Contracts & Grants Q117 Award Report

Federal funding and the 2017 budget

Extramural funding summary

Federal project sponsorship, and the political forces that determine the federal budget, continue to dominate the narrative of UC's award funding. For the first quarter of UC's fiscal 2016-17, extramural awards totaled about $2.05 billion, representing a 1.5% increase of about $30 million over the amount reported for the first quarter of last year. In contrast to recent quarters, when private sources supplied most of the growth in project funding, the Q117 increase was due to a boost in federal support of $66 million, bringing the federal quarterly total to about $1.36 billion, or 5.1% over Q1 last year.

This federal funding increase has been long anticipated. The federal budget bill passed in 2015 reversed several years of stagnant to declining federal agency funding for academic R&D, and called for two years of increased appropriations. The National Institutes of Health, UC's largest single source of project funding, received a 6.6% increase. Other agencies, such as the National Science Foundation and the Department of Energy, received smaller but still significant increases. But because it takes up to nine months for proposals to be reviewed and approved, and then for awards to be obligated and reported by campuses, the increase did not show up immediately. Last quarter — the third quarter in the 2016 federal fiscal year — federal funds increased by a modest 2% over last year, ramping up to this quarter's 5.1% jump.

These two quarters of higher federal funding levels should lead UC and other research universities nationwide to expect continued increased project support. But given the yet-to-be-determined policies of the incoming administration, there is some uncertainty about long-term agency budgets, particularly regarding research funding. In December 2016, Congress extended the FY 2016 appropriation levels through the end of April, 2017, though that is not a guarantee that all federal agencies will continue granting awards at the current elevated rate for the remainder of FY 2017. The National Institutes of Health, however, is likely to receive even higher levels of support. In December, Congress also passed the 21st Century Cures Act, which increases NIH appropriations by $1.5 billion, or nearly 5%, over 2016 levels for each of the next two years.

Q117 corresponds to the final quarter of the 2016 federal fiscal year, and an agency-level assessment of funding on a federal fiscal year basis is included in this report.

For more information and analysis

Research awards generally constitute 80% or more of UC's award total. For more detailed information about research sponsorship, an interactive data visualization showing UC's research award history since 2001 is available online. Additional information on research activities at UC is also available on the UC Information Center.

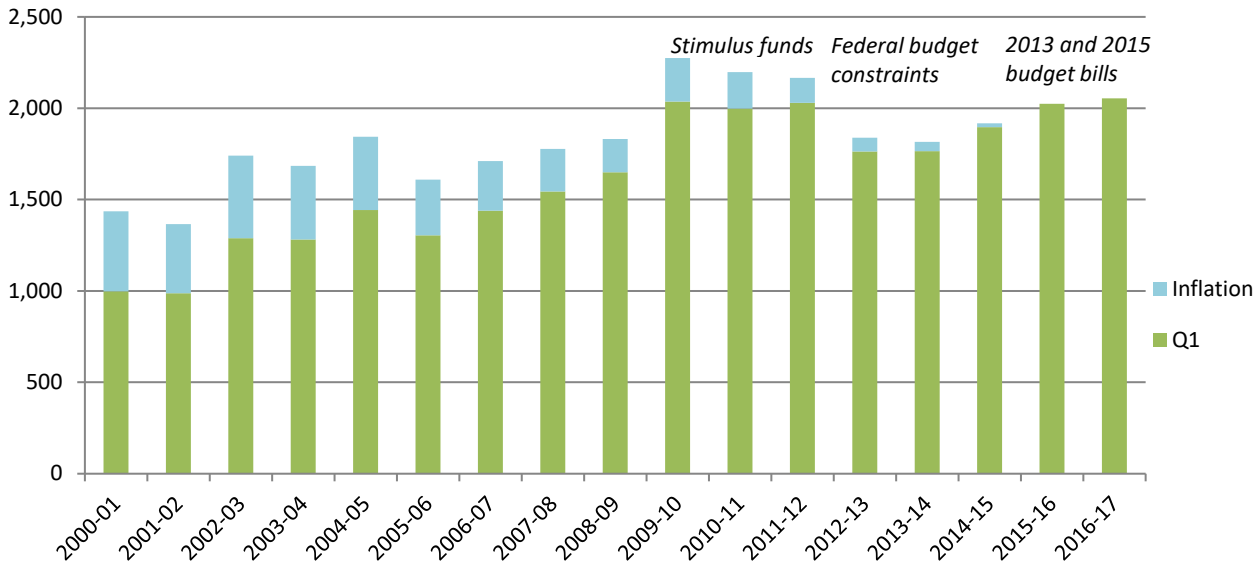
Also available in the Research section of the UCOP Institutional Research and Academic Planning website is a series of Topic Briefs presenting detailed analysis of recent trends in UC's federal, state, corporate and non-profit funding.

I. Quarterly award metrics

For the first quarter of FY 2016-17, award funding from all sources came to $2.05 billion, about $30 million, or 1.5%, above last year's total.

Q1 Extramural awards

$ millions, inflation-adjusted



Even though there has been significant growth in award funding since federal budget constraints were lifted, quarterly and yearly totals are still below where they were when stimulus funds were available, after inflation is taken into account.

Extramural awards by quarter

$ 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	
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	
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*	

Award totals vary over the course of a fiscal year as a consequence of the federal funding cycle. Federal award reporting peaks towards the end of the federal fiscal year, during federal Q3 and Q4; in UC's fiscal year, these quarters correspond to Q4 and to Q1 of the following fiscal year, and this is when UC's award totals are the highest. With direct federal sponsorship providing 55-60% or more of all UC's awards, this results in sharp quarterly spikes in funding. The large federal award totals for 2009-10 through 2011-12 reflect the billion-plus dollars that UC received in Recovery Act (ARRA) funds.

II. Award trends by sponsor category

Even though the federal government continues to provide the majority of UC's contracts and grants, the private sector has contributed to the increase in total funding over the past several years. Unlike federal funding, private sector project sponsorship is not tied to a quarterly cycle, so Q1 award amounts are generally indicative of yearly totals.

Q1 awards by sponsor category, FY 2008-09 to 2016-17

($ millions, inflation adjusted)

SPONSOR	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Federal	1,261	1,758	1,716	1,542	1,177	1,203	1,292	1,290	1,355
State	133	154	88	196	179	202	171	157	178
*Other gov't**	44	28	21	30	62	52	39	34	36
Corporate	115	98	93	136	101	95	135	199	202
Non-profit	164	126	150	123	190	129	166	235	167
*Academia***	114	111	128	139	130	135	115	110	114
TOTAL	***1,832***	***2,275***	***2,197***	***2,166***	***1,840***	***1,816***	***1,917***	***2,025***	***2,054***

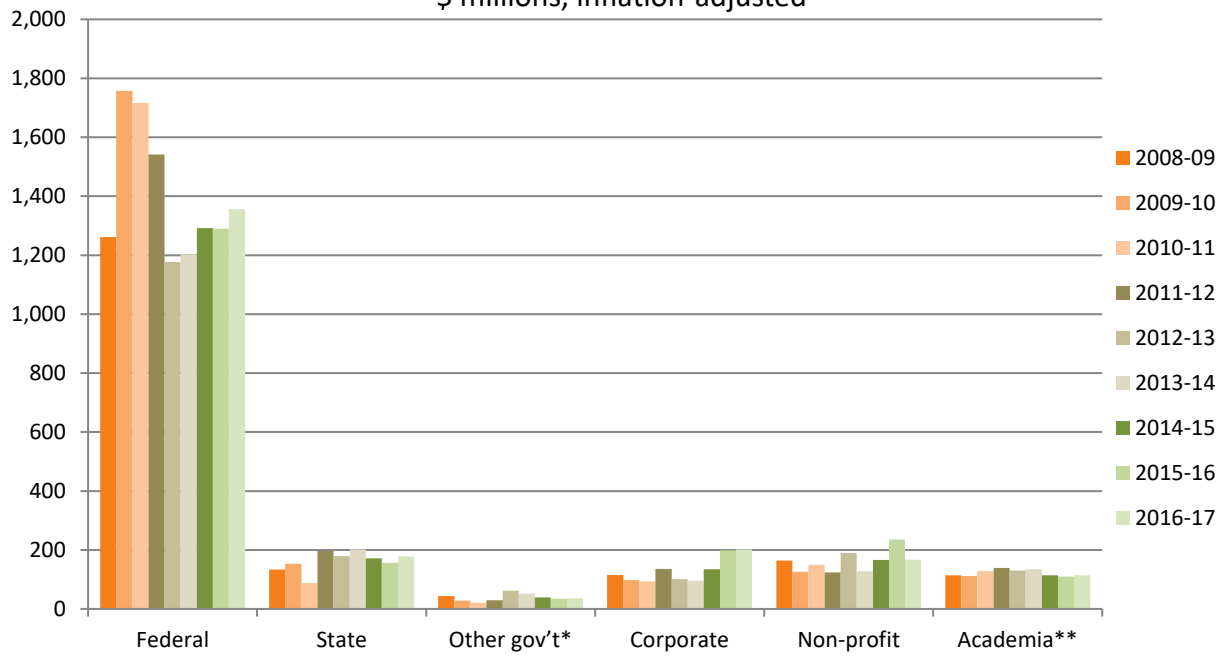
** Other government includes agricultural market order boards.*

***Academia includes the categories of higher education, DOE labs, campuses and UCOP.*

Direct federal funding to UC during Q117 was about $1.36 billion, or about two-thirds of the quarterly total. This represents an increase of about 5.1% over Q1 of last year. UC's Q1 is the final quarter of the federal fiscal year, and as will be shown in a later section of this report, the overall increase in agency award funding for the federal fiscal year that concludes with this quarter is much lower.

Q1 funding by sponsor category, 2008-09 to 2016-17

$ millions, inflation-adjusted



In addition to nearly $1.36 billion in direct federal funding for Q117, $196 million in federal funds came to UC indirectly, as flow-through funds from non-federal sponsors. The main sources of flow-through funds are California State agencies and other research universities with federal awards.

Q1 Flow-through funds by sponsor category, FY 2016-17

($ millions)

SPONSOR	FLOW-THROUGH $	AWARD TOTAL	% OF TOTAL
State	84	178	47.1%
Other gov't.	7	36	18.4%
Business	13	202	6.6%
Non-profit	26	167	15.5%
Higher education	55	82	66.3%
DOE Labs	4	5	77.1%
Campuses/OP	7	26	27.4%
Total	***196***	***699***	***28.1%***

The true federal contribution to UC's award funding, including these flow-through funds, is actually about 75% of the quarterly total. On a full-fiscal-year basis, the true federal contribution is closer to 60%.

III. Award trends by project type

Research awards from all sources during Q117 amounted to $1.65 billion, including $135 million in clinical trial sponsorship. Training, service and other awards came to about $379 million. The dramatic increase in clinical trial funding since 2013 is due almost entirely to corporate sponsorship. Last year, during FY 2015-16, clinical trial awards totaled nearly $510 million, $456 million of this from corporate sponsors. This trend is likely to parallel the continued growth of the global pharmaceutical industry during 2016-17 and beyond.

Q1 award amounts by project type

$ millions, inflation-adjusted

PROJECT TYPE	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117
Research	1,367	1,400	1,787	1,765	1,782	1,327	1,381	1,455	1,510	1,473
Clinical trials	56	44	56	48	46	52	72	100	135	135
Training	154	143	163	154	131	128	102	117	115	112
Public service	98	130	101	100	114	173	149	113	117	136
Other projects	102	115	167	131	93	159	112	133	147	198
TOTAL	***1,778***	***1,832***	***2,275***	***2,197***	***2,166***	***1,840***	***1,816***	***1,917***	***2,025***	***2,054***

IV. Award trends by recipient location

Award totals for Q117 are about 1.5% above last year overall, with significant variation among locations.

Awards by location, $ millions, inflation-adjusted

UC LOCATION	Q112	Q113	Q114	Q115	Q116	Q117	Yearly change
Berkeley	342	307	256	295	288	355	23.1%
Davis	320	265	209	230	252	225	-10.4%
Irvine	120	91	110	103	120	101	-15.6%
Los Angeles	292	222	252	331	316	320	1.4%
Merced	8	9	7	9	7	15	99.3%
Riverside	46	38	44	41	48	51	6.9%
San Diego	376	304	271	282	315	305	-3.2%
San Francisco	471	449	492	482	535	498	-6.8%
Santa Barbara	73	56	80	57	57	69	20.9%
Santa Cruz	55	40	41	45	38	43	14.3%
Ag & Nat Res	4	5	6	7	8	6	-20.3%
LBNL	56	40	47	36	37	60	60.6%
UCOP	5	12	0	0	5	6	22.0%
TOTAL	**2,166**	**1,840**	**1,816**	**1,917**	**2,025**	**2,054**	**1.5%**

The location with the largest dollar increase over Q1 of last year is UC Berkeley, and that is principally due to an $80 million federal/state Title IV-E social work training program award.

V. Significant campus awards

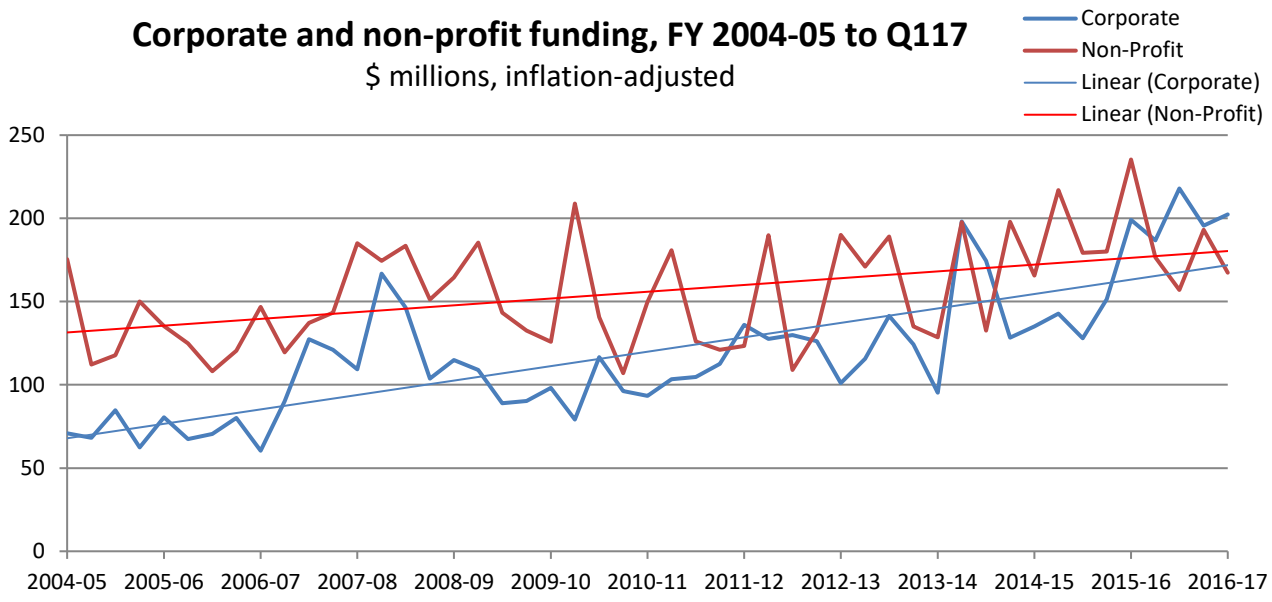
During Q117, UC received more than 6,000 contracts and grants from about 1,475 sponsors, plus nearly 1,300 Material Transfer Agreements. Listed below are significant awards reported this quarter by campuses, Agriculture & Natural Resources, Lawrence Berkeley National Lab and the Office of the President. The largest of these awards, representing $80 million in continued support for the social work training program operated by UC Berkeley, includes a combination of federal and state funding. This program involves 22 schools of social welfare throughout the state, and is one of the many UC-based, statewide public service programs that benefit from this multi-tier project partnership.

LOCATION	SPONSOR CATEGORY	SPONSOR	PROJECT TITLE	AMOUNT
Berkeley	Federal and State	U.S. Dep't. of Health and Human Services, and California Dep't. of Social Services	Title IV-E Statewide Social Work Training Program	$80,000,000
Davis	Non-profit	Patient-Centered Outcomes Research Institute	Comparative effectiveness of breast cancer screening and diagnostic evaluation by extent of breast density	$7,600,000

Irvine	Federal	National Science Foundation	The Center for Chemistry at the Space-Time Limit (CaSTL)	$5,000,000
Los Angeles	Federal	National Cancer Institute (NIH)	AIDS Malignancy Consortium (AMC)	$21,600,000
Merced	Federal	National Science Foundation	Training computational and data-analytic skills for academia and industry	$2,900,000
Riverside	Federal	Department of Energy	Spins and Heat in Nanoscale Electronic Systems (SHINES)	$3,000,000
San Diego	Federal	National Science Foundation	CCI: Center for Aerosol Impacts of Climate and the Environment	$8,000,000
San Francisco	Federal	National Center for Advancing Translational Sciences (NIH)	Clinical and Translational Science Institute	$18,800,000
Santa Barbara	Federal	National Science Foundation	ESTEEM: Enhancing Success in Transfer Education for Engineering Majors	$4,800,000
Santa Cruz	Non-Profit	Scripps Research Institute	Investigations in fisheries ecology	$4,400,000
Agriculture & Natural Resources	Federal	National Institute for Food and Agriculture (U.S. Dep't. of Agriculture)	A Western IPM Center led by California, Arizona and Oregon	$1,000,000
Lawrence Berkeley Lab	Higher Education	Stanford Linear Accelerator Center (SLAC)	HXR Undulators for the Stanford Linear Accelerator	$11,100,000
Office of the President	Federal	Dep't of Education Office of Postsecondary Education	California Gear Up III	$5,000,000

VI. Private Funding Sources

Private sources of funding have been steadily increasing in both dollar amount and relative importance. Federal agency support remains the dominant source of extramural funding, but discounting stimulus funds and inflation, it has remained essentially flat for the last decade.



The effects of the recession on private funding are apparent, along with the steady recovery since. Awards from corporate sponsors in FY 2013-14 show a significant spike as a result of a few very large, multi-year clinical trial research contracts. The sharp increase that began in 2015-16 is also due to an increase in clinical trial sponsorship, and reflects the higher number and increasing cost for corporate clinical trials. The overall trend for both corporate and non-profit sponsorship shows a steady increase that is likely to continue as long as the economy remains strong, and the pharmaceutical industry continues to invest in developing new therapies and treatments.

VII. Federal Agency Funding

UC's Q117 marks the final quarter of federal fiscal year 2016. Federal funding for this year is essentially the same as for the two previous years, with the notable exception of a $133 million award from NASA to UC Berkeley for a multi-site ionospheric research project, which is responsible for the dramatic spike in funding during the 2014 federal fiscal year. The current yearly level of nearly $3.4 billion still remains below the inflation-adjusted federal totals during the years when Stimulus funds were available. After adjusting for inflation, annual federal awards are essentially where they were just prior to the recession.

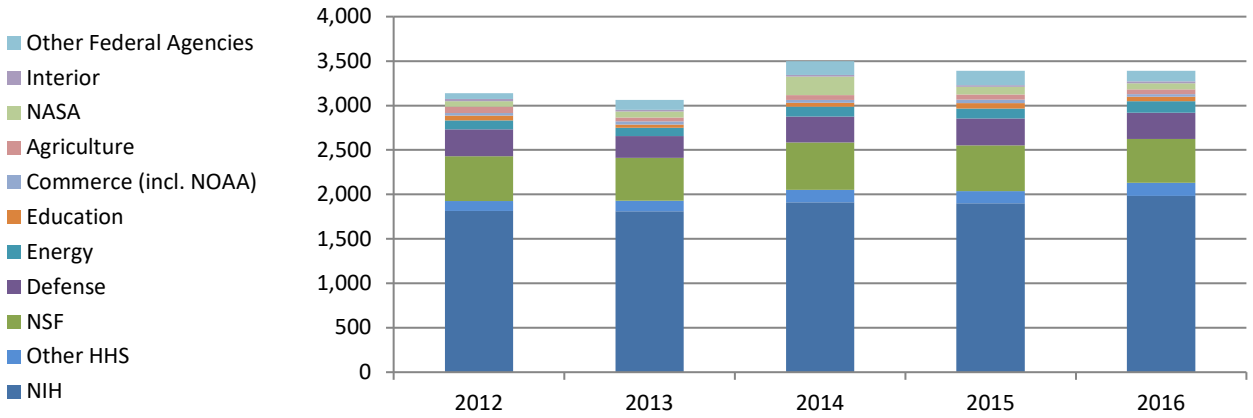
FEDERAL FY	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Base awards	3,425	3,354	3,627	3,652	3,132	3,061	3,499	3,392	3,392
Stimulus funds		447	450	49	7				
TOTAL	***3,425***	***3,801***	***4,077***	***3,701***	***3,139***	***3,061***	***3,499***	***3,392***	***3,392***

Recent agency funding trends pinpoint some of the major areas of change in the period following the Recovery Act (after 2010-11), which included the low point of the sequester in 2013, followed by three relatively stable years.

Federal agency funding, federal FY 2012 to 2016

$ millions, inflation-adjusted

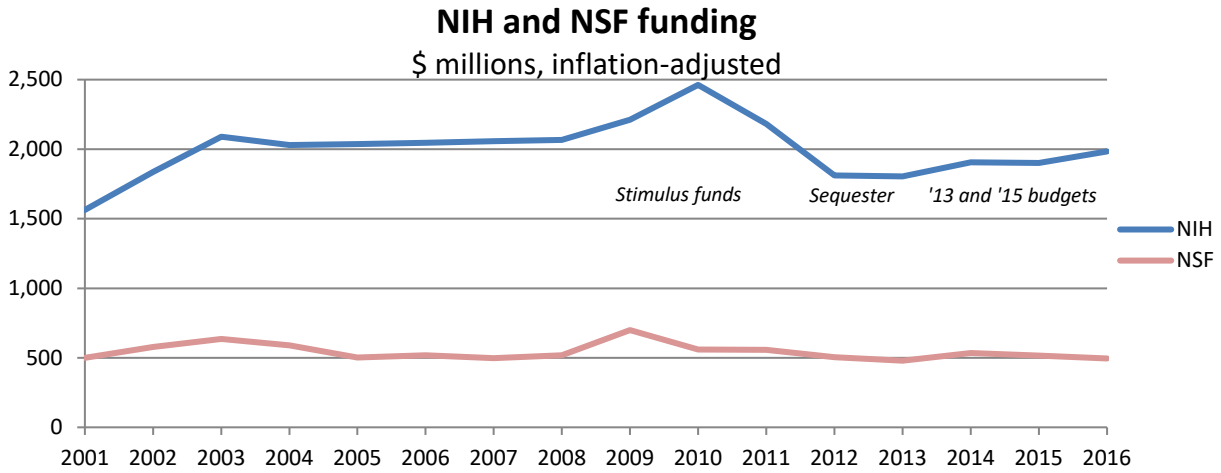
AGENCY	*2012*	*2013*	*2014*	*2015*	*2016*	*change from 2015*
National Institutes of Health	1,814	1,811	1,913	1,902	1,983	4.2%
Other Health & Human Services	112	120	138	136	147	7.6%
National Science Foundation	504	479	533	515	496	-3.7%
Defense	300	247	292	301	292	-3.0%
Energy	101	93	111	110	132	19.7%
Education	55	38	42	63	51	-19.2%
Commerce (incl. NOAA)	31	34	34	38	29	-22.9%
Agriculture	70	44	55	60	51	-14.9%
NASA	63	69	207	85	69	-19.3%
Interior	24	16	21	20	24	21.9%
Other Agencies	65	112	154	161	118	-26.6%
TOTAL	***3,139***	***3,061***	***3,499***	***3,392***	***3,392***	***0.0%***



VIII. NIH and NSF Funding

Two federal agencies — the National Institutes of Health and the National Science Foundation — provide the core of UC's federal funding, representing about 73% of the federal total. NIH generally provides 59% of UC's direct federal funding (with additional amounts received as flow-through funds). The National Science Foundation is UC's second-largest source of extramural funds, supplying about 14% of the federal total. Changes in appropriation levels and policies at both agencies can have a profound effect on UC's project activities.

All federal R&D appropriations were dramatically affected by the sequester of 2013, which cut award funding to UC and other research universities. But the issue of federal funding for academic research and development long predates this particular congressional budget compromise. Agency appropriations for academic R&D are connected to federal budget policies, and have been kept essentially flat for over a decade, except for the couple of years when Recovery Act stimulus funds were available. Not surprisingly, UC's history of award funding from NIH and NSF closely parallels the federal budget trend, including the two-year spike due to stimulus funds.



FY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
NIH	1,563	1,837	2,089	2,031	2,037	2,045	2,058	2,068	2,212	2,462	2,181	1,811	1,805	1,905	1,901	1,983
NSF	499	579	634	590	502	517	496	517	699	559	558	504	479	533	515	496

IX. The Future of Federal Funding

The past two years have seen a period of relative stability in federal funding for UC's research enterprise. This is due in large part to Congressional budgret actions. The Bipartisan Budget Act of 2013 curtailed some of the sequestration cuts that had reduced federal awards. This was followed by the 2015 budget bill, which called for two years of increased agency appropriations for academic R&D. The National Institutes of Health, UC's largest single source of funding for research and related projects, saw an appropriation increase of 6.6%. However, the pipeline from agency appropriation to UC expenditure is quite lengthy and it is only in the last quarter or two that these increased federal appropriations have finally appeared in campus award reports.

Whether increases in federal agency funding persist past the Congressional extension of the 2016 federal budget to April of 2017 remains an open question. Also uncertain is whether a deficit-conscious Congress will act to prevent the spending cuts of the sequester from automatically returning. The current budget agreement extends the sequester's spending cuts through 2025 — four years past the original ten-year term of the 2011 Budget Control Act that initially established the terms of the sequester. Cutbacks to agency appropriations could return in the Federal 2018 budget, unless yet another legislative hiatus is put in place. And regardless of appropriation levels, research priorities are certain to change as well.

For medical research, however, the picture is brighter and somewhat more certain. The 21st Century Cures Act, which Congress passed in December with strong bipartisan support, increases NIH's 2016 appropriation of $31.8 billion by nearly 5%, or about $1.5 billion, to $33.3 billion in 2017 and by another 5%, to more than $34.8 billion in 2018. UC has historically received about an 8% share of NIH research funding, and this is likely to continue. In FY 2017, the Cures Act appropriates an additional $350 million for three programs where UC has demonstrated strengths: $300 million for the Cancer Moonshot, $40 million for the Precision Medicine Initiative, and $10 million for the BRAIN initiative (Brain Research through Advancing Innovative Neurotechnologies).

In addition, the dramatic growth over the past several years in corporate funding for clinical trials also appears to be continuing. Taken together, these two factors suggest that medical research — already more than half of UC's research enterprise — will play an even larger role in years to come.

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