commerce, Census Bureau (population, obtained from the U.S. Bureau of Economic Analysis: <http://www.bea.gov/regional/index.htm>.)

As seen in the bottom graph of Chart 2, the number of students in Arizona has been about the same at public community colleges as at public universities since the early 1990s. In contrast, the number per 1,000 residents at public universities is considerably higher in Utah than in Arizona, while the number per 1,000 residents at public community colleges is lower in Utah than in Arizona. Though considerably less populous than Arizona, Utah has more public universities, with the recent conversion of Dixie State to university status giving Utah six state universities.⁴ In contrast, Utah now has only two community colleges, compared to 12 community college districts in Arizona.

The distribution of students across Utah's public institutions of higher education is quite different from the distribution in Arizona.⁵ A higher proportion of students in Arizona attend community colleges, which have the lowest operating costs per student of the different types of institutions. However, each of Arizona's universities is a doctoral-granting research institution with at least high research activity, the most-costly type of institution. In contrast, Utah's universities include two relatively low-cost baccalaureate institutions (one of which is still transitioning from being a community college), two that offer master's degrees, and two research universities.

FUNDING MEASURES

In order to compare states of differing sizes, raw data on expenditures must be standardized. Most analyses utilize one or both of two simple measures:

- **Per Capita:** Expenditures are divided by the number of residents of the state. When comparing states, a weakness of this measure is that variations in the cost of living generally have not been considered.⁶
- **Per \$1,000 of Personal Income:** Expenditures are divided by the personal income of the state. Aggregate personal income is determined by the number of residents and by average income (from earnings; transfer payments; and dividends, interest, and rent) per resident. This measure is particularly useful in the analysis of revenues since it considers the ability of residents to pay taxes and fees.

These measures are appropriate if data on the "caseload" (the number of people served) are either unavailable or are equivalent to the total number of residents in a state.

When caseload data are available, such as the number of students enrolled, the above measures are inferior to expenditure measures that explicitly consider the caseload, since the caseload for a particular program relative to the number of residents may vary from state to state. For example, per capita enrollment in public institutions of higher education varies by state for several reasons, including the age distribution of a state's residents and the age-adjusted college-going rate, which may vary based on a number of factors, including race/ethnicity and income. The availability of private educational institutions and the attractiveness of a public institution to out-

⁴ Utah also has a sizable private university: Brigham Young University.

⁵ Institutions are assigned to a "Carnegie Classification." The major categories are based on the highest degree offered: associate's (community colleges), baccalaureate (four-year institutions), master's, and doctoral-granting research universities. Operating costs increase progressively in each category.

⁶ The regional price parities are available only for five years and 2012 data are the latest. Thus, the regional price parities cannot be used for either time series analysis or to adjust the latest data. However, the relative cost of living by state changes only slowly.

of-state students also contribute to variations by state in per capita enrollment in public institutions of higher education.

Higher education enrollments are expressed in two ways, as a simple headcount or on a full-time-equivalent basis, with the latter preferred for most purposes. Like the per capita measure, a shortcoming of the measure of expenditures per FTE student for state-to-state comparisons is that differences in living costs generally have not been considered.

Expenditures per FTE student also can be expressed as a ratio to per capita personal income. This measure acknowledges that a state's expenditures per student likely are influenced by the ability of residents to pay taxes and fees. However, a consensus does not exist that a state's expenditures should be evaluated relative to the ability to pay. Assuming that lesser spending per student equates to a lower-quality education, if a state spends less than the national average per pupil (after considering the cost of living) due to the low incomes of its residents, it is putting its students at a competitive disadvantage when they have to compete with college graduates from other states who are seeking the same jobs. In addition, a state with low per pupil spending is jeopardizing the success of its economic development if its college graduates are less qualified than the average graduate nationally. The quality and availability of the workforce is the most important location factor considered by businesses.

The analysis in this paper includes all four measures of expenditures:

- Per Capita
- Per \$1,000 of Personal Income
- Per Full-Time-Equivalent Student
- Per Full-Time-Equivalent Student as a Ratio to Per Capita Personal Income

In addition, in order to analyze a longer time series, per student expenditures — not adjusted for the number of credit hours taken — is examined. Since the best measure is expenditures per FTE student, especially when adjusted by the cost of living, this measure is emphasized in this report.

DATA SOURCES

The analysis of funding for higher education presented in this paper is hampered by data limitations, such as short time series, unavailability of recent data, data that are not fully comparable between states, and inconsistencies between data sources.

Funding Data

Multiple sources of data on funding for higher education exist, but each has limitations. Two sources have been examined for this paper: the State Higher Education Executive Officers Association (SHEEO) and the U.S. Census Bureau. Both sources combine community colleges and universities. Since the goal of this paper is to provide information specific to universities, these data sources are supplemented by funding data specific to universities collected directly from the state governments of Arizona and Utah. Each source presents data on a fiscal year (FY) basis, with each fiscal year starting on July 1. Fiscal year 2014, for example, ran from July 1, 2013 through June 30, 2014.

Census Bureau

The U.S. Census Bureau publishes data on state and local government revenues and expenditures by state on an annual basis.⁷ Revenues from all sources are included, but the amount from each source of funding — such as state government appropriations, tuition, or the federal government — is not provided. All higher education programs are combined; data are not available specific to community colleges or to universities. For some programs, including higher education, capital outlays are reported separately from other expenditures. The focus in this paper is funding excluding capital outlays and debt servicing.

The Census Bureau collects its data from state and local governments. In most years, local governments are sampled, so the data are subject to sampling error; inaccuracies also have been found in state government data reported by the Census Bureau. Another shortcoming of the Census Bureau's government finance data is timeliness, with FY 2012 figures the latest available. A major advantage of the Census Bureau's data is that it standardizes the unique accounting systems of each state.

State government data are reported separately from local government data by the Census Bureau, but the combined state and local government data generally are used for comparisons across states. Using only state or local government data to compare states is misleading since a specific government function may be performed by state government in one state but by local governments in another state. For example, community colleges in Utah are combined with universities into the same state system of higher education, administered by the state Board of Regents. All of the funding for community colleges and universities is reported at the state government level. In Arizona, community colleges are separate from universities and state government provides limited funding to community colleges. According to the Census Bureau, more than one-fourth of the total higher education funding in Arizona comes from local governments.⁸ Thus, a comparison of only state government funding exaggerates the amount by which Utah exceeds Arizona on public support for higher education.

SHEEO

The State Higher Education Executive Officers Association released the latest of their annual reports on "State Higher Education Finance" on April 15, 2015.⁹ The time series runs from fiscal years 2000 through 2014. The SHEEO data are not as comprehensive as the Census Bureau's data. Federal funding is not included, except for monies distributed through the American Recovery and Reinvestment Act of 2009 (ARRA) for fiscal years 2009 through 2012.¹⁰ Capital outlays and debt payments are not included. Funds for research, agricultural extension, and medical education are split out.

SHEEO collects their data from contacts in each state. While instructions are provided to state sources that report the data to SHEEO, inconsistencies in reporting are a concern.

⁷ U.S. Department of Commerce, Census Bureau, State and Local Government Finance, <http://www.census.gov/govs/>.

⁸ The share is 25 percent in Arizona according to SHEEO, compared to zero in Utah.

⁹ State Higher Education Executive Officers Association, <http://www.sheeo.org/projects/shef-%E2%80%94state-higher-education-finance>.

¹⁰ Arizona received ARRA funding for higher education only in FYs 2009 and 2010; Utah received funding in FYs 2009 through 2011.

Appropriations, not actual expenditures, are reported. All higher education programs are combined; data are not available specific to community colleges or to universities.

Unlike the Census Bureau, SHEEO reports the amount of funding by category. Five categories are of interest:

- “State Support for Public Higher Education”: state government appropriations and ARRA.
- “Local Support for Higher Education”: local government funding.
- “Educational Appropriations”: the part of state and local support available for operating expenses, calculated by subtracting appropriations for special purposes, research, and medical programs.
- “Net Tuition”: tuition and fees less state and institutional financial aid, student waivers and discounts, and medical student tuition and fees.
- “Total Educational Revenue”: educational appropriations plus net tuition, less tuition revenue used for capital outlays or debt service.

Because of the inclusion of tuition, total educational revenue is considered to be less meaningful than educational appropriations in evaluating public support for public higher education.

SHEEO creates its own measure of inflation, which is based 25 percent on the gross domestic product implicit price deflator and 75 percent on the employment cost index for management and professional occupations. Typically, the inflation rate from this measure is between the lower rates measured by the consumer price index and the higher rates measured by the higher education price index, but little difference in the rates has been measured in recent years.

For comparisons across states, SHEEO provides two other adjustments:

- A measure of the cost of living is provided, but the cost-of-living index by state comes from a 2003 study and is held constant across the 2000-to-2014 time period. A more timely and accurate measure is now available from the U.S. Bureau of Economic Analysis (BEA).¹¹
- A measure of the enrollment mix is included to reflect differences by state in the share of enrollment at different types of institutions of higher education. The measure was calculated using fiscal year 2011 data. Like the cost of living, the value is held constant across the 2000-to-2014 time period.

While each of these adjustments is conceptually desirable, SHEEO’s adjusted funding data are de-emphasized in this paper due to the use of the inferior cost-of-living measure and holding each adjustment factor constant over the 2000-to-2014 period.

State Governments

By collecting detailed data from the state governments of Arizona and Utah, the sources of funding for higher education can be differentiated and funding for community colleges and universities can be separated. However, numerous differences exist between Arizona and Utah in the accounting for higher education, and a variety of data limitations are present.

¹¹ See the second and fifth footnotes for information on the BEA’s cost-of-living index. According to SHEEO, Arizona’s index is 3.6 percent below the national average while the BEA reports it to be 1.9 percent below average. For Utah, the index is 0.7 percent above average according to SHEEO versus 3.2 percent below average according to the BEA. Overall, SHEEO’s measure and the 2012 figures from the BEA have a correlation of 0.77.

In Arizona, the Joint Legislative Budget Committee (JLBC) provides expenditure data for the university system, with data available for each university and for the Board of Regents, for fiscal years 1979 through 2015.¹² Total funding is divided into that coming from the general fund, other state funds (particularly tuition and fees), and not-appropriated monies, such as from the federal government. The JLBC also reports state government funding for community colleges. However, the state accounts for only a small portion of community college funding.¹³

The counterpart in Utah to Arizona's JLBC is the Office of the Legislative Fiscal Analyst. Like the JLBC, it annually produces an "Appropriations Report."¹⁴ However, the figures in this report are not detailed enough to differentiate funding for community colleges from funding for universities by source of funding.¹⁵ In addition, the operating and capital budgets are combined. The desired detail was available from the annual "Budget Summary" produced by the Governor's Office of Management and Budget, but this report was produced only for fiscal years 2000 through 2012.¹⁶ The historical relationships between the "Budget Summary" and the "Appropriations Report" were used to estimate from the figures in the appropriations report the more detailed expenditure data for fiscal years 2013 through 2016 that are needed to limit the analysis to general fund noncapital expenditures for universities.

Because the distribution of students across Utah's public institutions of higher education is quite different from the distribution in Arizona, even the analysis specific to state government appropriations for universities presents a distorted picture of state government support for universities.

Enrollment and Other Data

The various funding measures discussed earlier are applied in this paper to the Census Bureau's data and the university-specific data collected from the states of Arizona and Utah. Only the per student measures reported by SHEEO are included.

Since the expenditure data are expressed by fiscal year, the data used to standardize the expenditures have been converted to fiscal years:

- The annual population estimates produced by the U.S. Census Bureau are expressed as of July 1.¹⁷ The fiscal year population is calculated as the average of the population on the first day of the fiscal year and on the first day following the end of the fiscal year.

¹² Arizona Joint Legislative Budget Committee, <http://www.azleg.gov/jlbc/fiscal.htm>.

¹³ A central source of funding data for the community colleges does not exist, but each community college district uses a standard form to report their budget.

¹⁴ Utah Office of the Legislative Fiscal Analyst, <http://le.utah.gov:443/lfa/index.htm>. Utah has a separate education fund that must be combined with its general fund to be comparable to Arizona's general fund.

¹⁵ Total funding by institution is available and funding for all of higher education is available by the source of funding, but a cross-tabulation by institution and source of funding is not provided.

¹⁶ Utah Governor's Office of Management and Budget, <http://gomb.utah.gov/budget-policy/budget-information-archive/>. Since each report provides appropriations for the upcoming year, authorized spending for the current year, and actual expenditures for the prior year, data are available back to FY 1998.

¹⁷ U.S. Department of Commerce, Census Bureau, <http://www.census.gov/popest/>. The historical time series of population estimates is more easily obtained from the Bureau of Economic Analysis: see the next footnote.

- Personal income is reported quarterly by the U.S. Bureau of Economic Analysis.¹⁸ The GDP implicit price deflator — used to inflation adjust the time series data for the per capita and per student measures — also is produced quarterly by the BEA. For each, the fiscal year figure is calculated as the average of the four quarters during the fiscal year.
- Enrollment is reported by the National Center for Education Statistics (NCES) as of a particular date in the fall semester; this figure is used for the fiscal year.¹⁹ Two enrollment series are available. One is a simple headcount of students. The other is full-time-equivalent (FTE) enrollment. The latter series is preferred, but its time series is shorter.²⁰

While university appropriations are available for fiscal year 2016, none of the data used to standardize the expenditures are available for recent years — these figures had to be projected. Thus, the analysis for the recent years described in this paper must be viewed as preliminary. The latest data on FTE enrollment are for fiscal year 2013; FY 2014 and 2015 figures were estimated based on headcounts for those years reported by each state and the FY 2016 figures are projected. Personal income, inflation, and population were projected for FYs 2015 and 2016.

PUBLIC UNIVERSITY NONCAPITAL FUNDING IN ARIZONA AND UTAH FROM THE STATE GOVERNMENT GENERAL FUND²¹

Noncapital expenditures for universities from the state general fund are shown in Chart 3. These are the raw figures, not reflecting inflation or changes in enrollment. Compared to Utah, expenditures rose more in the mid-2000s in Arizona, but have dropped much more since then. In Utah, budget reductions for universities were modest in 2009 and 2010 and expenditures have increased since then, surpassing the previous 2008 peak in 2015. In contrast, Arizona’s universities have experienced a series of budget reductions beginning in 2009, with the 2016 figure lower than in each year back to 1998, despite the inflation and enrollment increases that have occurred over these 18 years.

In 1998, university funding accounted for 13.5 percent of the noncapital state government general fund budget in both Arizona and Utah. Since then, the university share has fallen considerably more in Arizona than Utah, as seen in Chart 4. The preliminary estimate for 2016 is 7.3 percent in Arizona and 12.3 percent in Utah.

As seen in Chart 5, the relationship between Arizona and Utah on university funding is similar on the per capita and per \$1,000 of personal income measures. There also is little difference in the two FTE enrollment measures. These conformances are due to per capita personal income being approximately the same in the two states.

Noncapital expenditures for universities from the state government general fund have been considerably lower in Arizona than in Utah on the per capita and per \$1,000 of personal income

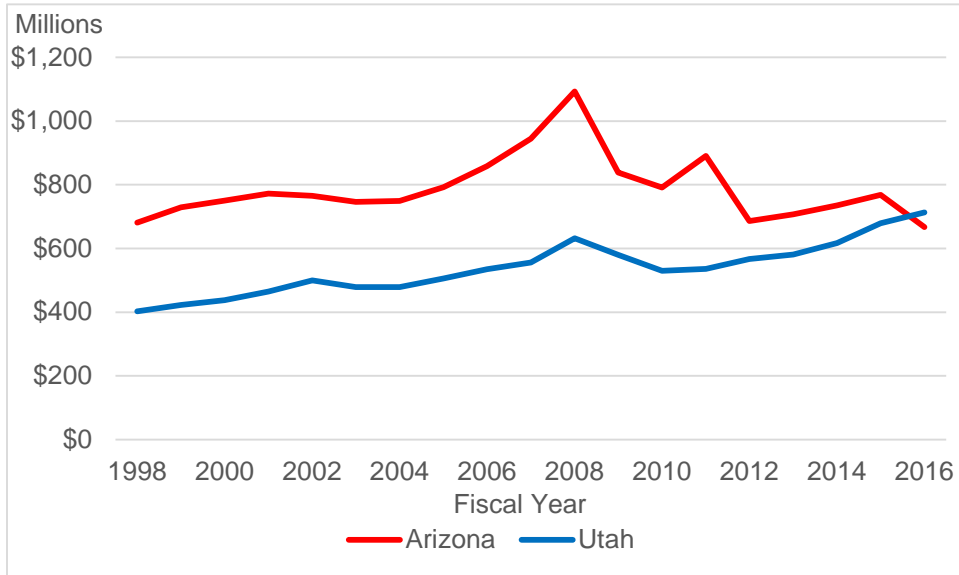
¹⁸ U.S. Department of Commerce, Bureau of Economic Analysis, <http://www.bea.gov/regional/index.htm>.

¹⁹ U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, <http://nces.ed.gov/programs/digest/>.

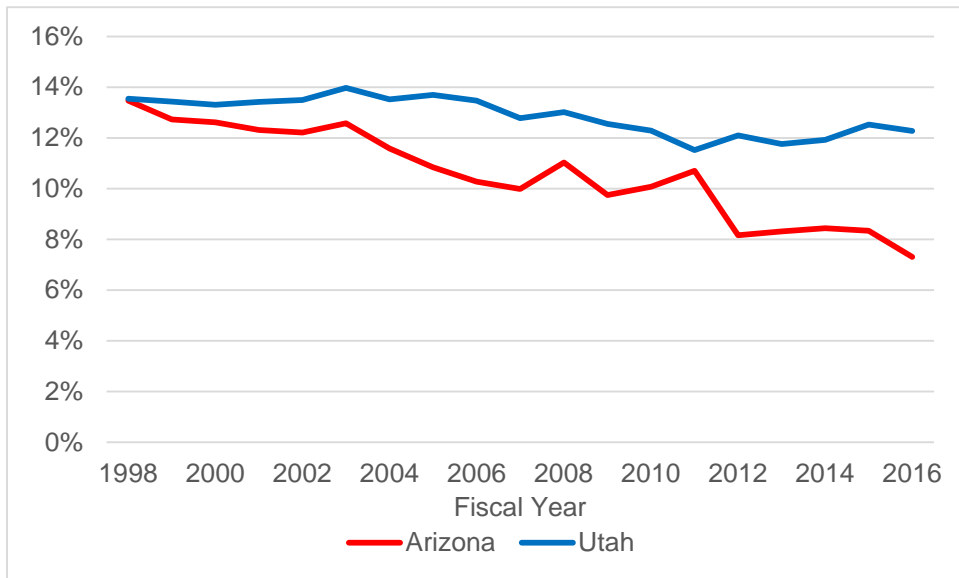
²⁰ SHEEO collects its own estimate of FTE enrollment; it is reported to be for the entire academic year.

²¹ All references to years in the rest of this paper are for fiscal years running from July 1 of the prior year to June 30 of the year shown. References to the general fund include Utah’s education fund.

**CHART 3
NOMINAL NONCAPITAL EXPENDITURES FOR PUBLIC UNIVERSITIES
FROM THE STATE GOVERNMENT GENERAL FUND**



**CHART 4
PUBLIC UNIVERSITY SHARE
OF THE STATE GOVERNMENT GENERAL FUND'S NONCAPITAL BUDGET**



Note (Charts 3 and 4): The data for Utah include the general fund and the education fund.

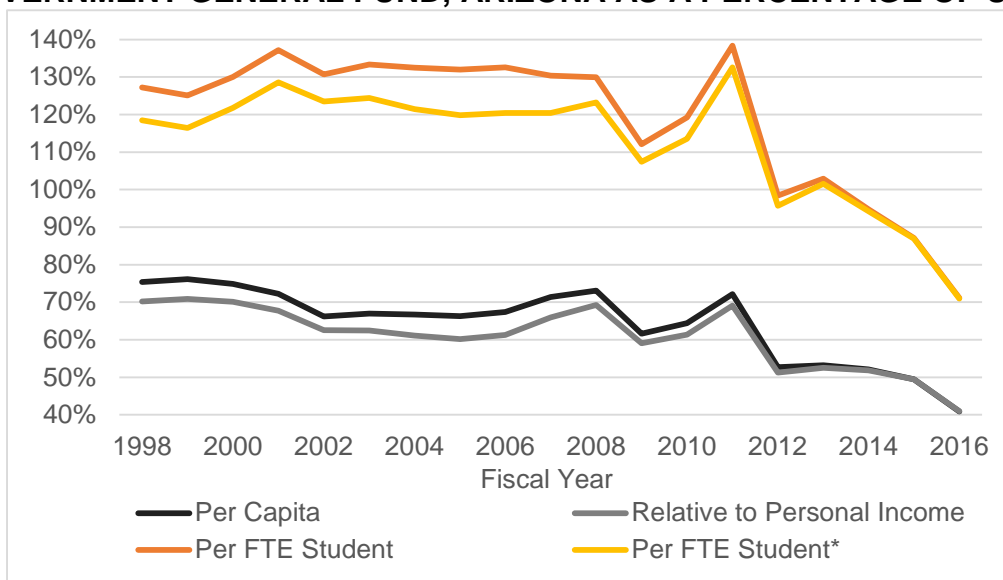
Sources (Charts 3 and 4): Arizona Joint Legislative Budget Committee (Arizona, <http://www.azleg.gov/jlbc/fiscal.htm>), Utah Governor's Office of Management and Budget (Utah university expenditures, <http://gomb.utah.gov/budget-policy/budget-information-archive/>, 2013-16 estimated), and Utah Office of the Legislative Fiscal Analyst (Utah total expenditures, <http://le.utah.gov:443/lfa/index.htm>).

measures (see Chart 5). In contrast, funding per FTE student in Arizona was higher than in Utah through 2011, but has since fallen to substantially lower than in Utah.

Arizona’s noncapital expenditures for universities from the state government general fund expressed as a percentage of the Utah figure was nearly steady between 1998 and 2008 on each of the four measures. Arizona’s percentage dropped in 2009 due to a more sizable budget reduction in Arizona. The percentage rose in 2010 due to a larger budget cut in Utah and increased more in 2011, due to an increase in funding in Arizona. The percentage fell sharply in 2012 due to another budget cut in Arizona. Between 2012 and 2015, the percentages were largely unchanged on a per capita basis, but decreased on a per student basis as enrollments rose more in Arizona than Utah. Another sharp decline occurred in 2016 on all measures due to the most recent budget cut to universities in Arizona.

Chart 6 tracks expenditures per FTE student, the preferred measure. If these figures were adjusted for the relative cost of living in each state, the Arizona line in the chart would lower slightly relative to the Utah line (at least over the 2008-12 time period).

**CHART 5
NONCAPITAL EXPENDITURES FOR PUBLIC UNIVERSITIES FROM THE STATE GOVERNMENT GENERAL FUND, ARIZONA AS A PERCENTAGE OF UTAH**

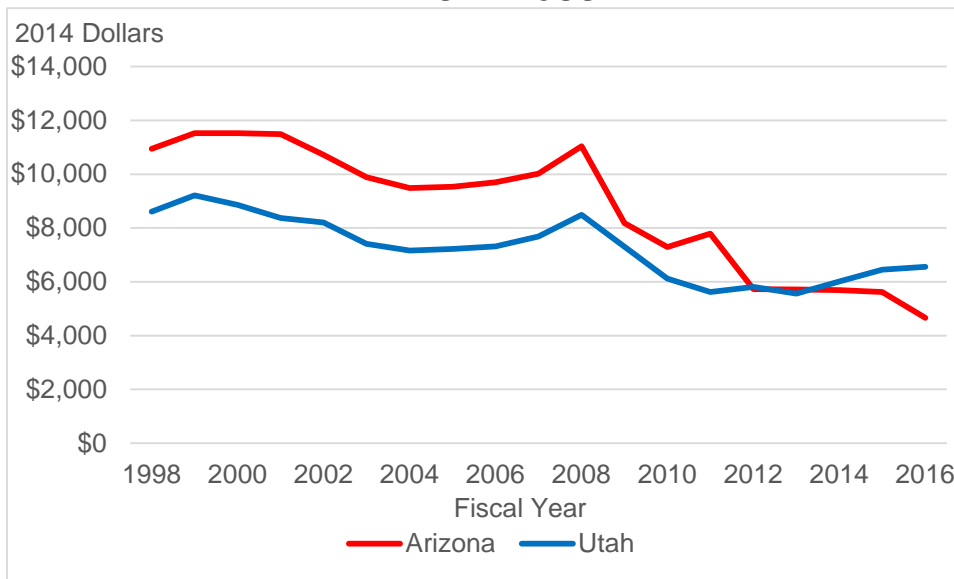


* Adjusted by per capita personal income.

Note: The data for Utah include the general fund and the education fund.

Sources: Arizona Joint Legislative Budget Committee (Arizona expenditures, <http://www.azleg.gov/jlbc/fiscal.htm>), Utah Governor's Office of Management and Budget (Utah expenditures, <http://gomb.utah.gov/budget-policy/budget-information-archive/>, 2013-16 estimated), U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (enrollment, <http://nces.ed.gov/programs/digest/>, 2014-16 estimated), U.S. Department of Commerce, Bureau of Economic Analysis (personal income, per capita personal income, and GDP implicit price deflator, <http://www.bea.gov/>, 2015-16 estimated), and U.S. Department of Commerce, Census Bureau (population, <http://www.bea.gov/regional/index.htm>, 2015-16 estimated).

**CHART 6
NONCAPITAL EXPENDITURES FOR PUBLIC UNIVERSITIES FROM THE STATE
GOVERNMENT GENERAL FUND PER FULL-TIME-EQUIVALENT STUDENT,
INFLATION ADJUSTED**



Note: The data for Utah include the general fund and the education fund.

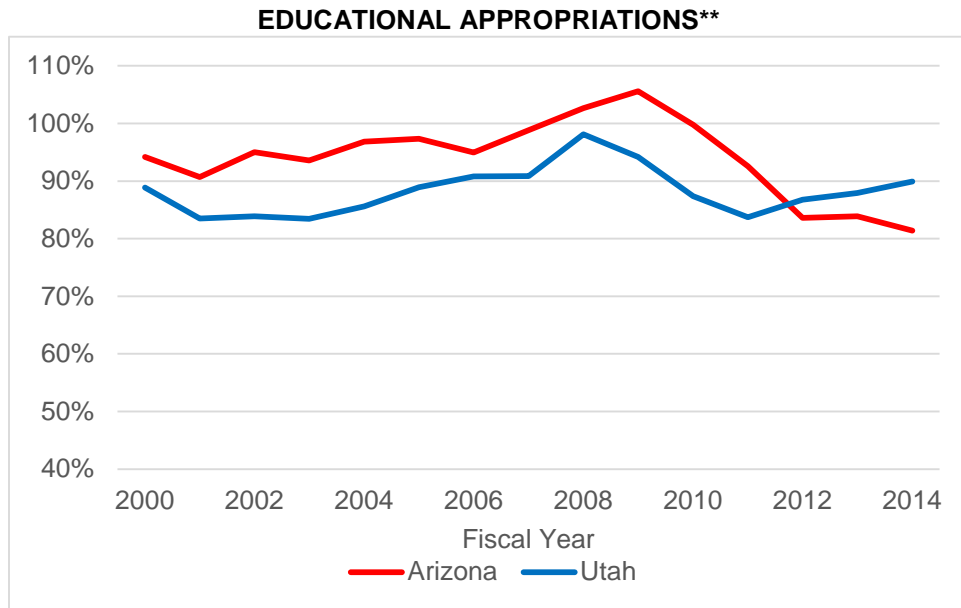
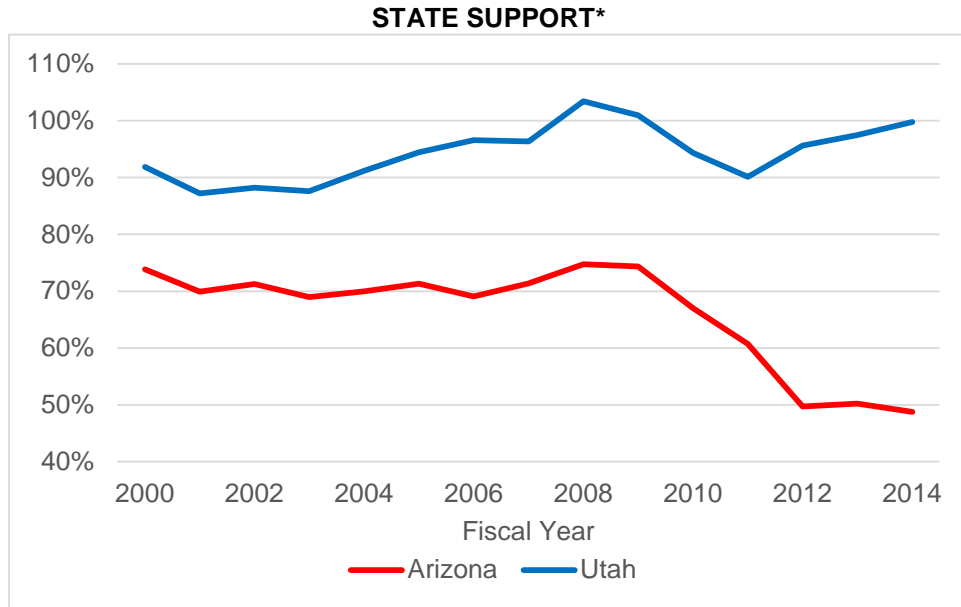
Sources: Arizona Joint Legislative Budget Committee (expenditures, <http://www.azleg.gov/jlbc/fiscal.htm>), Utah Governor's Office of Management and Budget (expenditures, <http://gomb.utah.gov/budget-policy/budget-information-archive/>, 2013-16 estimated), U.S. Department of Education, National Center for Education Statistics *Digest of Education Statistics* (enrollment, <http://nces.ed.gov/programs/digest/>, 2014-16 estimated), and U.S. Department of Commerce, Bureau of Economic Analysis (GDP implicit price deflator, <http://www.bea.gov/national/index.htm#gdp>, 2015-16 estimated).

This comparison of university appropriations per FTE student does not take into account differences in the university systems of Arizona and Utah. Each of the universities in Arizona is a research institution, which is the most costly category of higher education to operate. Utah offers a range of universities that include lower-cost options. This helps to explain why Arizona's appropriations per FTE student were historically higher than in Utah, but makes the currently lower support in Arizona more remarkable.

**PUBLIC HIGHER EDUCATION NONCAPITAL FUNDING
IN ARIZONA AND UTAH FROM SHEEO**

Based on SHEEO's dataset, state support for public higher education — including ARRA monies from 2009 through 2011 — per FTE student was lower in Arizona than in Utah throughout the 2000-to-2014 period. Between 2000 and 2002, Arizona's figure was 19-to-20 percent lower than in Utah. The differential gradually began to widen in 2003, but had expanded only to 26 percent in 2009. After that, the differential became much larger, with the 2014 figure in Arizona 51 percent lower than in Utah. As a percentage of the national average, state government appropriations for higher education per FTE student are shown in the top graph of Chart 7 for Arizona and Utah.

**CHART 7
NONCAPITAL APPROPRIATIONS PER FULL-TIME-EQUIVALENT STUDENT
AT PUBLIC INSTITUTIONS OF HIGHER EDUCATION
AS A PERCENTAGE OF THE NATIONAL AVERAGE**



* Includes federal ARRA monies in fiscal years 2009 through 2011.

** Consists of state support and local support, less appropriations for special purpose, research, and medical programs.

Source: State Higher Education Executive Officers Association, <http://www.sheeo.org/projects/shef-%E2%80%94state-higher-education-finance>.

Between 2000 and 2011, Arizona ranked between 43rd and 47th among the 50 states on state government appropriations for higher education per FTE student. Arizona ranked 49th in each year from 2012 through 2014; only New Hampshire was lower in 2014. Utah's rank was as low as 40th in 2000 and 2001 and as high as 22nd in 2008; Utah ranked 28th in 2014. Among 10 western states (Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Texas, Utah, and Washington), Arizona ranked between eighth and 10th over the 2000-to-2014 period, including last from 2012 through 2014. Utah's rank varied between fourth and seventh, and was sixth in 2014.

If SHEEO's adjustments for the cost of living and the enrollment mix are applied to the state support figures, the differential between Arizona and Utah narrows slightly. Both states drop relative to the national average, with Utah falling more. The annual ranks of Arizona and Utah among the states do not change much when the adjustments are applied to all states; in 2014, the rank is the same in Arizona and in Utah as with the unadjusted data.

As noted earlier, the comparison of state government appropriations for universities per FTE student does not take into account differences in the university systems of Arizona and Utah. Moreover, a much higher proportion of higher education students are enrolled in universities — versus community colleges — in Utah than in Arizona. However, even SHEEO's indicator of state government appropriations for all of higher education produces a misleading comparison. Community colleges in Utah are combined with universities into one system that is funded by state government. In Arizona, community colleges are separate from universities, with only a small portion of their funding coming from state government. Thus, combined state and local government appropriations for higher education provide a more accurate comparison of the overall support for higher education in the two states.

The addition to state support of local funding minus appropriations for special purpose, research, and medical programs creates SHEEO's measure of educational appropriations. When measured per FTE student, the comparison between Arizona and Utah for educational appropriations is much different than for state support. The educational appropriation figure in Arizona was higher than in Utah from 2000 through 2010, by between 5-and-14 percent. By 2014, however, Arizona's figure was nearly 10 percent less than that for Utah. Thus, as in the state support series, a downward trend in recent years in Arizona's comparison to Utah was present in the educational appropriations series. Educational appropriations per FTE student as a percentage of the national average are shown in the bottom graph of Chart 7.

Arizona's rank among the 50 states on educational appropriations per FTE student was mostly in the mid-20s between 2000 and 2010, but was 34th in 2014. Utah's rank rose from 37th in 2001 to 27th in 2014. Among the 10 western states, Arizona generally ranked fifth between 2000 and 2009, but was eighth in 2014. Utah's rank ranged from fifth to ninth; it was seventh in 2014.

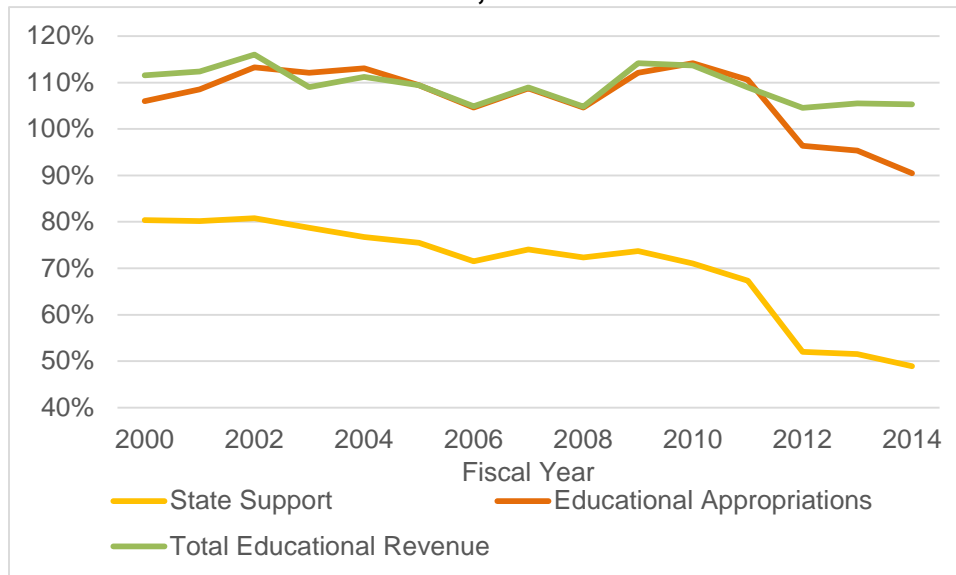
If SHEEO's adjustments for the cost of living and the enrollment mix are applied to the educational appropriations figures, Arizona rises somewhat relative to Utah, but both states drop relative to the national average. When the adjustments are applied to all states, the ranks for Arizona and Utah drop a little; in 2014, Arizona ranked 36th and Utah ranked 32nd.

Another measure reported by SHEEO is total educational revenue, which adds net tuition revenue (excluding monies used for capital outlays or debt servicing) to educational appropriations. When measured as total educational revenue per FTE student, Arizona as a percentage of Utah was almost identical to educational appropriations from 2000 through 2011 (see Chart 8). The larger tuition increases in Arizona after this resulted in Arizona’s ratio to Utah largely holding steady when measured as total educational revenue, in contrast to a big decrease when measured as educational appropriations.

Arizona’s rank among the 50 states on the total educational revenue per FTE student measure was in the mid-30s between 2000 and 2006, then rose into the mid-20s before falling back; the rank was 30th in 2014. Utah’s rank climbed a bit from the mid-40s between 2001 and 2004 to 39th in 2014. Among the 10 western states, Arizona generally ranked fifth between 2000 and 2006, but was second in 2014. Utah’s rank rose from ninth or 10th between 2000 and 2007 to sixth or seventh since then.

Tuition per FTE student at public institutions of higher education in Arizona was about 5 percent below the national average from 2000 through 2007. Arizona’s figure relative to the U.S. average has climbed since then, reaching 16 percent above average in 2014. Tuition per FTE student has been considerably lower in Utah than in Arizona. Relative to the national average, the tuition figure in Utah was about 30 percent below average in 2001 and 2002. In 2011, the differential had narrowed to 8 percent, but since then the differential has increased slightly; it was 10 percent in 2014.

CHART 8
NONCAPITAL FUNDING PER FULL-TIME-EQUIVALENT STUDENT FOR PUBLIC INSTITUTIONS OF HIGHER EDUCATION, ARIZONA AS A PERCENTAGE OF UTAH



Source: State Higher Education Executive Officers Association, <http://www.sheeo.org/projects/shef-%E2%80%94state-higher-education-finance>.

PUBLIC HIGHER EDUCATION FUNDING IN ARIZONA AND UTAH FROM THE CENSUS BUREAU

This analysis differs from that in the preceding section by considering all sources of funding for public institutions of higher education. It differs from SHEEO's total educational revenue indicator by including federal funds, all appropriations, and all tuition revenue. Since it includes tuition revenue, it is less desirable as an indicator of public support for higher education than an indicator limited to appropriations.

The Census Bureau data are available for 1964 through 2012.²² Per student funding is the focus in this section, which includes data for the nation as well as for Arizona and Utah. Data on capital outlays as well as for noncapital expenditures are available. In order to provide a more complete picture of support for public education, funding for public elementary and secondary (K-12) schools is included. The time frame examined varies with the availability of enrollment data:

- Higher education headcount: 1967 through 2013
- Higher education FTE: 1985 through 2013
- K-12: 1964 through 2012

Enrollment per 1,000 residents is shown in Chart 9. In the 1980s and early 1990s, FTE enrollment at public institutions of higher education per 1,000 residents was higher in Arizona than in Utah, but the figure for Arizona has been lower than for Utah since then. Recently, Arizona's figure has been only a little higher than the national average. Enrollment at public elementary and secondary schools per 1,000 residents in Arizona generally has been slightly higher than the national average, but has consistently been considerably lower than in Utah. The young population and high fertility rate account for Utah's higher figures.

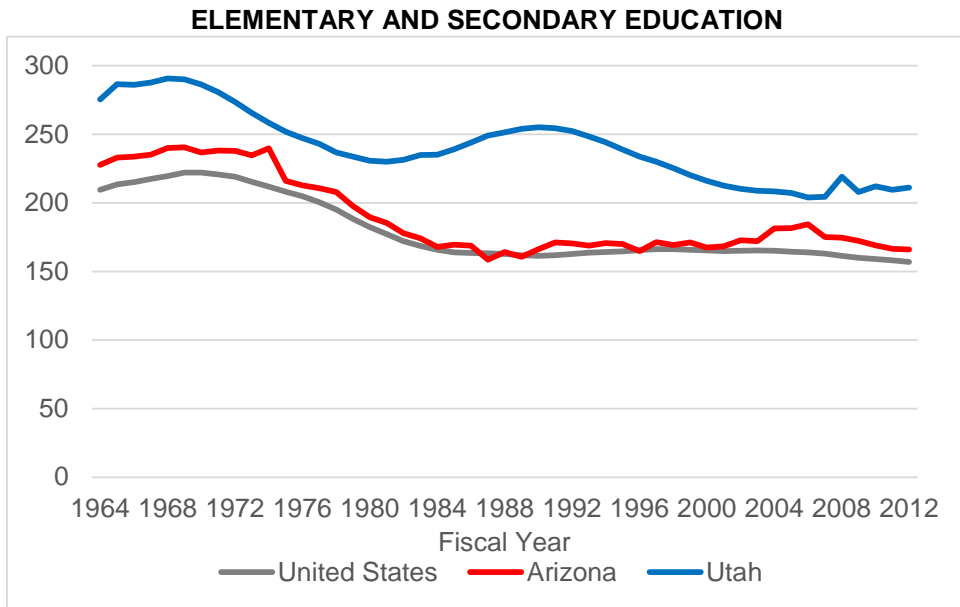
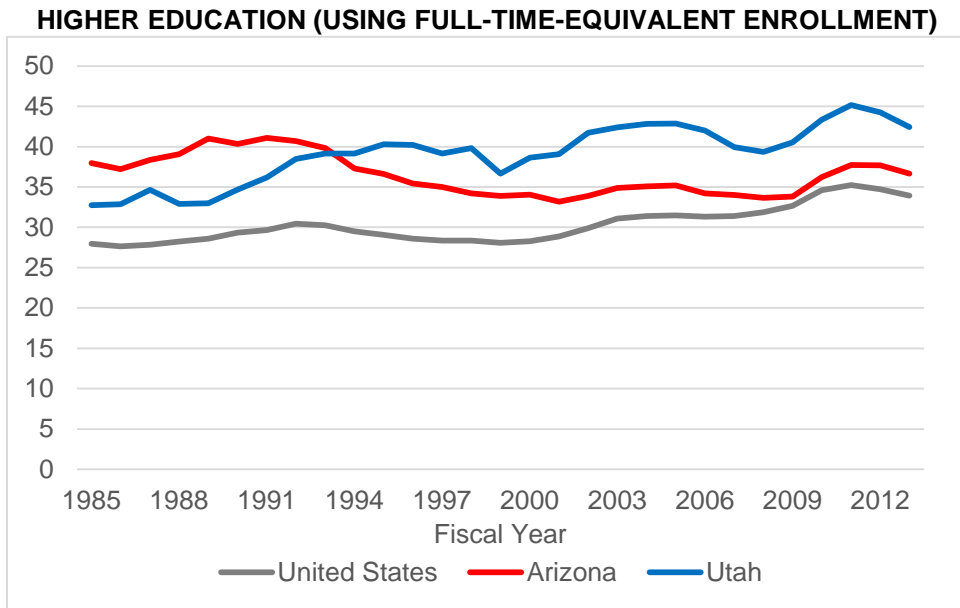
Chart 10 compares per student noncapital expenditures in Arizona and Utah. Funding for higher education has consistently been substantially lower in Arizona than in Utah. In contrast, though Arizona's expenditures per pupil for primary and secondary education currently rank near the bottom of the states, they remain higher than in Utah.

In Chart 11, education expenditures in Arizona and Utah are compared to the national average. Per student K-12 noncapital funding has fallen considerably in each state relative to the nation, with a somewhat greater drop in Arizona. Higher education noncapital funding per FTE student also has fallen more than average in Arizona, but the figures for Utah show no trend versus the nation.

Capital outlays for higher education are highly volatile from year to year. Per FTE student, the figure has been higher in Arizona than in Utah in some years, particularly from 2004 through 2008. Each state generally has been below the national average since 2000. Capital outlays for K-12 education also fluctuate from year to year. Per student, K-12 capital spending was less in Arizona than Utah in most years from 2004 through 2012 but was higher in each year from 1981 through 2002, usually by a substantial margin. Relative to the national average, Arizona was

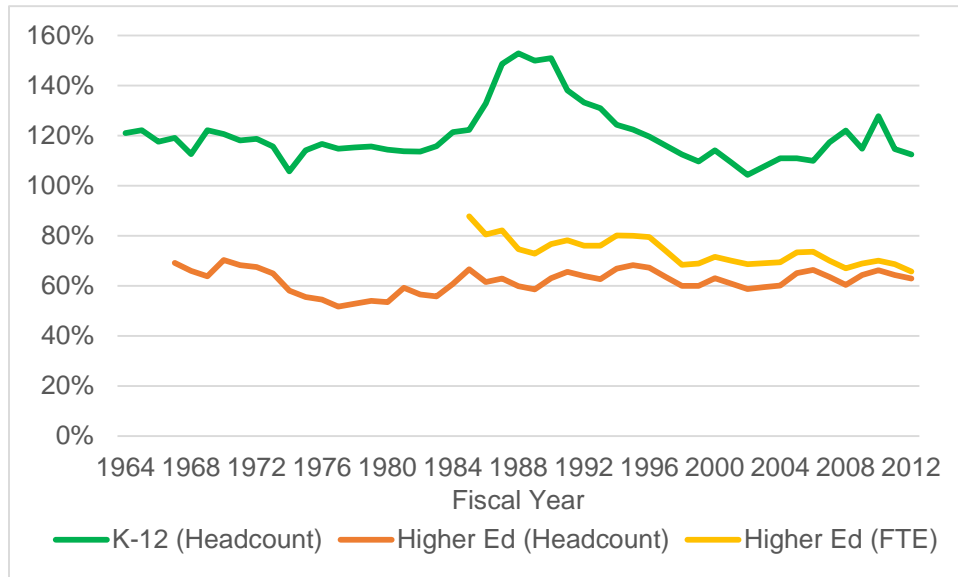
²² The Census Bureau did not report data for 2001 or 2003 and the capital-noncapital split was not provided in 1997. Data for 1978 are missing. In the charts, missing data are interpolated.

**CHART 9
ENROLLMENT AT PUBLIC SCHOOLS AND PUBLIC INSTITUTIONS
OF HIGHER EDUCATION PER 1,000 RESIDENTS**

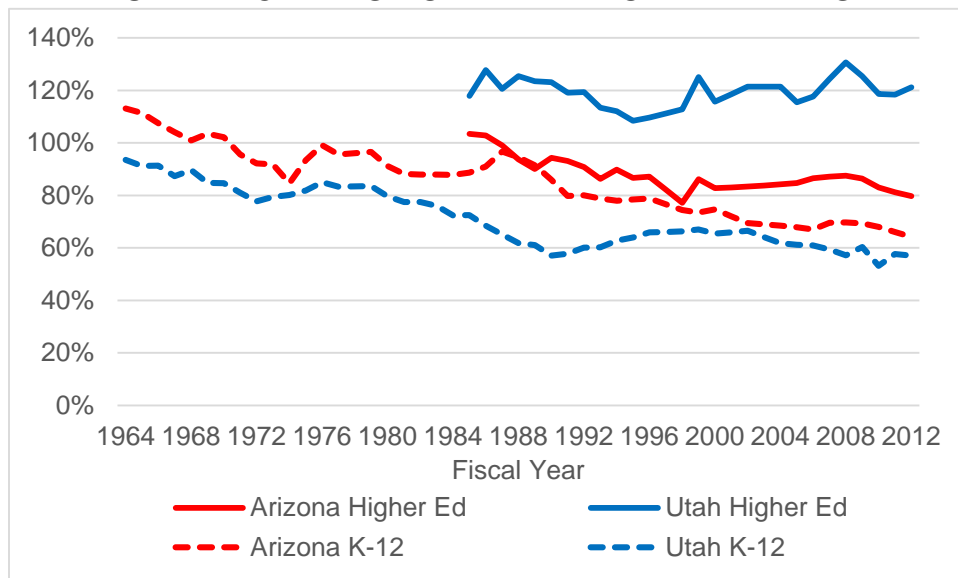


Sources: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (enrollment, <http://nces.ed.gov/programs/digest/>) and U.S. Department of Commerce, Census Bureau (population, <http://www.bea.gov/regional/index.htm>).

**CHART 10
NONCAPITAL EXPENDITURES PER STUDENT AT PUBLIC SCHOOLS
AND PUBLIC INSTITUTIONS OF HIGHER EDUCATION,
ARIZONA AS A PERCENTAGE OF UTAH**



**CHART 11
NONCAPITAL EXPENDITURES PER STUDENT AT PUBLIC SCHOOLS
AND PUBLIC INSTITUTIONS OF HIGHER EDUCATION
AS A PERCENTAGE OF THE NATIONAL AVERAGE**



Note: higher education enrollment is measured on a full-time-equivalent basis in Chart 11.

Sources (Charts 10 and 11): U.S. Department of Commerce, Census Bureau, State and Local Government Finance, (expenditures, <http://www.census.gov/govs/>) and U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (enrollment, <http://nces.ed.gov/programs/digest/>).

higher in each year from 1971 through 1999. Utah frequently was above the U.S. average during this period. More recently, Arizona was less than or equal to the national average from 2000 through 2012, while Utah generally was a little above the norm from 2008 through 2012.

Analysis of All States

Using the Census Bureau's expenditure data, the analysis was expanded to all states for the 1992-through-2012 period. The focus is noncapital expenditures, measured as follows:

- Per FTE student adjusted for inflation
- Per FTE student as a ratio to per capita personal income
- For 2012, per FTE student adjusted by the cost of living

Noncapital expenditures for higher education per FTE student as a ratio to per capita personal income were 4.6 percent higher than the national average in Arizona in 1992. Arizona ranked 29th among the 51 "states" (including the District of Columbia) and seventh among the 10 western states. In 2012, Arizona's figure was 4.5 percent less than the national average, ranking 37th among the 51 states and eighth among the 10 western states (Nevada and Washington were lower). As a ratio to per capita personal income, noncapital expenditures for higher education per FTE student increased nationally but dropped in Arizona between 1992 and 2012. On the change over time, Arizona ranked 35th nationally and eighth among the 10 comparison states (New Mexico and Washington were lower).

Without adjusting noncapital expenditures for per capita personal income, higher education expenditures per FTE student in Arizona in 1992 were 9.2 percent less than the national average. Arizona ranked 39th nationally and last among the 10 comparison states. In 2012, the differential was wider, with Arizona's figure 20.3 percent less than the U.S. average, ranking 47th among the 51 states and ninth among the 10 western states (Nevada was lower). The percent change in Arizona's figures between 1992 and 2012 ranked 42nd nationally and eighth in the comparison group (Nevada and New Mexico were lower).

By adjusting the 2012 per FTE student figure for the cost of living, Arizona's differential from the national average narrows slightly to 18.8 percent, but the state's national rank drops one place to 48th. The only states spending less were Florida, Nevada, and New Jersey.

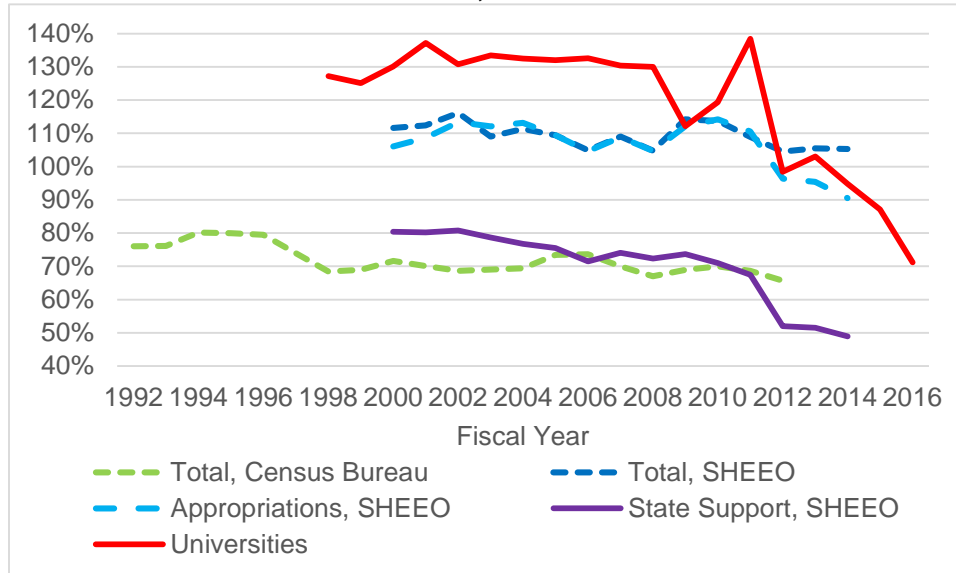
COMPARISON OF INDICATORS

In order to compare the results from each of the data sources, the Arizona figure is expressed as a percentage of the Utah figure (see Chart 12). All five indicators of funding displayed in the chart are expressed per FTE student. Beginning and ending dates of the available data vary by source.

The *level* of Arizona's funding relative to Utah varies widely by indicator from considerably above to considerably below the Utah figure. Much of this variation is due to the differing definitions of funding used in the five indicators, but some may be a function of inaccuracies in one or more of the datasets.

The most narrowly defined indicator of funding is state government general fund expenditures for universities obtained from the legislative budget offices in Arizona and Utah. Historically, Arizona's state general fund expenditures per FTE student relative to those in Utah — shown as

CHART 12
NONCAPITAL FUNDING PER FULL-TIME-EQUIVALENT STUDENT AT PUBLIC INSTITUTIONS OF HIGHER EDUCATION, ARIZONA AS A PERCENTAGE OF UTAH



Sources: Arizona Joint Legislative Budget Committee (Arizona, <http://www.azleg.gov/jlbc/fiscal.htm>), Utah Governor's Office of Management and Budget (Utah, <http://gomb.utah.gov/budget-policy/budget-information-archive/>, 2013-16 estimated), State Higher Education Executive Officers Association, <http://www.sheeo.org/projects/shef-%E2%80%94state-higher-education-finance>, U.S. Department of Commerce, Census Bureau, State and Local Government Finance, (expenditures, <http://www.census.gov/govs/>) and U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (enrollment, <http://nces.ed.gov/programs/digest/>, 2014-16 estimated).

the red line in Chart 12 — were the highest of the five funding indicators, but this series displays the sharpest declines in the ratio in recent years. The historically higher funding in Arizona is at least in part due to each of the universities in Arizona being research institutions, while Utah offers a range of universities that include lower-cost options. Given this, the projection of state appropriations per university student in 2016 being nearly 30 percent less in Arizona than in Utah is even more remarkable.

Three of the funding measures displayed in Chart 12 are from SHEEO; each is shown as a blue-purple shaded line. The narrowest of these three series is state support. It includes community colleges as well as universities. The significant difference in the level of this purple line and the red line results primarily from community colleges being wholly funded by state government in Utah, but largely funded by local governments in Arizona. However, other definitional differences exist between these two measures.

The second SHEEO indicator adds local funding to state support but subtracts appropriations for special purposes, research, and medical programs. Largely because of the inclusion of local funding, the ratio of Arizona to Utah on educational appropriations is considerably higher than for the state support indicator. Arizona's funding historically was somewhat higher than in Utah, but after 2010 became lower.

The third SHEEO indicator adds net tuition. Historically, Arizona's ratio to Utah on total educational revenue was about the same as for the educational appropriations indicator, but the greater increases in tuition in Arizona in recent years held the ratio largely steady while the ratio for educational appropriations fell.

The indicator from the Census Bureau is conceptually closest to the third SHEEO indicator of total educational revenue. However, the Census Bureau includes federal funding, all appropriations, and all tuition. A wide difference is present in the levels of the Census Bureau indicator — Arizona is about 30 percent lower than Utah — and the SHEEO indicator, in which Arizona is about 10 percent higher than Utah. It seems unlikely that the definitional differences would explain this wide difference, but this cannot be determined from the available data.

The raw data from the Census Bureau on noncapital state and local government expenditures for higher education are considerably higher than the raw data from SHEEO for total educational revenue. Nationally, the SHEEO figure was about 40 percent less than the Census Bureau figure between 2000 and 2012. The differential was not as wide in Arizona at generally around 30 percent, but was much wider in Utah at approximately 60 percent. It is unclear whether the Census Bureau or SHEEO series is more representative of total revenue available for public higher education. In any case, because of the inclusion of tuition (and the incorporation of federal funds, which generally are restricted to specific uses) in the Census Bureau measure, total revenue is considered to be less meaningful in terms of evaluating support for public higher education than appropriations.

According to the SHEEO indicator of total educational revenue, Arizona's expenditures per FTE student were within 5 percent of the national average from 2007 through 2011, ranking between 23rd and 29th nationally and first to third among the 10 western states. The Census Bureau's data indicated Arizona's figure to be about 15 percent below the national average, ranking between 45th and 47th nationally and ninth among the western states. Both indicators showed some deterioration in 2012. In contrast, for Utah, the SHEEO indicator put the figure at about 10 percent less than the U.S. average from 2007 through 2011, ranking around 40th nationally and highest among the western states. The Census Bureau's indicator put Utah at about 25 percent above average, ranking sixth or seventh nationally and highest among the western states.

The *change in the level* of Arizona's funding relative to the Utah figure is more consistent across the five indicators. Through 2008, little change occurred in the relationship between Arizona and Utah in any of the five series. After that, Arizona fell through 2014 relative to Utah on the three indicators that do not include tuition. The indicator specific to universities that is estimated through 2016 suggests that additional declines in Arizona relative to Utah occurred after 2014 in the SHEEO indicators of state support and educational appropriations. In contrast, little decline after 2008 is seen in the two indicators that include tuition: SHEEO's estimate of total educational revenue and the Census Bureau's estimate of total expenditures.