

Contracts & Grants Q317 Award Report

Counting cuts – scoring the President’s budget

Summary

The President’s 2018 Budget, released in May, proposes drastic cuts to federal agency funding for academic research and development, with major impacts on research universities nationwide. How much of these cuts eventually appear in the Congressional budget – which determines actual federal spending – has yet to be decided. In advance of Congressional action, many in the research community are scoring how the President’s budget, if adopted, would affect their federal award funding and research activities.

Included in this quarterly award report is a worst-case assessment, by federal agency and by campus, of how the President’s budget would affect UC. Based on prior-year funding and the cuts outlined in the President’s budget, this assessment projects a reduction of about \$630 million per year in UC’s federal award and subaward funding, or close to 16 percent of overall federal project support.

However, at least through the end of this federal fiscal year (September 30), agency funding is likely to remain at about the same level it has for the last two years. At the end of April, 2017, Congress passed a budget agreement that sustained current agency appropriation levels through the end of this federal fiscal year. Congress also confirmed an additional \$2 billion in research funding for the National Institutes of Health, suggesting that perhaps there is no strong legislative appetite to cut federally funded medical research. But cuts in some politicized areas, such as climate science, are virtual certainties.

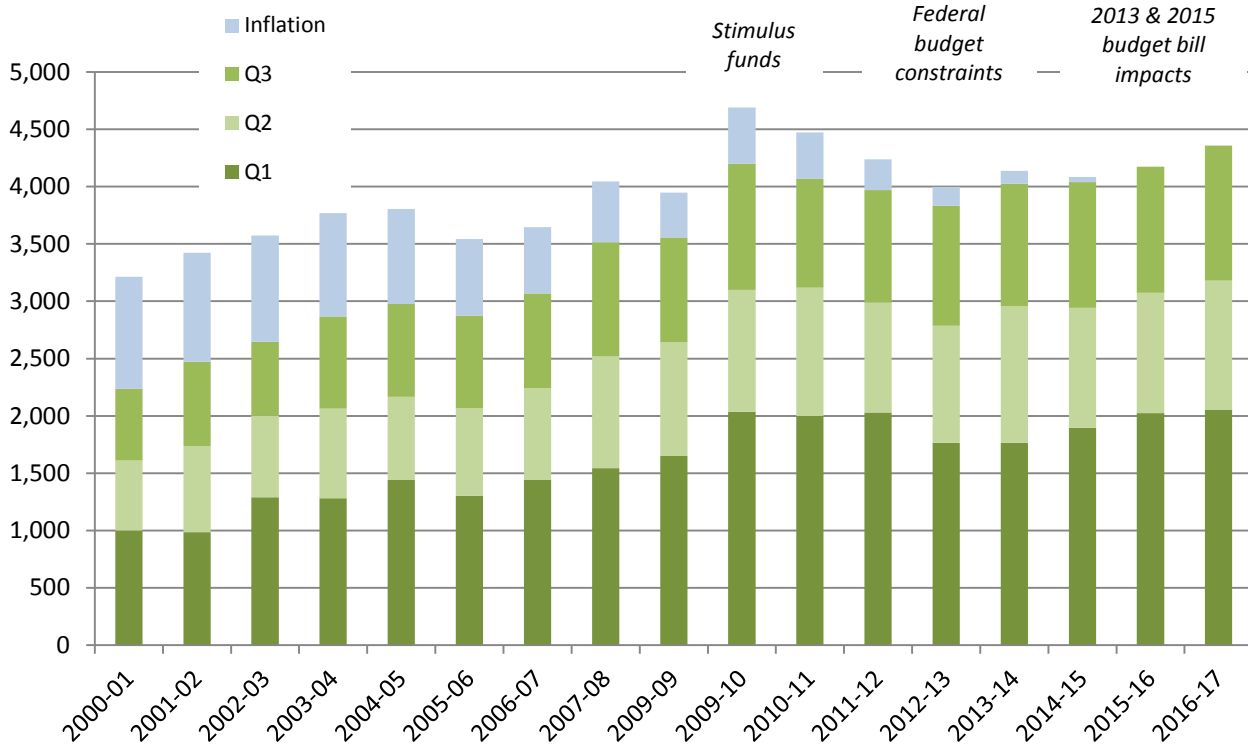
Award funding for the quarter amounted to \$1.18 billion, which is \$76 million higher than Q3 last year, an increase of about 7%. The year-to-date total is about \$4.36 billion — 4.4% higher than the total for Q1-3 last year. This increase in project sponsorship reflects a combination of relatively stable federal funding, plus growth in support from state and local governments. But federal agency award and subaward funding still represents about two-thirds of UC’s award total, and the critical question is whether, and how long, current appropriation levels will persist, given the priorities of the current administration.

I. Quarterly award totals

Extramural awards for the quarter and for the year to date are well above last year’s totals. Awards for Q317 totaled about \$1.18 billion, \$76 million (7%) above the amount reported last year for Q316. For the year to date, the award total is about \$4.36 billion, which is \$182 million, or about 4.4%, higher than last year.

Q1-3 Extramural awards

\$ millions, inflation-adjusted



Quarterly Extramural Awards

\$ millions, inflation-adjusted

| | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Q1 | 1,436 | 1,366 | 1,741 | 1,685 | 1,845 | 1,610 | 1,712 | 1,778 | 1,832 | 2,275 | 2,197 | 2,166 | 1,840 | 1,816 | 1,917 | 2,025 | 2,054 |
| Q2 | 879 | 1,037 | 963 | 1,025 | 926 | 938 | 953 | 1,119 | 1,100 | 1,187 | 1,232 | 1,023 | 1,068 | 1,224 | 1,058 | 1,048 | 1,125 |
| Q3 | 898 | 1,019 | 869 | 1,058 | 1,034 | 996 | 982 | 1,148 | 1,015 | 1,228 | 1,044 | 1,049 | 1,090 | 1,098 | 1,107 | 1,102 | 1,178 |
| Q4 | 1,078 | 1,236 | 1,352 | 1,257 | 1,505 | 1,508 | 1,546 | 1,606 | 1,535 | 1,535 | 1,456 | 1,461 | 1,432 | 1,731 | 1,712 | 1,843 | |
| FY | 4,291 | 4,657 | 4,925 | 5,026 | 5,310 | 5,052 | 5,193 | 5,651 | 5,482 | 6,225 | 5,928 | 5,699 | 5,430 | 5,869 | 5,795 | 6,017 | 4,357 |

Award totals for UC’s third fiscal quarters are always well below the first-quarter amounts. This is a function of the federal funding cycle, which awards the largest amounts in the final quarter of the federal fiscal year (corresponding to UC’s Q1). With federal sponsorship providing two-thirds or more of all UC’s awards, this produces sharp quarterly spikes in funding.

II. Award trends by sponsor category

The most significant differences between year-to-date award totals for 2015-16 and 2016-17 are that funds from federal, state and other government sponsors are well above last year. Corporate and non-profit awards are slightly lower. The table below shows the large increases in federal funding during 2010-11 and 2011-12 provided by the Recovery Act, which added about one billion dollars to UC's award total. This was followed in 2012-13 by a year of federal agency austerity, when federal and total funding dropped to pre-recessionary levels, after inflation is taken into account. Since then, federal funding has been relatively constant.

Q1- Q3 Awards by Sponsor Category, FY 2008-09 to 2016-17

\$ millions, inflation-adjusted

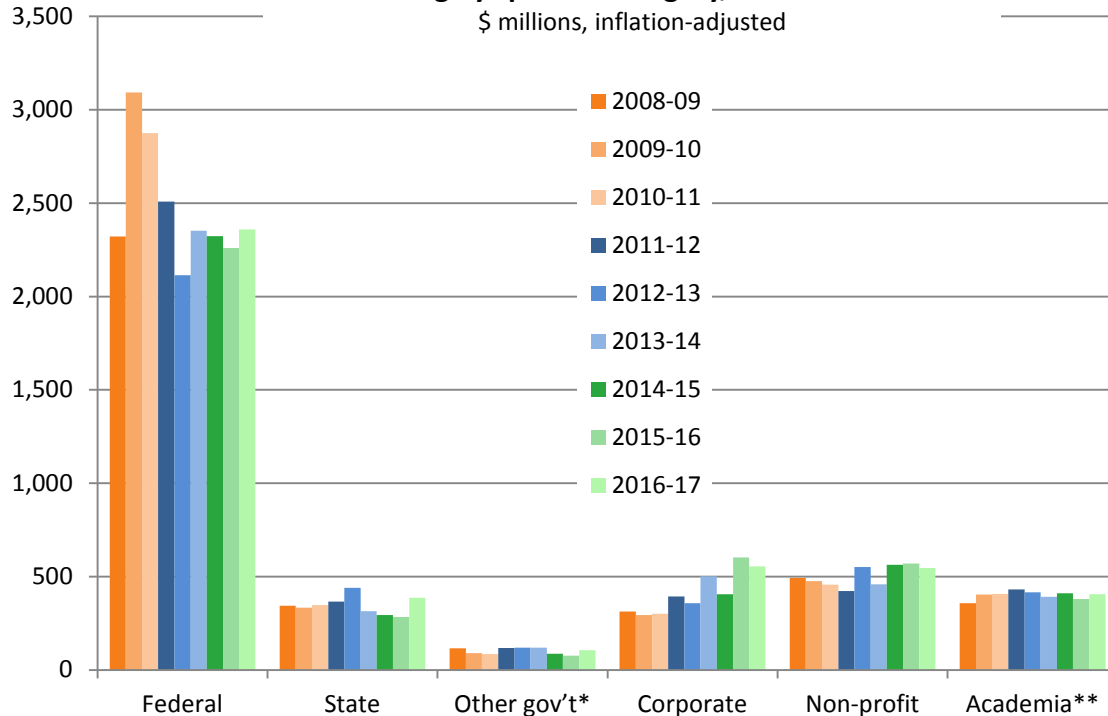
| SPONSOR | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Federal | 2,321 | 3,093 | 2,875 | 2,508 | 2,114 | 2,352 | 2,323 | 2,261 | 2,360 |
| State | 344 | 334 | 347 | 365 | 440 | 314 | 295 | 283 | 387 |
| Other Gov't* | 117 | 90 | 85 | 118 | 119 | 120 | 87 | 78 | 106 |
| Corporate | 313 | 294 | 301 | 393 | 358 | 502 | 406 | 603 | 554 |
| Non-Profit | 493 | 476 | 458 | 422 | 551 | 459 | 562 | 569 | 546 |
| Academia** | 358 | 403 | 407 | 432 | 416 | 392 | 410 | 380 | 405 |
| TOTAL | 3,947 | 4,690 | 4,472 | 4,238 | 3,998 | 4,138 | 4,083 | 4,174 | 4,357 |

* Other Gov't includes Agricultural Market Order Boards.

**Academia includes the categories of Higher Education, DOE Labs, Campuses and UCOP.

Q1-3 Funding by sponsor category, 2008-09 to 2016-17

\$ millions, inflation-adjusted



Significant portions of the award funding from state and academic sponsors represent subawards that originated as federal funds. For the year to date, these “flow-through” federal funds amount to \$555 million, boosting the actual federal share of the UC total from 54% to 67%.

III. Award trends by project type

Awards for research for the year to date amounted to \$3.2 billion, plus \$349 million in clinical trial sponsorship. Training, public service and other awards totaled just over \$800 million.

Q1-3 Award Amounts by Project Type, FY 2008-09 to 2016-17

\$ millions, inflation-adjusted

| PROJECT TYPE | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <i>Research</i> | 2,965 | 3,698 | 3,473 | 3,352 | 2,929 | 3,052 | 3,079 | 3,053 | 3,194 |
| <i>Clinical Trials</i> | 145 | 154 | 130 | 166 | 249 | 335 | 234 | 388 | 349 |
| <i>Training</i> | 233 | 272 | 274 | 225 | 213 | 205 | 193 | 188 | 174 |
| <i>Service</i> | 329 | 252 | 291 | 259 | 318 | 309 | 265 | 295 | 348 |
| <i>Other</i> | 276 | 314 | 304 | 236 | 289 | 237 | 312 | 250 | 292 |
| TOTAL | 3,947 | 4,690 | 4,472 | 4,238 | 3,998 | 4,138 | 4,083 | 4,174 | 4,357 |

IV. Significant awards to UC locations

During Q317, UC received about 4,800 contracts and grants from about 1,400 different sponsors, in addition to about 1,200 Material Transfer Agreements. Listed below are some of the large or significant awards reported this quarter by campuses, Agriculture & Natural Resources, the Office of the President and Lawrence Berkeley National Lab.

| LOCATION | SPONSOR CATEGORY | SPONSOR | PROJECT TITLE | AMOUNT |
|-----------------------------------|-----------------------------------|--|--|------------|
| Agriculture and Natural Resources | State | California Department of Public Health | Obesity Prevention Evaluation and Research | 2,730,000 |
| Berkeley | Non-profit | Tsinghua Education Foundation | Tsinghua-Berkeley Shenzhen Institute (TBSI) | 19,000,000 |
| Davis | Federal | U.S. Agency for International Development | Emerging Pandemic Threats Program-2 PREDICT-2 | 16,300,000 |
| Irvine | State | California Energy Commission | California Natural Gas Vehicle Incentive Program | 12,556,000 |
| Lawrence Berkeley Lab | Federal subaward | Department of Energy/Stanford National Linear Accelerator Laboratory | Provision of undulators (a synchrotron component) | 10,445,000 |
| Los Angeles | Industry Association (non-profit) | Microelectronics Advanced Research Corporation | Function Accelerated Nanomaterial Engineering (FAME) Program | 7,291,000 |
| Merced | State | Board of State and Community Corrections | Police Department Board of State and Community Corrections | 1,115,000 |

| | | | | |
|-------------------------|------------|---|---|------------|
| Office of the President | State | California Community Colleges Chancellor's Office | CCC-UC Partnership Proposal: Increasing UC Student Equity and Diversity by Supporting California Community College Students, Counselors/Faculty | 2,600,000 |
| Riverside | Corporate | Quintiles, Inc. | An Open-Label Multi-Center Trial to Assess Safety and Effectiveness of ITI-007 In Patients With Schizophrenia | 2,102,000 |
| San Diego | Corporate | Amgen | Evolocumab Pregnancy Exposure Registry: An Organization of Teratology Information Specialists (OTIS) Pregnancy Surveillance Study | 6,054,000 |
| San Francisco | Non-profit | Bill & Melinda Gates Foundation | Achieving Global Malaria Eradication Through Accelerated Regional Elimination | 29,019,000 |
| Santa Barbara | Federal | National Institute of General Medical Science | Understanding how Bacteriophages Affect Wound Ecologies and Developing New Tools to Harness Bacteria-Phage Interactions | 2,197,000 |
| Santa Cruz | Federal | Office of Postsecondary Education | Semilla Project (Science Education & Mentorship in Latino Lives in Academia) | 1,142,000 |

V. Award trends by recipient location

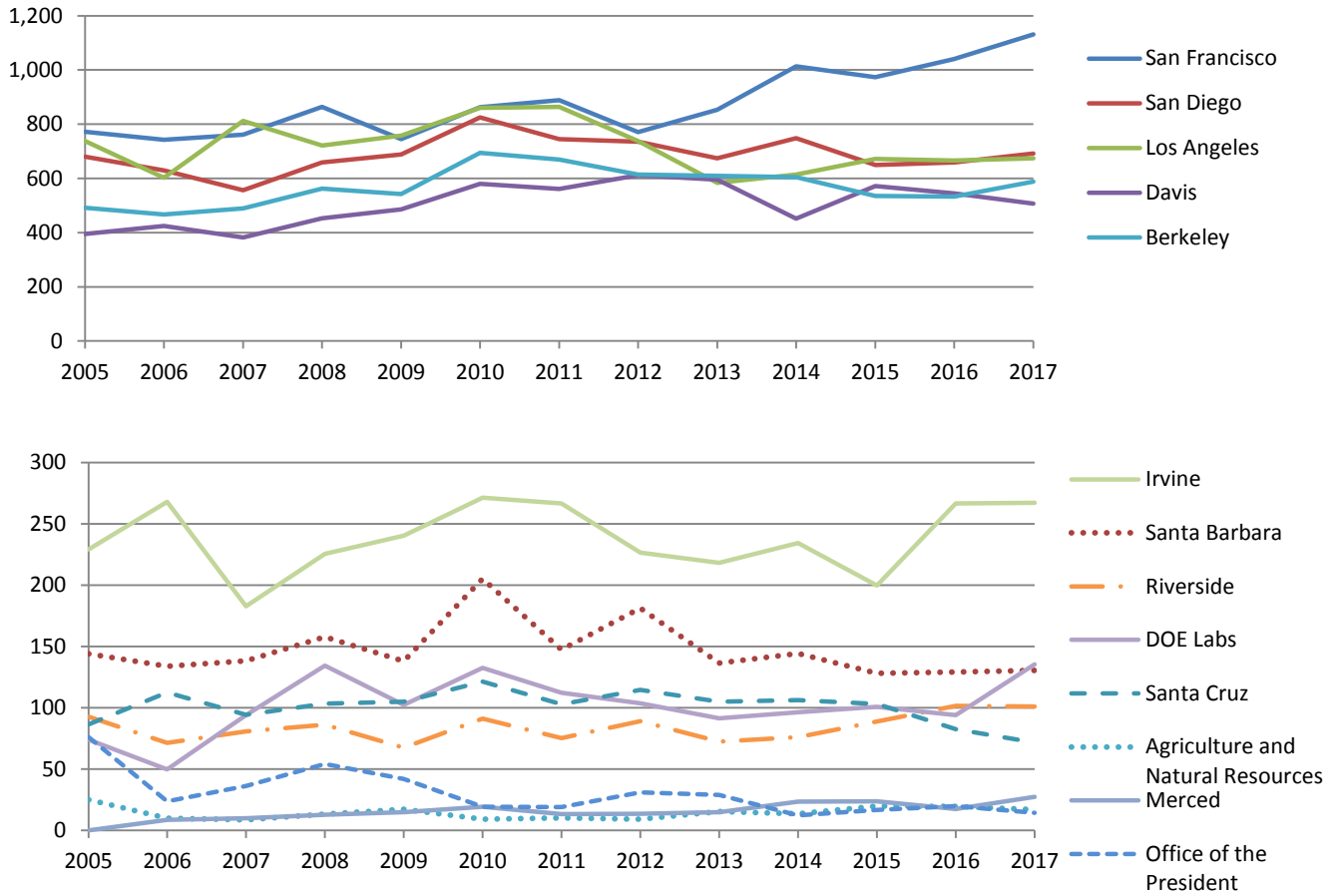
Award totals for the first three quarters of FY 2016-17 are running 4.4% above last year. This increase was not evenly divided across reporting locations, with several smaller reporting locations showing declines from last year.

Q1-Q3 Awards by Location

\$ millions, inflation-adjusted

| <i>UC Location</i> | <i>FYTD 2015</i> | <i>FYTD 2016</i> | <i>FYTD 2017</i> | <i>2016-17 Change</i> |
|-------------------------|------------------|------------------|------------------|-----------------------|
| <i>Berkeley</i> | 535 | 533 | 588 | 10.3% |
| <i>San Francisco</i> | 974 | 1,041 | 1,132 | 8.7% |
| <i>Davis</i> | 572 | 545 | 507 | -7.0% |
| <i>Los Angeles</i> | 672 | 666 | 674 | 1.3% |
| <i>San Diego</i> | 650 | 659 | 692 | 5.1% |
| <i>Irvine</i> | 200 | 267 | 267 | 0.2% |
| <i>Santa Barbara</i> | 128 | 129 | 130 | 0.9% |
| <i>Santa Cruz</i> | 103 | 83 | 72 | -13.4% |
| <i>Riverside</i> | 89 | 101 | 101 | -0.5% |
| <i>Merced</i> | 24 | 17 | 27 | 57.5% |
| <i>UCOP</i> | 17 | 20 | 14 | -28.1% |
| <i>LBNL</i> | 101 | 94 | 135 | 44.0% |
| <i>Ag & Nat Res</i> | 20 | 20 | 17 | -13.4% |
| Total | 4,083 | 4,174 | 4,357 | 4.4% |

Q1-Q3 Awards by Location, FY 2005-2017, \$ millions

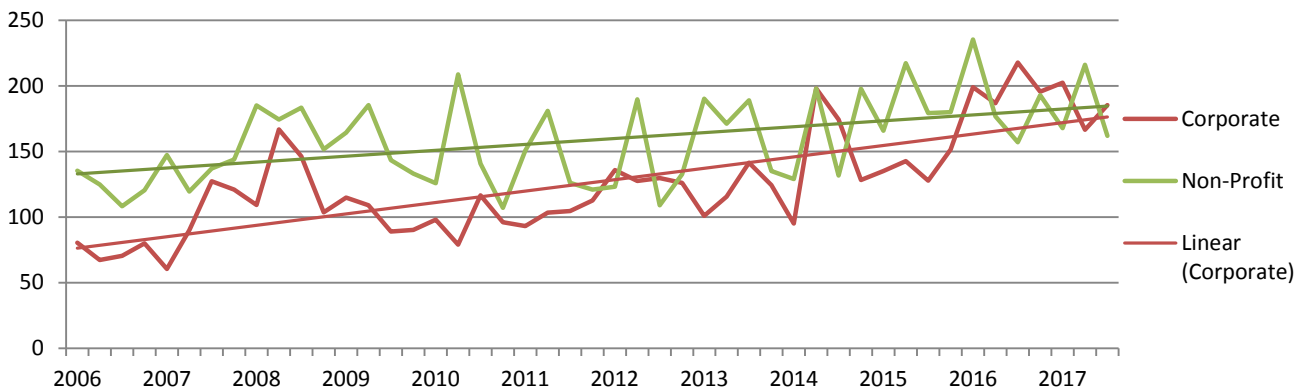


VI. Private funding

While awards from both corporate and non-profit sponsors display much variation quarter by quarter, both sponsor categories show long-term increases.

Corporate and Non-Profit Sponsorship, FY 2005-6 to Q317

\$ millions, inflation-adjusted



Quarterly spikes in corporate and nonprofit funding are often the result of a few extremely large research contracts, or even a single mega-award. However, the growth in corporate funding over the past several years results from a broadly based increase in the number and intensity of UC's corporate partnerships. Much of the increase in UC's corporate funding reflects the larger number and growing budgets of corporate-sponsored clinical trial research projects.

Corporate project funding and clinical trial proportions

\$ millions, Inflation-adjusted

| <i>Fiscal year</i> | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 Q1-3 |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
| <i>All awards, \$ millions</i> | 399 | 526 | 403 | 390 | 414 | 520 | 482 | 630 | 557 | 799 | 554 |
| <i>Clinical trials, \$ millions</i> | 132 | 178 | 151 | 146 | 138 | 192 | 203 | 341 | 285 | 456 | 298 |
| <i>Corporate % clinical trials</i> | 39.5% | 38.8% | 41.5% | 41.8% | 36.7% | 39.4% | 43.9% | 55.7% | 51.7% | 57.0% | 53.7% |

Corporations currently fund close to 85% of all the clinical trial projects conducted at UC. Up until 2014, clinical trial awards represented roughly 40% of UC's corporate funding total. Over the past four years, this proportion has risen sharply and is now nearly 54% of the total for the first three quarters of the current fiscal year.

VII. Federal budget impact on UC

The President's budget released in May 2017 called for major cuts in discretionary spending that would significantly reduce levels of agency funding for research and related projects at the nation's colleges and universities. The UC ten-campus system, as the largest single academic recipient of federal contracts and grants, would be particularly hard hit. The three UC-affiliated national energy laboratories would also see cuts to some of their DOE-funded programs.

If it were adopted by Congress — which actually controls the federal purse strings — how might the President's budget affect UC? To estimate the impact, UC's agency award levels from federal FY 2016 were taken as a basis. That year, UC received \$3.34 billion in contracts and grants from federal agencies, and an additional \$708 million in subawards from other institutions (mainly research universities) that received federal funds. The federal total for the year, including these subawards, came to \$4.047 billion. More than half of this was from NIH.

| <i>Agency</i> | <i>2016 Award (\$M)</i> | <i>Subaward</i> | <i>Total</i> |
|----------------|-------------------------|-----------------|--------------|
| NIH | 1,961 | 215 | 2,176 |
| Other HHS | 147 | 98 | 245 |
| NSF | 496 | 42 | 538 |
| Defense | 276 | 62 | 338 |
| Energy | 131 | 49 | 180 |
| NASA | 65 | 39 | 104 |
| Agriculture | 51 | 28 | 79 |
| Education | 51 | 11 | 62 |
| Other Agencies | 162 | 164 | 326 |
| Total | 3,339 | 708 | 4,047 |

The appropriation cuts in the President's budget vary greatly by agency, and also by individual programs within agencies. Not all of the details are completely spelled out in the President's budget, but there is enough information to identify program-level reductions for about 81% (\$3.2 billion) of UC's federal award and

subaward total for FY 2016. Most of the impact would result from a proposed 21.5% cut to the appropriations from NIH, UC's largest single source of research funding. Applying the percentage cuts in the President's budget to UC's federal fiscal year 2016 award amounts would reduce UC's federal award and subaward total by about \$636 million, or 15.7% overall. This is a conservative estimate because 19% of UC's federal funds, for which percentage cuts are not identified, are not included in this compilation.

| Agency | % cut | UCB | UCD | UCI | UCLA | UCM | UCR | UCSD | UCSF | UCSB | UCSC | Total |
|---------------|------------------|-------------|-------------|-------------|--------------|------------|------------|--------------|--------------|-------------|------------|--------------|
| NIH | 21.5% | 30.1 | 47.1 | 28.8 | 93.4 | 0.7 | 4.9 | 99.5 | 152.2 | 3.8 | 7.1 | 467.5 |
| NSF | 11.0% | 13.1 | 5.1 | 6.5 | 7.8 | 1.4 | 3.6 | 12.4 | 1.4 | 5.9 | 2 | 59.1 |
| HRSA (HHS)* | 83.7% | 0.8 | 4.5 | 2 | 7.4 | 0 | 0.6 | 4.4 | 23.6 | 0 | 0 | 43.3 |
| CDC (HHS)* | 20.6% | 0.3 | 13.7 | 0.8 | 1.2 | 0 | 0 | 0.6 | 12.2 | 0 | 0 | 28.9 |
| DOD | 5.4% | 2.7 | 1.1 | 1.3 | 3.4 | 0.1 | 0.5 | 5.4 | 1.4 | 2.3 | 0.1 | 18.3 |
| NOAA | 31.9% | 0 | 0.3 | 0.3 | 0.4 | 0 | 0.1 | 8.3 | 0 | 0.1 | 0.3 | 9.8 |
| ARPA-E (DOE)* | 90.0% | 0.3 | 0.4 | 0 | 0.6 | 0.1 | 0 | 3.1 | 0 | 4.4 | 0 | 9.0 |
| TOTAL | >15.7% | 47.4 | 72.2 | 39.6 | 114.1 | 2.3 | 9.6 | 133.9 | 190.8 | 16.6 | 9.5 | 635.9 |

* HRSA: Health Resources and Services Administration; CDC: Centers for Disease Control; ARPA-E: Advanced Research Projects Agency - Energy

More than two-thirds of the funding reduction would derive from NIH awards, meaning that campuses with medical centers would experience the most severe impacts on their research programs. Three UC campuses — UCSF, UCSD and UCLA — are among the top 20 recipients of NIH funding, and they would absorb the greatest impact under the President's budget.

The President's budget proposal suggests that the National Institutes of Health achieve its 21.5% budget cut objective by reducing the indirect cost recovery rate (ICR, sometimes referred to as "overhead") on all awards to just 10% of the direct amount. UC's current ICR rate ranges from 54 to 57%, depending on the individual campus. Because some award components are not subject to indirect cost recovery (such as equipment and most subawards from UC to other institutions), a 10% cap on ICR has roughly the same impact on UC as a 21.5% across-the-board reduction in all awards.

The administration claims that a fixed 10% cap on overhead would eliminate the lengthy negotiations and paperwork of the current system, and would reduce the risk of fraud and abuse. But 10% of direct research expenditures is not nearly enough to pay for the infrastructure, operations, maintenance and administrative costs that are essential to conducting research. Moreover, the true costs of conducting federal research are greater than what UC receives, by several hundreds of millions of dollars each year. Reducing indirect cost recovery to 10% could make present levels of federal research an unsustainable proposition, not just at UC but nationwide.

So far, at least, Congress has not adopted any of the agency appropriations cuts recommended in the President's budget, with the notable exception of climate science and other areas of environmental research. Rather than slashing appropriations for research at the National Institutes of Health by 21.5%, Congress has acted to increase them, at least for the present, and appears inclined to maintain research funding at or near current levels for most other agencies. Budget negotiations this coming fall will determine how long this remains the case.

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July, 2017