



# Commonfund Higher Education Price Index

2017 Update

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## About Commonfund Institute

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Commonfund Institute houses the education and research activities of Commonfund and provides the entire community of long-term investors with investment information and professional development programs. Commonfund Institute is dedicated to the advancement of investment knowledge and the promotion of best practices in financial management. It provides a wide variety of resources, including conferences, seminars and roundtables on topics such as endowments and treasury management; proprietary and third-party research such as the NACUBO-Commonfund Study of Endowments®; publications including the Commonfund Higher Education Price Index® (HEPI); and events such as the annual Commonfund Forum and Commonfund Endowment Institute.

## Executive Summary

Higher Education Price Index (HEPI) data show that inflation for colleges and universities was 3.7 percent for fiscal year 2017, more than doubling the 1.8 percent rate reported for FY2016. HEPI for FY2017 was 23 percent higher than the 3.0 percent rate for FY2014 and 131 percent above the 1.6 percent rate for FY2013. FY2017's 3.7 percent inflation rate is the highest reported since the rate of 5.0 percent reported for FY2008.<sup>1</sup>

FY2017 costs rose in seven of the eight categories tracked by HEPI, the only exception being a one-half percentage point decline in the cost of supplies and materials. The chief causes of increase in HEPI from FY2016 to FY2017 were: a 14.5 percent increase in utility costs; a 5.9 percent increase in fringe benefits; and a 3.7 percent increase in service employee costs.

## Introduction: The Higher Education Price Index

### About HEPI

The Higher Education Price Index (HEPI) is an inflation index designed specifically for use by institutions of higher education. Compiled from data reported by government agencies and industry sources, HEPI measures the average relative level in the price of a fixed market basket of goods and services purchased by colleges and universities each year through current fund educational and general expenditures, excluding research. A more accurate indicator of cost changes for colleges and universities than the Consumer Price Index (CPI), HEPI is used primarily to project future budget increases required to preserve purchasing power. With compilations dating back to 1961, HEPI offers more than 50 continuous years of higher education inflation data. It is an essential tool enabling schools to determine increases in funding necessary to maintain both real purchasing power and investment.

In 2005, Commonfund Institute assumed responsibility for the index and the proprietary model used to calculate HEPI's values from Research Associates of Washington, D.C. In subsequent years, in keeping with its commitment to improving and expanding the index, Commonfund Institute has initiated a number of additional HEPI services and refinements.

HEPI is compiled using data items from publicly-available sources that are released at different points in the academic fiscal year, from July 1 through June 30.

**IMPORTANT NOTE:** Two of the main HEPI cost factors, faculty salaries and fringe benefits, are derived from faculty compensation data published by the American Association of University Professors (AAUP), which in 2015 began using a new methodology that is not comparable with the past. Due to this change in methodology, in both this and last year's reports we have used what we believe are reasonable estimates for changes in faculty salaries and fringe benefits to aid in the transition from FY2015 to subsequent years. The new AAUP methodology represents a discontinuity with past years, and as a result future HEPI calculations, which will be based on the new methodology, will not be directly comparable with years prior to FY2016. Furthermore, because of this discontinuity, this year's HEPI report does not contain information on HEPI calculated by type of institution or by region, and does not include an analysis of changes in the purchasing power and salaries of full-time professors. We anticipate being able to resume offering these features of the HEPI report, calculating changes from the new AAUP base data, as we expect that the transition period will be complete by the time data for the FY2018 report are aggregated and analyzed.

For further information on the AAUP's new methodology, see Barnshaw, "Facilitating Institutional Improvement Through Enhanced Benchmarking", *Academe*, March-April 2016, pp. 4-8, found at <https://www.aaup.org/sites/default/files/FacilitatingInstitutionalImprovementMA16.pdf>.

Administrative salaries throughout this report were sourced from The CUPA-HR 2015-16 Administrators in Higher Education Salary Survey Report. Research report. Knoxville, TN: CUPA-HR, March 2016. Available from <http://www.cupahr.org/surveys/ahe.aspx>.

All HEPI services are provided free of charge via Commonfund's website at [www.commonfund.org](http://www.commonfund.org).

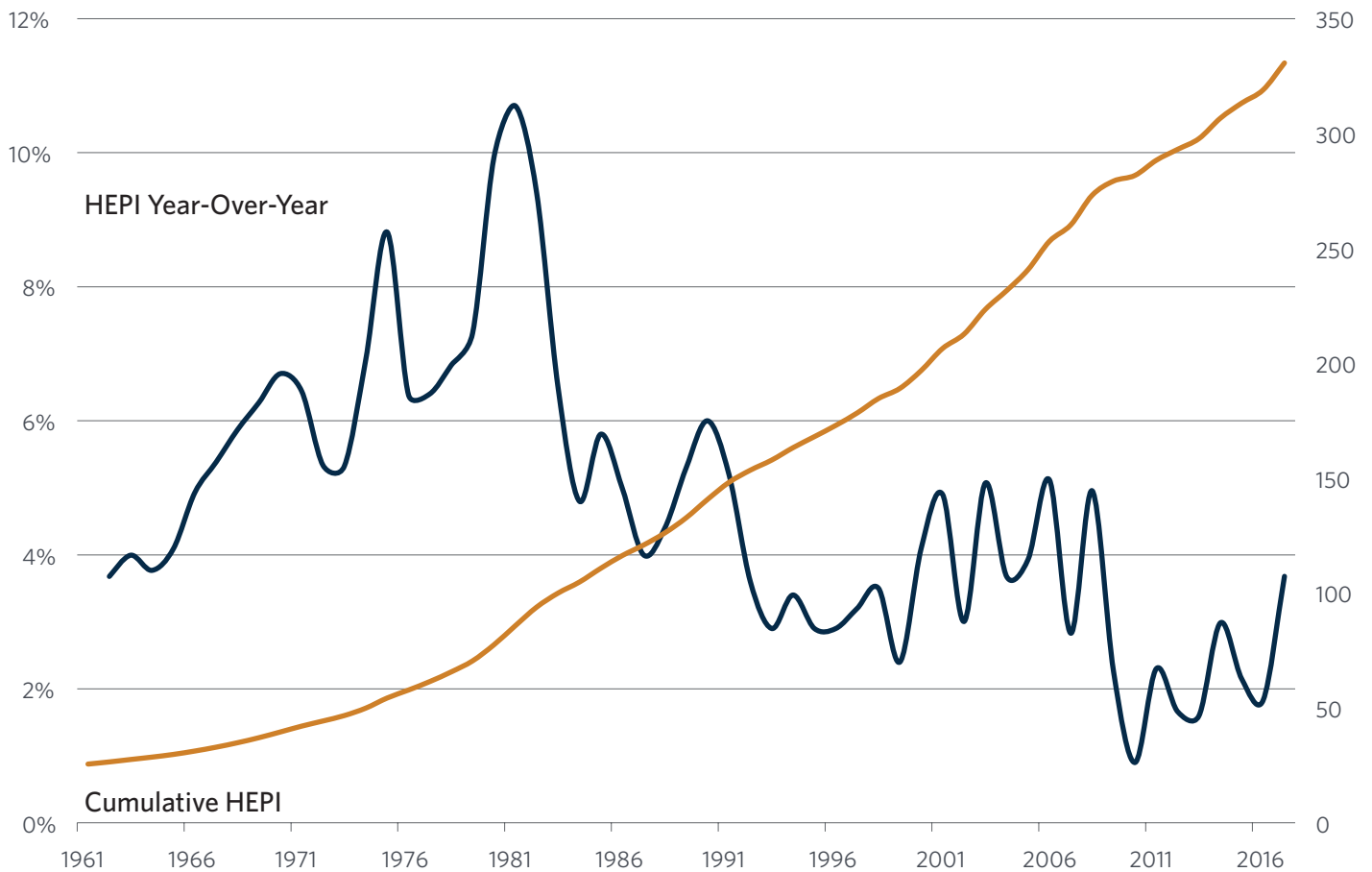
<sup>1</sup> As noted throughout the following report, a change in methodology for computing faculty salaries and fringe benefits means that data for these factors are not directly comparable with years prior to FY2016. We have, however, used what we believe are reasonable estimates for changes in these two categories.

## The HEPI Tables

The chart below shows HEPI from fiscal years 1961 to 2017. Table A on page 3 summarizes HEPI and CPI for the same period. Table B on page 4 summarizes the regression formula used since FY2002 to calculate HEPI. HEPI data beginning with FY2002 have been restated to reflect methodological improvements adopted in 2009.

### HIGHER EDUCATION PRICE INDEX

1961 - 2017



This chart traces the Higher Education Price Index (HEPI) from 1961 to 2017. Cumulative HEPI is represented by the steadily increasing orange line, indexed to 100 for 1983, and should be read using the right-hand scale. The jagged line traces percentage year-over-year changes in HEPI and should be read using the left-hand scale. In this chart and in the supporting data in Table A on page 3, HEPI is presented in two ways—as an index level and as a year-over-year percent change. HEPI data beginning with FY2002 have been restated to reflect the methodological improvements adopted in 2009.



**TABLE A****HISTORICAL SUMMARY OF HIGHER EDUCATION PRICE INDEX AND CONSUMER PRICE INDEX**

Fiscal Years 1961 to 2017

College and university operations			Consumer prices		Fiscal year	College and university operations		Consumer prices	
Fiscal year	HEPI Index Value 1983 = 100	Yearly % Change	CPI Index Value 1983 = 100	Yearly % Change		HEPI Index Value 1983 = 100	Yearly % Change	CPI Index Value 1983 = 100	Yearly % Change
1961	25.6	-	30.3	-	1991	148.2	5.2%	136.4	5.4%
1962	26.5	3.7%	30.6	1.0%	1992	153.5	3.6%	140.8	3.2%
1963	27.6	4.0%	31.0	1.1%	1993	157.9	2.9%	145.2	3.1%
1964	28.6	3.8%	31.4	1.4%	1994	163.3	3.4%	148.8	2.5%
1965	29.8	4.1%	31.8	1.3%	1995	168.1	2.9%	153.2	3.0%
1966	31.3	4.9%	32.6	2.3%	1996	173.0	2.9%	157.4	2.7%
1967	32.9	5.4%	33.5	3.0%	1997	178.4	3.2%	161.9	2.9%
1968	34.9	5.9%	34.6	3.3%	1998	184.7	3.5%	164.8	1.8%
1969	37.1	6.3%	36.3	4.8%	1999	189.1	2.4%	167.6	1.7%
1970	39.5	6.7%	38.5	5.9%	2000	196.9	4.1%	172.5	2.9%
1971	42.1	6.4%	40.5	5.2%	2001	208.7	6.0%	178.4	3.4%
1972	44.3	5.3%	41.9	3.6%	2002	212.7	1.9%	181.6	1.8%
1973	46.7	5.3%	43.6	3.9%	2003	223.5	5.1%	185.5	2.2%
1974	49.9	6.9%	47.5	8.9%	2004	231.7	3.7%	189.6	2.2%
1975	54.3	8.8%	52.8	11.2%	2005	240.8	3.9%	195.3	3.0%
1976	57.8	6.4%	56.5	7.1%	2006	253.1	5.1%	202.7	3.8%
1977	61.5	6.4%	59.8	5.8%	2007	260.3	2.8%	208.0	2.6%
1978	65.7	6.8%	63.8	6.8%	2008	273.2	5.0%	215.7	3.7%
1979	70.5	7.3%	69.8	9.3%	2009	279.3	2.3%	218.7	1.4%
1980	77.5	9.9%	79.1	13.3%	2010	281.8	0.9%	220.8	1.0%
1981	85.8	10.7%	88.2	11.6%	2011	288.4	2.3%	225.3	2.0%
1982	93.9	9.4%	95.8	8.7%	2012	293.2	1.7%	231.9	2.9%
1983	100.0	6.5%	100.0	4.3%	2013	297.8	1.6%	235.7	1.7%
1984	104.8	4.8%	103.7	3.7%	2014	306.7	3.0%	239.4	1.6%
1985	110.8	5.8%	107.7	3.9%	2015	313.3	2.1%	241.1	0.7%
1986	116.3	5.0%	110.8	2.9%	2016	319.0	1.8%	242.8	0.7%
1987	120.9	4.0%	113.3	2.2%	2017	330.7	3.7%	247.2	1.8%
1988	126.2	4.4%	118.0	4.1%					
1989	132.8	5.3%	123.5	4.7%					
1990	140.8	6.0%	129.4	4.8%					

Sources: HEPI, Research Associates of Washington and Commonfund Institute, July 1 - June 30 data

CPI, U.S. Department of Labor, data is calculated July 1 - June 30 (annual published CPI is computed over the calendar 12-month period)

IMPORTANT NOTE: Two of the main HEPI cost factors, faculty salaries and fringe benefits, are derived from faculty compensation data published by the American Association of University Professors (AAUP), which in FY2016 began using a new methodology that is not comparable with the past. Due to this change in methodology, in this year's report we have used what we believe are reasonable estimates for changes in faculty salaries and fringe benefits to aid in the transition from FY2015 to subsequent years.

**TABLE B****HIGHER EDUCATION PRICE INDEX 2006 – 2017**

Regression analysis of components—Fiscal Years 1961 to 2017

	Fiscal	Regression HEPI	Faculty salaries	Admin- istrative salaries	Clerical	Service Employees	Fringe Benefits	Miscel- laneous services	Supplies and materials	Utilities
Index Value	2006	253.1	248.2	287.7	229.5	205.5	343.7	228.8	158.1	255.7
	2007	260.3	257.6	299.2	237.7	213.6	360.8	238.3	165.3	220.6
	2008	273.2	268.1	314.0	245.1	220.5	380.7	246.4	180.0	252.0
	2009	279.3	277.3	330.9	251.6	226.7	394.4	253.1	181.6	213.8
	2010	281.8	280.6	337.6	255.2	230.0	402.8	255.8	179.3	193.6
	2011	288.4	284.5	343.2	260.2	233.2	417.6	260.3	193.9	201.5
	2012	293.2	289.6	352.3	264.8	235.7	425.3	264.6	203.9	191.7
	2013	297.8	294.6	362.4	269.8	239.4	437.5	269.4	180.0	195.6
	2014	306.7	301.0	366.4	274.8	242.0	458.3	274.2	200.2	211.4
	2015	313.3	307.7	381.9	280.4	248.4	484.0	279.8	190.4	183.7
	2016	319.0	316.0	393.3	289.1	253.3	503.9	285.7	179.5	146.5
	2017	330.7	323.9	405.2	297.3	262.7	533.4	290.7	178.6	167.8
Standard Deviation	2002-2017	35.5	31.9	51.6	28.2	22.4	75.7	27.3	24.2	35.7
Yearly% change	2006	5.1%	3.1%	5.0%	2.7%	2.0%	5.0%	2.7%	8.7%	27.7%
	2007	2.8%	3.8%	4.0%	3.6%	4.0%	5.0%	4.2%	4.5%	-13.7%
	2008	5.0%	4.1%	5.0%	3.1%	3.2%	5.5%	3.4%	8.9%	14.2%
	2009	2.3%	3.4%	5.4%	2.7%	2.8%	3.6%	2.7%	0.9%	-15.1%
	2010	0.9%	1.2%	2.0%	1.4%	1.4%	2.1%	1.1%	-1.3%	-9.5%
	2011	2.3%	1.4%	1.7%	2.0%	1.4%	3.7%	1.8%	8.2%	4.1%
	2012	1.7%	1.8%	2.7%	1.7%	1.1%	1.8%	1.7%	5.2%	-4.9%
	2013	1.6%	1.7%	2.9%	1.9%	1.6%	2.9%	1.8%	-11.7%	2.1%
	2014	3.0%	2.2%	1.1%	1.9%	1.1%	4.8%	1.8%	11.2%	8.1%
	2015	2.1%	2.2%	4.2%	2.1%	2.6%	5.6%	2.1%	-4.9%	-13.1%
	2016	1.8%	2.7%	3.0%	3.1%	2.0%	4.1%	2.1%	-5.8%	-20.2%
	2017	3.7%	2.5%	3.0%	2.8%	3.7%	5.9%	1.7%	-0.5%	14.5%

IMPORTANT NOTE: Two of the main HEPI cost factors, faculty salaries and fringe benefits, are derived from faculty compensation data published by the American Association of University Professors (AAUP), which in FY2016 began using a new methodology that is not directly comparable with the past. Due to this change in methodology, in this year's report we have used what we believe are reasonable estimates for changes in faculty salaries and fringe benefits to aid in the transition from FY2015 to FY2017 and beyond.

**Summary Output****Regression Statistics**

Multiple R	0.999998904
R Square	0.999997809
Adjusted R Square	0.999997261
Standard Error	0.096391663
Observations	41

**Coefficients**

Intercept	-0.286286907
Faculty	0.353741718
Admin	0.104289477
Clerical	0.18408585
Service	0.082314791
Fringe	0.131020859
Services	0.022899544
Supplies	0.055138426
Utilities	0.068247106

## Higher Education Price Index Analysis

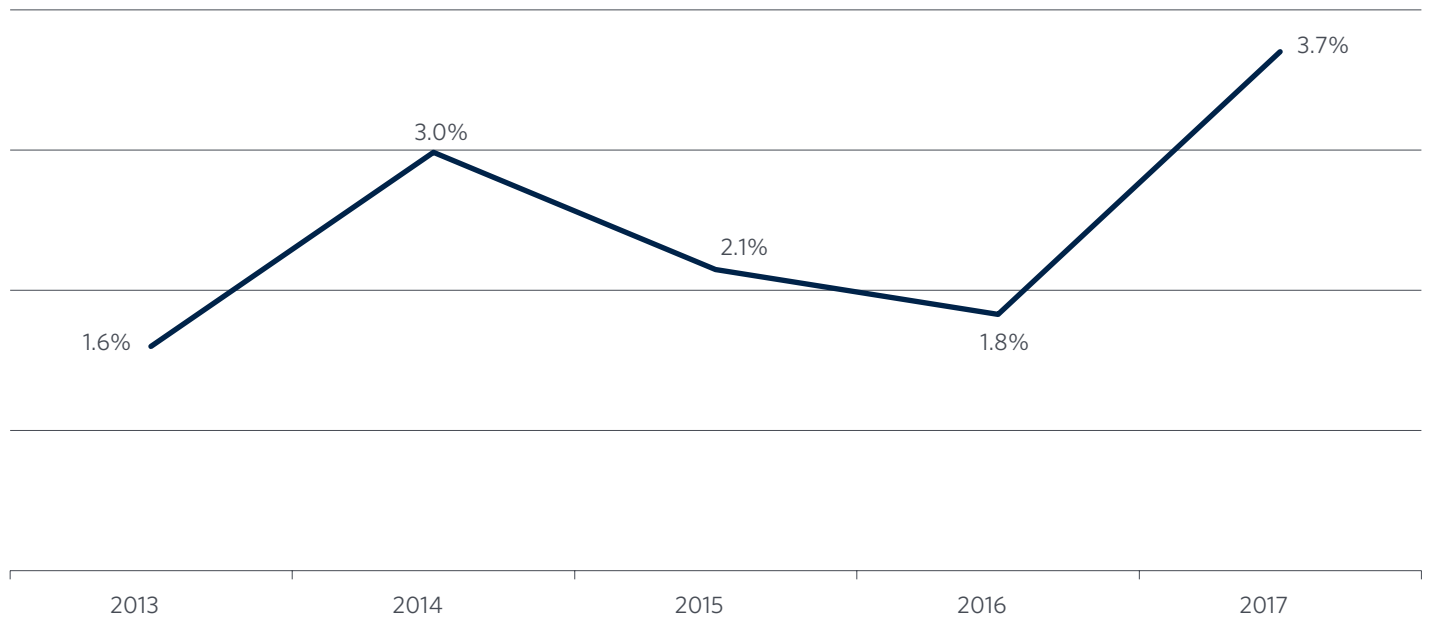
### HEPI for 2017

For fiscal year 2017, which ended on June 30, the HEPI calculation reveals that inflation for colleges and universities was 3.7 percent, more than doubling the 1.8 percent rate reported for FY2016. HEPI for FY2017 was 76 percent higher than the 2.1 percent rate for 2015. It was also 23 percent higher than the 3.0 percent rate for FY2014 and 131 percent above the 1.6 percent rate for FY2013. FY2017's 3.7 percent inflation rate is the highest reported since the rate of 5.0 percent reported for FY2008.

**FIGURE 1**

### THE HIGHER EDUCATION PRICE INDEX

Fiscal years 2013 - 2017



There are eight cost factors that contribute to the HEPI regression calculation: faculty salaries, administrative salaries, clerical salaries, service employee salaries, fringe benefits, miscellaneous services, supplies and materials, and utilities. The regression equation assigns a different weighting to each cost factor, and therefore a change in one component may influence the final HEPI calculation more than another. The components that are most heavily weighted are faculty salaries, clerical salaries and fringe benefits.

For FY2017 costs rose in seven of the eight categories tracked by HEPI, the only exception being a one-half percentage point decline in the cost of supplies and materials; a year ago, costs rose in six of the eight categories, the two exceptions being utilities and supplies and materials. The chief causes of the increase in HEPI from FY2016 to FY2017 were: a 14.5 percent increase in utility costs; a 5.9 percent increase in fringe benefits; and a 3.7 percent increase in service employee costs. The nearly 15 percent increase in utility costs contrasts sharply with a 20.2 percent decrease reported for FY2016, as well as a 13.1 percent decrease for FY2015. While costs related to fringe benefits and service employee compensation have risen consistently since FY2006, the FY2017 increase was the highest for both over the 12-year period (although we caution that fringe benefits are not directly comparable, as this was one of the categories for which methodology changed after FY2015). The decrease in costs related to supplies and materials was the fourth time in the last five years that this component has

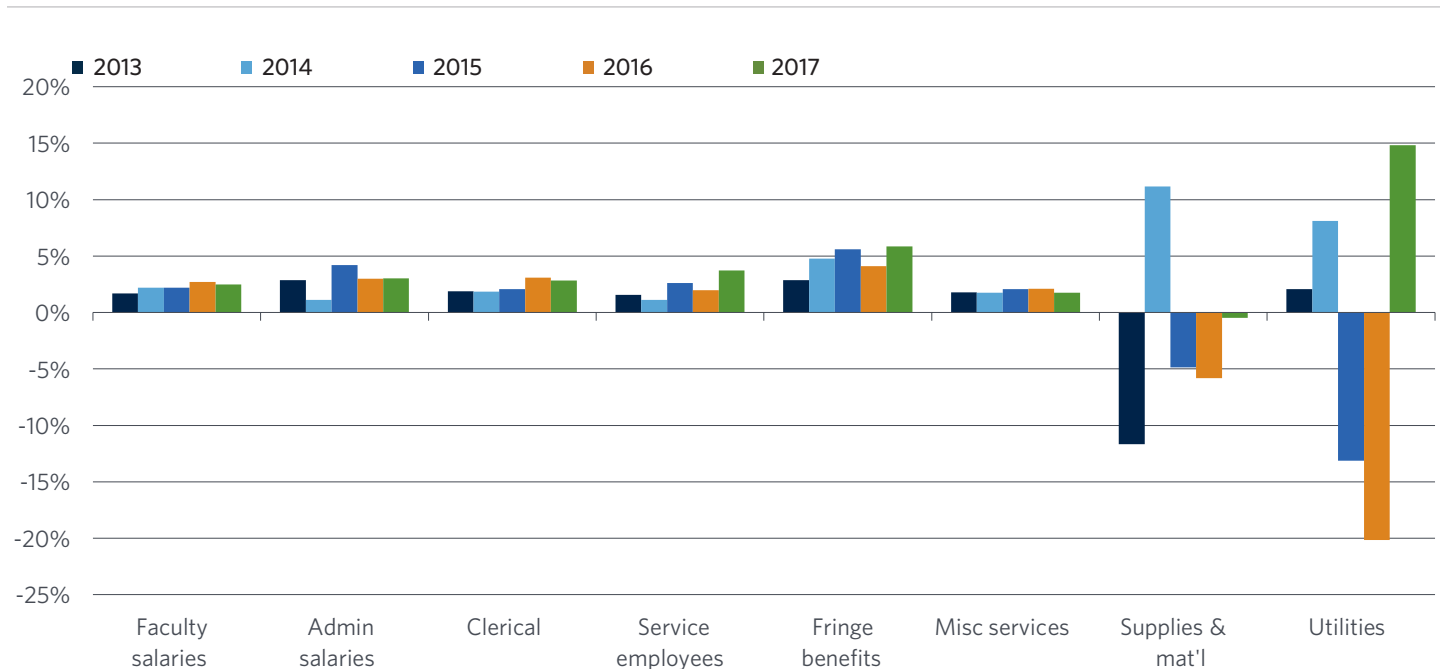
shown a price decline. The smallest cost increase for FY2017, outside of the decline for supplies and materials, was a 1.7 percent rise in the cost of miscellaneous services. Faculty salaries, administrative salaries and clerical salaries rose by 2.5 percent, 3.0 percent and 2.8 percent, respectively, for the fiscal year.

The year-over-year increase in HEPI could have been greater but for the fact that utilities account for 6.8 percent of the regression weighting—third lowest behind services and supplies. Costs for fringe benefits and service employee compensation together account for 21.3 percent of the regression weighting. As noted, faculty salaries rose 2.5 percent over the fiscal year, but represent the largest single regression weighting, at 35.4 percent.

Figure 2 below shows a graphical representation of the changes in the eight cost factors from FY2013 to FY2017. The chart shows that six cost factors were reasonably stable over the period, while two cost factors showed considerable volatility. As mentioned, the most dramatic year-over-year change occurred in utilities, which had an inflation rate of 14.8 percent for FY2017, versus -20.2 percent for FY2016 (and -13.1 percent for FY2015). While supplies and materials spiked in FY2014, exhibiting an inflation rate of 11.2 percent, for the past three fiscal years costs in this category declined by an average of 3.7 percent annually. Faculty salaries, accounting for the largest single share of the regression weighting, increased at an average of 2.3 percent annually over the period (although we caution again that the methodology for this computation changed beginning in FY2015).

**FIGURE 2**

**ANNUAL PERCENTAGE CHANGES IN THE EIGHT HEPI COST FACTORS, FISCAL YEARS 2013 - 2017**



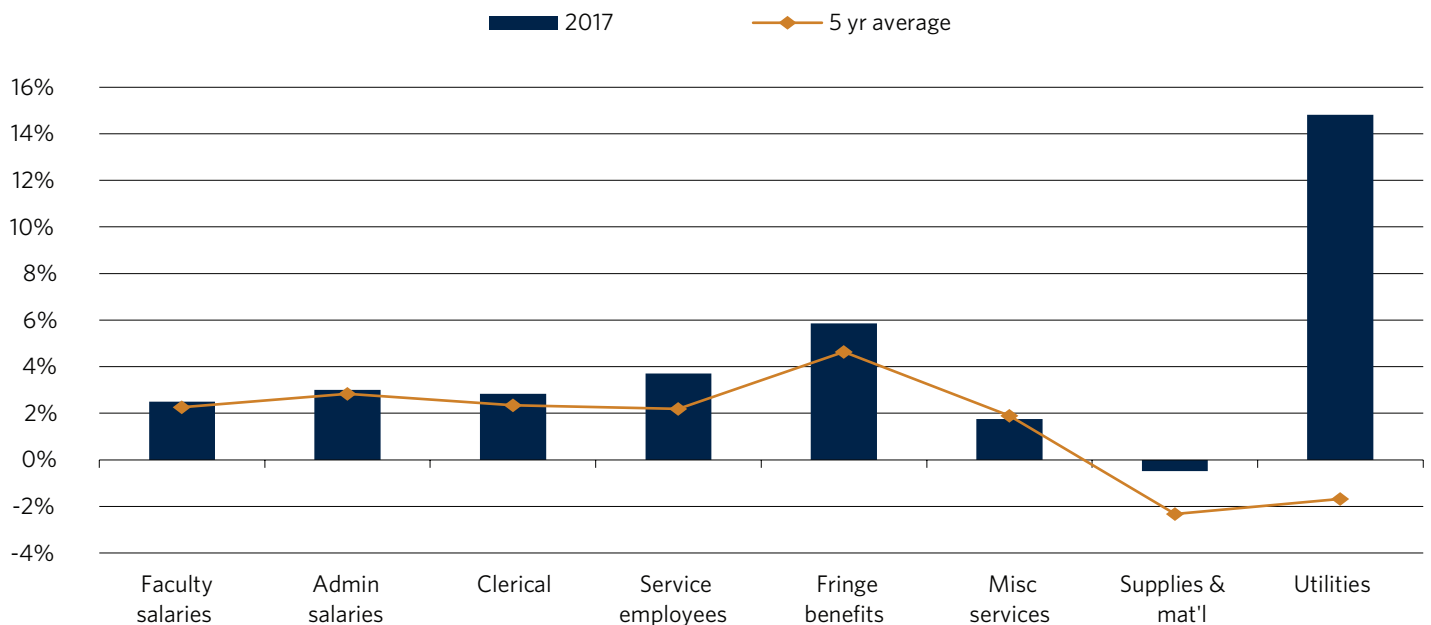


### HEPI for FY2017 versus a Five-Year Average

Figure 3 shows the results of a longer-term analysis of HEPI's components, comparing the reported rates for FY2017 against their historical five-year averages. Of the eight cost factors, seven rose in FY2017 compared with their five-year average. Only miscellaneous services showed a decline in FY2017, a decrease of 10.5 percent. For FY2017, the greatest deviation from the five-year average was in the category of utilities, with an inflation rate of 14.5 percent versus a five-year average of -1.7 percent. The second-highest relative increase above the five-year average occurred in supplies and materials, which rose to a deflation rate of -0.5 percent from its five-year average of -2.3 percent. The third-highest increase was service employee costs, which rose to an inflation rate of 3.7 percent in FY2017 from a five-year average rate of 2.2 percent, representing a 68 percent increase. Fringe benefit costs rose 28 percent to 5.9 percent in FY2017 compared with their five year-average, but we caution that the rise was inferred and thus is not directly comparable given the previously-mentioned change in calculation methodology for this category. Clerical costs for the fiscal year rose 22 percent to 2.8 percent compared with their five-year average.

**FIGURE 3**

#### ANNUAL PERCENTAGE CHANGES IN THE EIGHT HEPI COST FACTORS VS. 5-YEAR AVERAGE



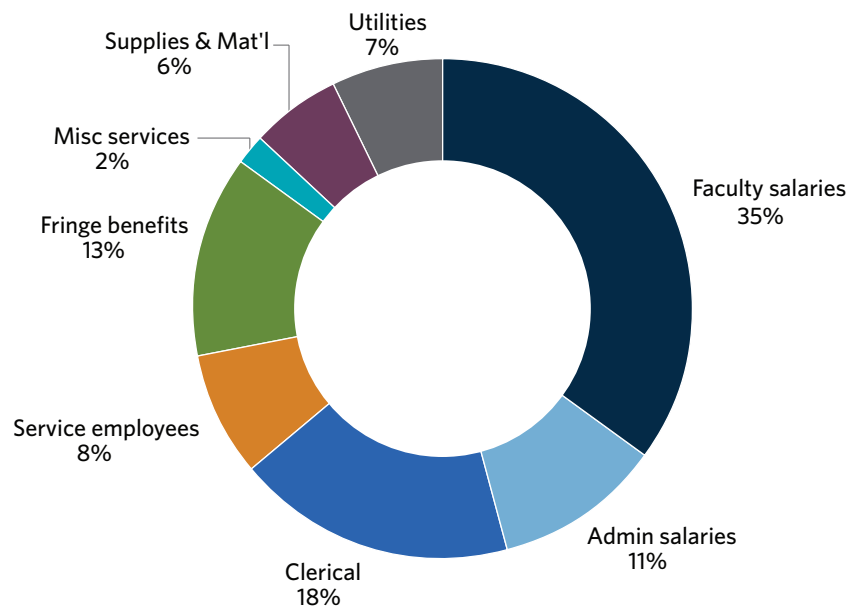
As was true last year, over the five-year period inflation rates for utilities have seen the highest volatility, owing to strongly positive and negative movements in this cost factor. Fiscal years 2013 and 2014 showed single-digit increases in costs for this category, a two-year average annual increase of 5.1 percent. For the next two fiscal years, costs declined 13.1 percent and 20.2 percent, respectively, for an average annual change of -16.7 percent. As noted, for fiscal year 2017 costs in this category changed direction once again and rose 14.5 percent. Costs for supplies and materials were consistently lower, save for FY2014 when they rose 11.2 percent. For the other four fiscal years, costs in this category showed an average annual decrease of 5.7 percent. Costs in the other six categories rose year over year throughout the period. From highest to lowest across the period, costs for miscellaneous services showed the least variability, while the greatest occurred in fringe benefits, followed closely by administrative salaries.

### Sensitivity Analysis of the Eight HEPI Regression Components

Figure 4 shows how the HEPI regression equation assigns a different weighting to each cost factor. Owing to the large variance in these weightings (a difference of 33 percentage points between the high and low), an increase in one component may influence the final HEPI calculation more than an identical increase in another. Those components that are most heavily weighted are faculty and clerical salaries and fringe benefits. Utilities represent the third-lowest weighting and supplies and materials the second-lowest, which, taken together, have served to mitigate somewhat the effect of the extreme volatility that has characterized these cost factors in recent years.

**FIGURE 4**

#### HEPI COST FACTOR WEIGHTINGS



The sensitivity analysis in Figure 5 shows that a 5 percent increase in faculty salaries, the largest component of HEPI, from an index value of 323.9 to 340.1, has the effect of increasing HEPI by 180 basis points, keeping all other components constant. However, a similar 5 percent increase in the index for miscellaneous services, the smallest component, has the effect of adding only 10 basis points to HEPI.

**FIGURE 5****SENSITIVITY OF HEPI TO A 5 PERCENT INCREASE IN FACULTY SALARIES OR MISCELLANEOUS SERVICES**

	Total	Faculty salaries	Admin salaries	Clerical	Service employees	Fringe benefits	Misc. services	Supplies & mat'l	Utilities
Current									
Index Value	330.7	323.9	405.2	297.3	262.7	533.4	290.7	178.6	167.8
Yearly % Change	3.7%	2.5%	3.0%	2.8%	3.7%	5.9%	1.7%	-0.5%	14.5%
Scenario: Faculty Salaries up 5%									
Index Value	336.5	340.1	405.2	297.3	262.7	533.4	290.7	178.6	167.8
Yearly % Change	5.5%	7.6%	3.0%	2.8%	3.7%	5.9%	1.7%	-0.5%	14.5%
Δ	180 b.p.	510 b.p.							
Scenario: Misc. Services up 5%									
Index Value	331.1	323.9	405.2	297.3	262.7	533.4	305.3	178.6	167.8
Yearly % Change	3.8%	2.5%	3.0%	2.8%	3.7%	5.9%	6.8%	-0.5%	14.5%
Δ	10 b.p.						510 b.p.		

## Higher Education Price Index for Different Types of Educational Institutions

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As noted earlier, beginning in FY2007 Commonfund expanded its HEPI service to include calculations of HEPI for eight categories of educational institutions:

- Public institutions as a whole
- Public doctoral degree-granting institutions
- Public master's degree-granting institutions
- Public two-year colleges
- Private institutions as a whole
- Private doctoral degree-granting institutions
- Private masters' degree-granting institutions
- Private baccalaureate institutions

These indices were calculated using the appropriate faculty salary and fringe benefit information for each type of institution, while holding the other six HEPI cost factors constant.

## Higher Education Price Indices for Different Regions of the Country

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Beginning in FY2009, Commonfund further expanded its HEPI service to include calculations of HEPI for the nine standard census divisions of the United States:

- New England                      Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
- Middle Atlantic                  New Jersey, New York, Pennsylvania
- East North Central              Illinois, Indiana, Michigan, Ohio, Wisconsin
- West North Central              Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
- South Atlantic                   Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, Puerto Rico, South Carolina, Virginia, West Virginia
- East South Central              Alabama, Kentucky, Mississippi, Tennessee
- West South Central              Arkansas, Louisiana, Oklahoma, Texas
- Mountain                        Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
- Pacific                            Alaska, California, Guam, Hawaii, Oregon, Washington

These indices were calculated using the appropriate faculty salary and fringe benefit information for each region, while holding the other six HEPI cost factors constant.



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