

Contracts & Grants Q116 Award Report

Federal funding and the 2016 Budget

Summary

UC's award funding for the first quarter of fiscal 2015-16 totaled about \$2.02 billion, representing an increase of about \$128 million, or 6.8%, over the amount reported for the first quarter of last year. Nearly all of the increase during this quarter was due to private sector funding from both corporate and non-profit sources, rather than federal funding. But the 2016 federal budget bill that Congress passed and the President signed last year should result in a significant increase in federal awards over the next two years.

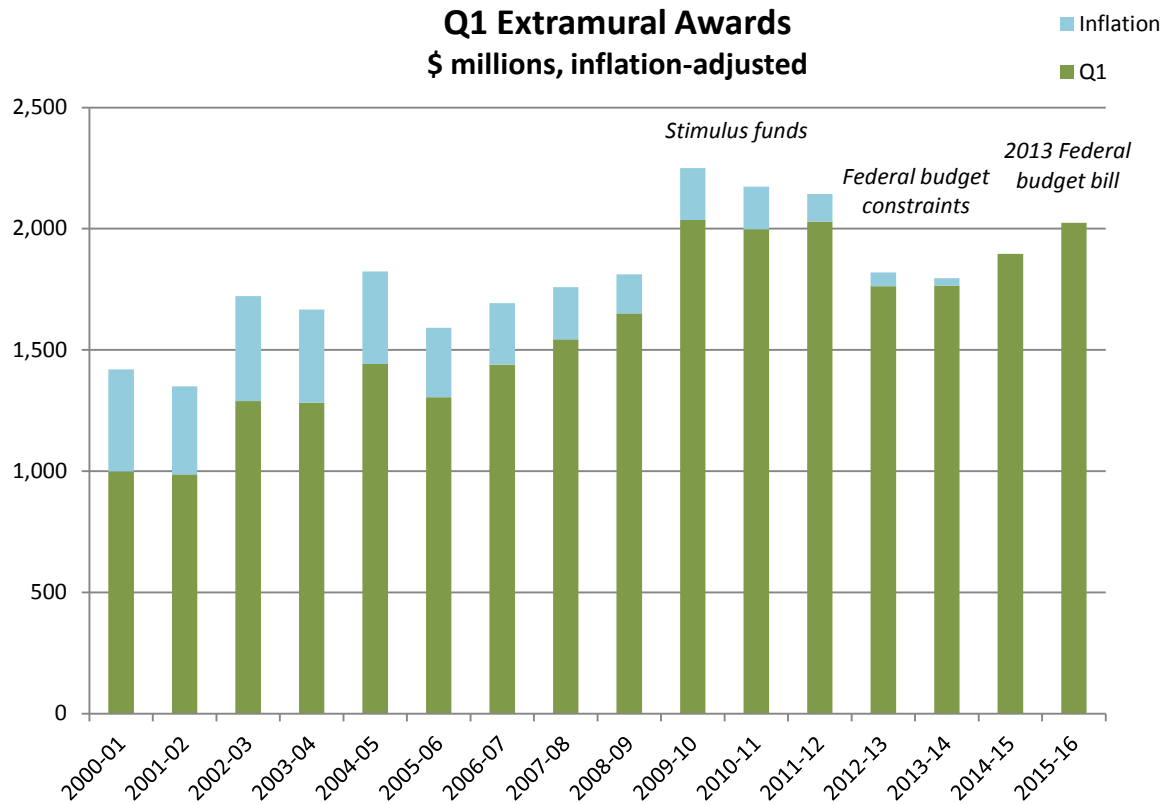
The 2016 federal budget increases agency appropriations for academic research & development, with the percentage varying considerably by agency. The National Institutes of Health, which is UC's largest single source of sponsored project funding, will see an increase over 2015 in research appropriations of about \$2 billion, or 6.6%. UC's second-largest source of funding, the National Science Foundation, will see an additional 1.6% for funding research and training programs over the next two years.

Sections VII and VIII of this report examine UC's federal agency funding in detail, including estimates for each of the major agencies of the 2016 budget's impact. This tabulation suggests that overall federal funding to UC, including flow-through funds from non-federal sources, will increase by an estimated \$186 million, or about 4.7%, for the 2016 federal fiscal year, and will remain at about that level for 2017. Because the federal fiscal year is offset by one quarter from California's fiscal year, the first-quarter award totals reported here reflect federal FY2015 funding levels. The first sign of the increased FY2016 federal funding should appear during UC's second fiscal quarter.

The combination of a renewed federal commitment to academic research and development, plus a resurgent private sector, bodes well for the academic research enterprise nationwide. With UC performing nearly 10% of all the academic research conducted in the US, there are hopeful indications that UC's award funding from all sources will show moderate increases over the next two years.

I. Quarterly Performance Metrics

Extramural awards for Q116 totaled \$2.024 billion, about \$128 million above Q115 levels and \$229 million above Q114. This is still below the peak amounts received during the years when Recovery Act stimulus funds were available.

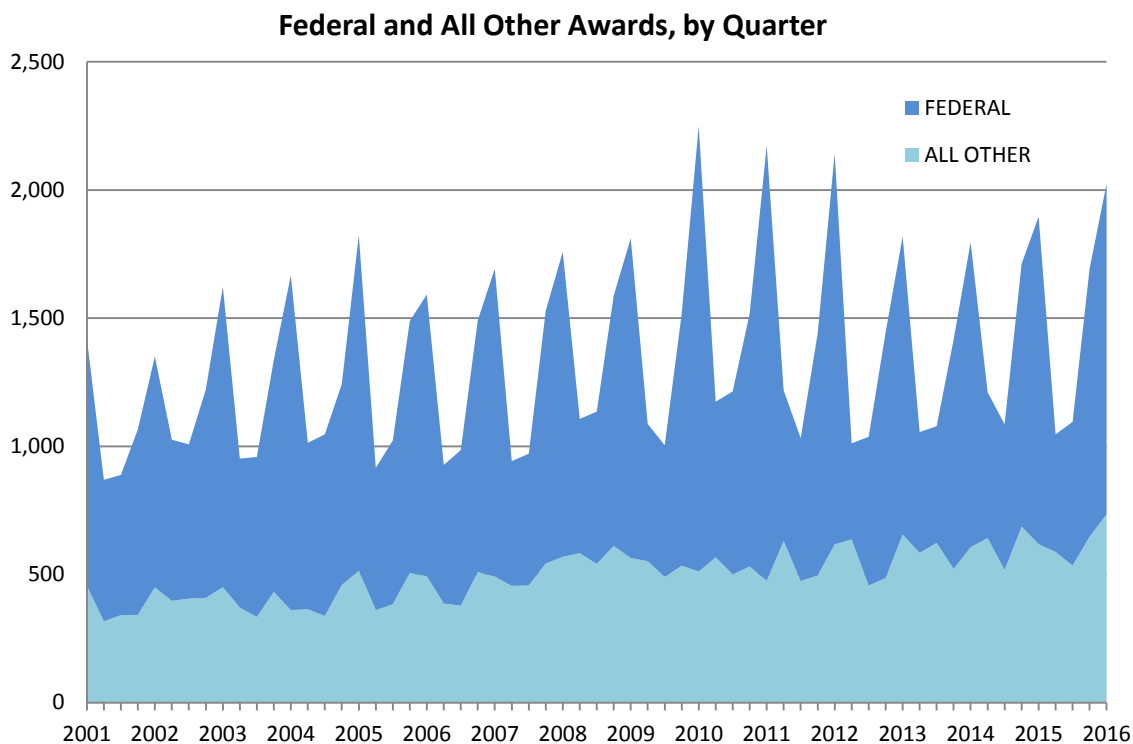


Quarterly Extramural Awards

\$ millions, inflation-adjusted

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Q1	1,420	1,351	1,722	1,667	1,824	1,592	1,693	1,759	1,812	2,250	2,173	2,143	1,819	1,796	1,896	2,025
Q2	869	1,026	952	1,014	916	927	943	1,107	1,088	1,174	1,218	1,012	1,056	1,211	1,047	
Q3	888	1,008	860	1,047	1,023	985	971	1,135	1,004	1,214	1,032	1,037	1,078	1,086	1,095	
Q4	1,067	1,222	1,337	1,243	1,489	1,492	1,529	1,588	1,518	1,519	1,440	1,445	1,416	1,712	1,693	
FY	4,245	4,607	4,871	4,971	5,252	4,996	5,136	5,589	5,422	6,157	5,864	5,637	5,370	5,805	5,731	

Award totals for UC’s first fiscal quarter are always the highest for the year. This is a function of the federal funding cycle, which generally awards about 40% of the annual total in the final quarter of the federal fiscal year (corresponding to UC’s Q1). With direct federal sponsorship providing about two-thirds of all UC’s awards, this produces sharp quarterly spikes in total funding.



II. Award Trends by Sponsor Category

The pattern of UC's federal funding closely tracks the sometimes contentious budget process that determines agency appropriations for academic research and development. The American Recovery and Reinvestment Act (ARRA) of 2009 provided stimulus funds that boosted UC's award totals by about \$1 billion over the next few years. When these funds were exhausted, and mandatory constraints were placed on the federal budget in 2013, UC's federal funding fell to low, pre-recessionary levels. The budget act passed in late 2013 restored some stability to federal funding for academic R&D, but quarterly and annual totals are still not much higher than they were a decade ago.

Q1 Awards by Sponsor Category, FY 2004-05 to 2015-16

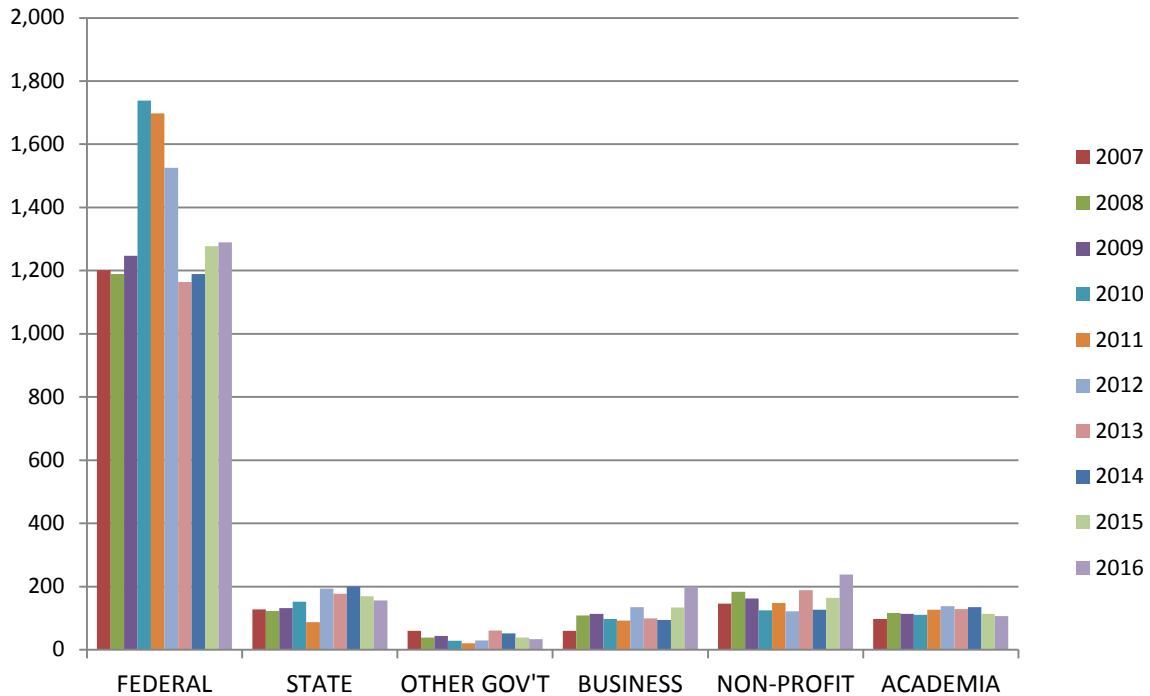
(\$ millions, inflation-adjusted)

SPONSOR	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116
Federal	1,309	1,099	1,201	1,190	1,247	1,738	1,698	1,525	1,164	1,189	1,278	1,289
State	141	147	128	123	132	152	87	194	177	200	170	156
Other Gov't*	21	24	60	38	43	28	21	30	61	51	38	34
Corporate	70	80	60	108	114	97	92	135	100	94	134	199
Non-Profit	174	134	146	183	163	124	148	122	188	127	164	239
Academia**	109	108	98	116	113	110	127	138	129	135	113	107
TOTAL	1,824	1,592	1,693	1,759	1,812	2,250	2,173	2,143	1,819	1,796	1,896	2,025

* Other Gov't includes Agricultural Market Order Boards.

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

Q1 Awards by Sponsor Category, FY 2006-07 to 2015-16
\$ millions, inflation-adjusted



In addition to nearly \$1.29 billion in direct federal funding for Q1 of 2015-16, representing about 64% of the total, nearly \$178 million in federal funds came to UC indirectly, as flow-through funds from non-federal sponsors. The true federal contribution to UC's award funding, including these flow-through funds, is about 72% of the total.

Q116 Flow-Through Funds by Sponsor Category
(\$ millions, inflation adjusted)

<i>Sponsor</i>	<i>Flow-Through \$</i>	<i>Total</i>	<i>% of Total</i>
<i>State</i>	58	156	37.4%
<i>Other Gov't.</i>	8	34	24.6%
<i>Business</i>	10	199	5.1%
<i>Non-Profit</i>	36	239	15.2%
<i>Higher Ed</i>	52	70	74.7%
<i>DOE Labs</i>	2	6	36.6%
<i>Campuses/OP</i>	10	31	31.9%
Total	178	735	24.2%

Sections VII and VIII of this report present a detailed analysis of federal funding based on federal fiscal years rather than UC's fiscal years.

III. Award Trends by Project Type

Research awards during Q116 amounted to \$1.64 billion, including \$135 million in clinical trial sponsorship. Training, service, and other awards came to about \$381 million.

Q1 Award Amounts by Project Type, FY 2007-2016

\$ millions, inflation-adjusted

PROJECT TYPE	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116
Research	1,191	1,352	1,384	1,769	1,745	1,763	1,313	1,366	1,440	1,509
Clinical Trials	33	55	43	55	47	46	52	71	99	135
Training	146	158	147	161	152	130	126	102	125	127
Service	180	91	123	99	99	112	171	148	112	116
Other	142	102	114	165	129	93	157	109	121	137
TOTAL	1,759	1,759	1,812	2,250	2,173	2,143	1,819	1,796	1,896	2,025

IV. Award Trends by Recipient Location

Q116 awards were about 6.8% above Q115 totals, but this increase was unevenly divided, with four locations showing declines.

Q1 Awards by Location

\$ millions, inflation-adjusted

UC LOCATION	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY Change
Berkeley	338	303	253	292	288	-1.26%
San Francisco	465	444	486	477	535	12.20%
Davis	317	262	207	227	252	10.75%
Los Angeles	289	219	249	327	316	-3.43%
Riverside	45	38	44	41	48	16.25%
San Diego	372	301	268	279	315	12.86%
Santa Cruz	55	40	41	45	38	-15.72%
Santa Barbara	72	55	80	56	57	1.75%
Irvine	118	90	108	102	120	17.83%
Merced	8	9	7	9	7	-16.55%
UCOP	5	12	0	0	5	N/A
LBNL	55	40	47	35	37	6.05%
Ag & Nat Res	4	5	6	7	8	13.06%
TOTAL	2,143	1,819	1,796	1,896	2,025	6.77%

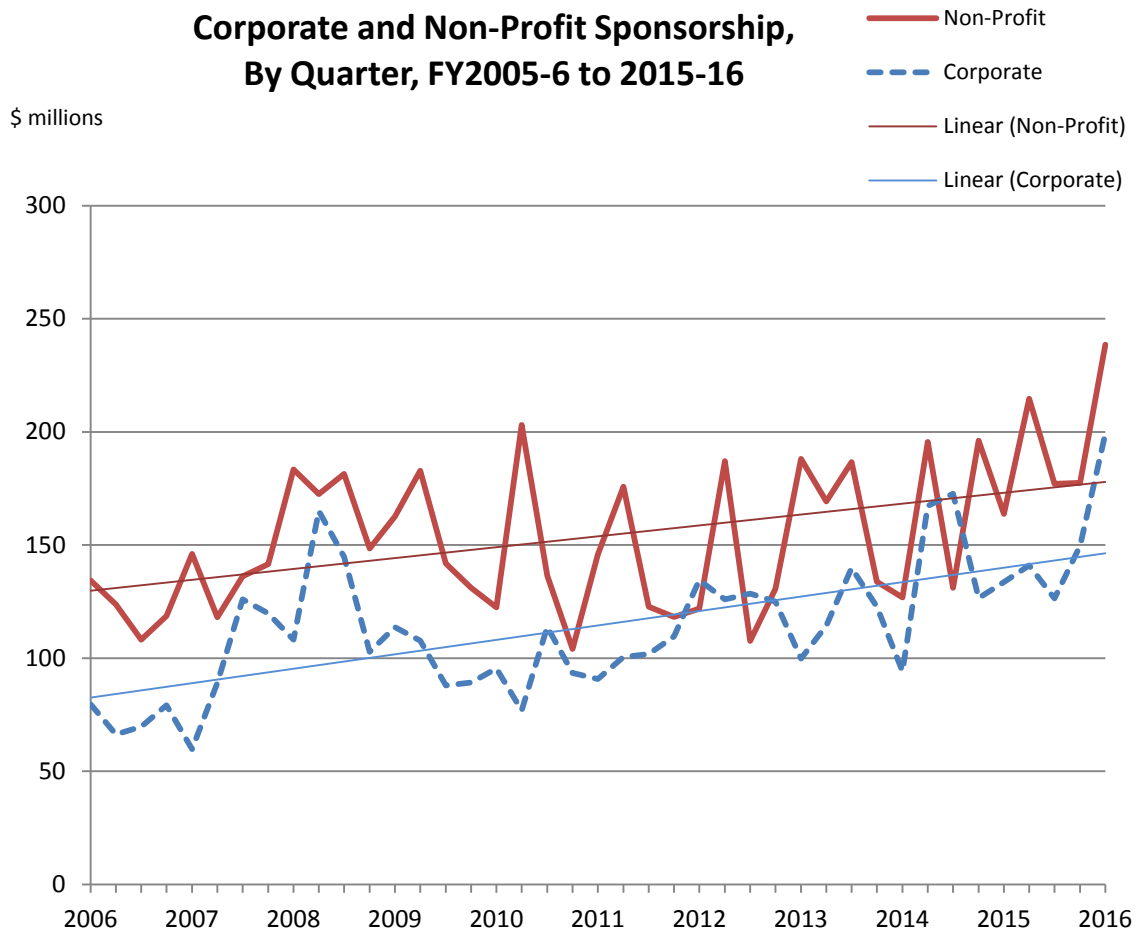
V. Significant Awards

During Q116, UC received about 8,300 contracts and grants from over 1,400 different sponsors (in addition to 1,100 Material Transfer Agreements). Listed below are some of the larger or most significant awards reported this quarter by campuses, Agriculture & Natural Resources, and Lawrence Berkeley National Lab.

LOCATION	SPONSOR CATEGORY	SPONSOR	PROJECT TITLE	AMOUNT
Agriculture & Natural Resources	Federal	National Institute for Food and Agriculture	A Western IPM Center Led by California, Arizona and Oregon	1,000,000
Berkeley	State	California Department of Social Services	Title IV-E Social Work Training Program	36,600,000
Davis	Federal	U.S. Agency For International Development	Emerging Pandemic Threats Program 2 Predict-2	28,800,000
Irvine	State	California Energy Commission	California Natural Gas Vehicle Incentive Program	11,200,000
Lawrence Berkeley Lab	Federal	US Army Medical Research and Materiel Command	Metastable Tissue States that Result from Aging Alter Susceptibility to Breast Cancer	5,000,000
Los Angeles	Non-Profit	Cleveland Clinic Foundation	Ancillary Effects of Dexmedetomidine Sedation After Cardiac Surgery	22,000,000
Merced	Federal	NASA Shared Services Center	Bridging Education and Research: Innovative Nonmaterial Platform for Energy and Sensing	1,000,000
Office of the President	State	California Department of Education Curriculum and Instruction	California Subject Matter Projects: No Child Left Behind (NCLB12) Technical Assistance and Support Program	3,500,000
Riverside	State	California Energy Commission	Bringing Energy Efficiency Solutions to California's Water Sector	3,000,000
San Diego	Federal	National Oceanic and Atmospheric Administration (NOAA)	The Cooperative Institute for Marine Ecosystems And Climate (CIMEC)	20,400,000
San Francisco	Corporate	Cisco Systems, Inc.	Healthcare Interoperability Solution	18,000,000
Santa Barbara	Federal	National Science Foundation	Land Management Strategies for Confronting Risks and Consequences of Wildfire	1,700,000
Santa Cruz	Federal	National Human Genome Research Institute	The UCSC Genome Browser	3,500,000

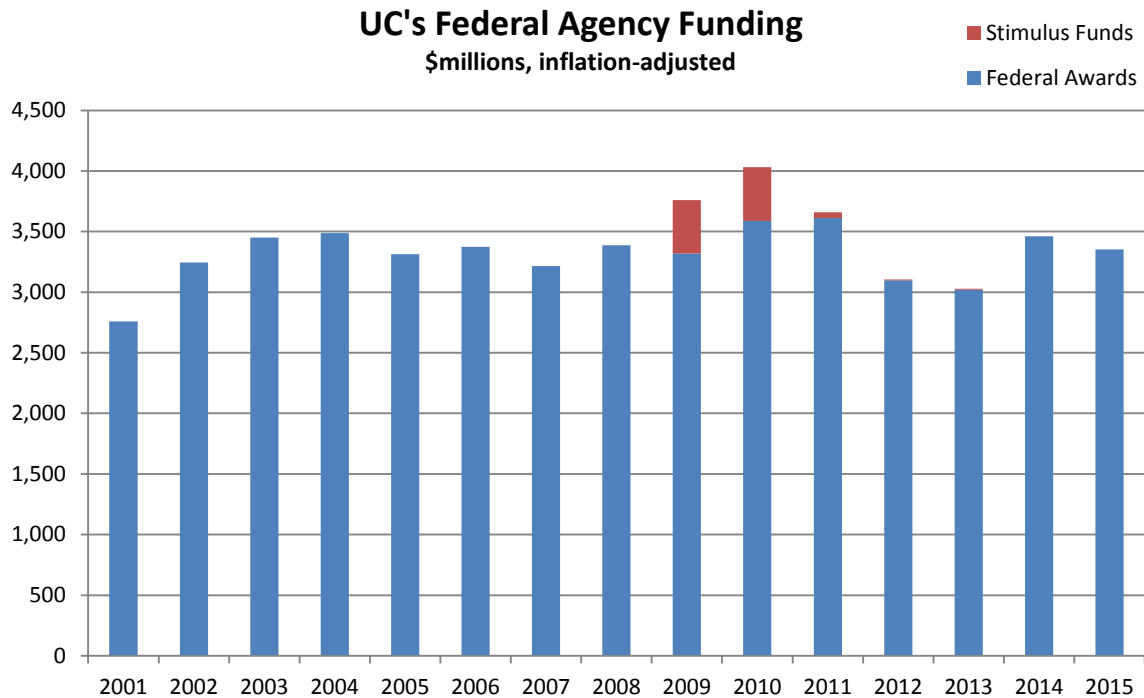
VI. Private Funding Sources

Private sponsors, including both business and non-profit entities, have been playing an increasingly important role in funding projects at UC. While there is significant quarterly variation in award totals from these two very different sources, the trend lines for both are positive even after inflation adjustment. Q116 saw a fairly dramatic increase in private funding.



VII. Federal Fiscal Year Award Trends

With the federal fiscal year and UC's fiscal year offset by one quarter, UC's first-quarter federal award totals actually reflect the final quarter of the federal fiscal year, which is also when award totals are greatest. Because federal agency appropriations have been so variable over the past several years, UC's Q1 federal award totals are best understood in terms of the federal fiscal year.



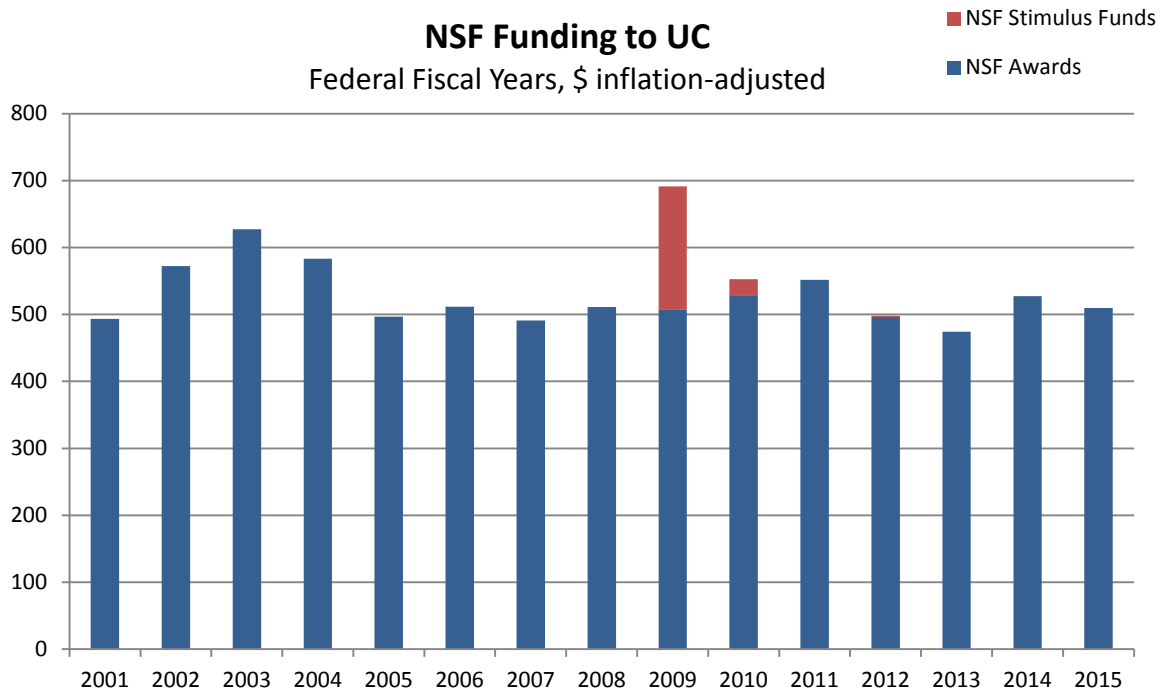
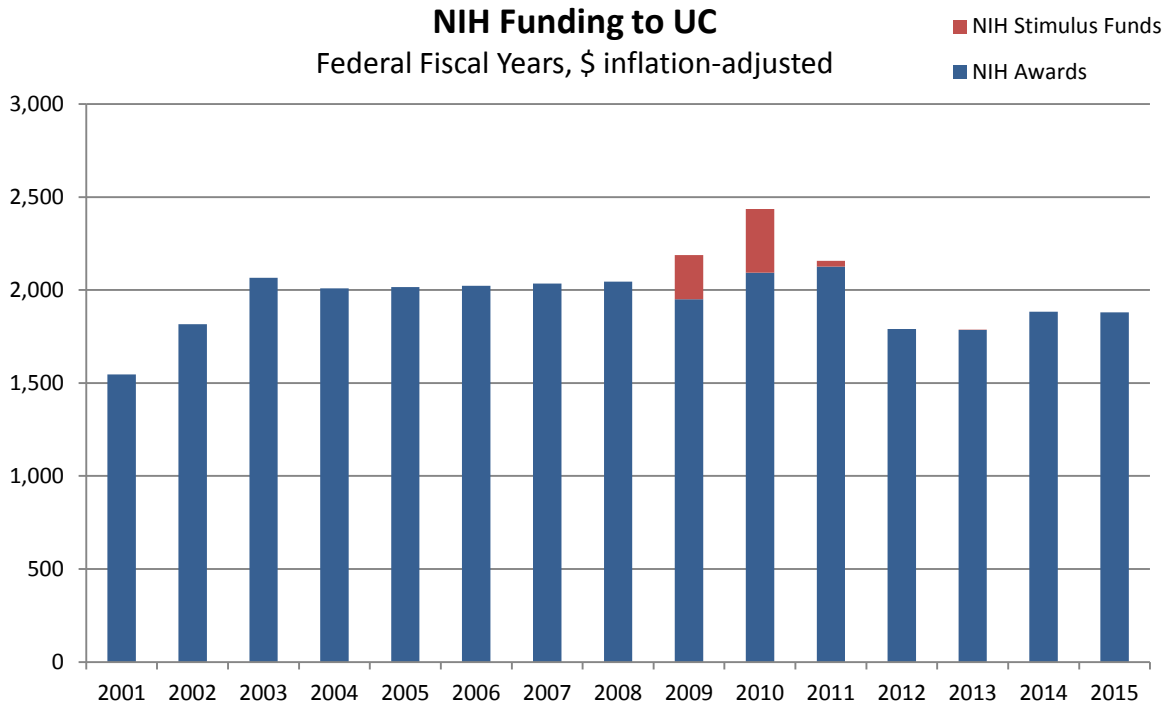
<i>Fed FY</i>	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Current \$	1,941	2,372	2,585	2,682	2,620	2,767	2,736	2,976	3,424	3,650	3,366	2,941	2,935	3,404	3,354
Constant \$	2,759	3,245	3,451	3,487	3,315	3,376	3,215	3,388	3,760	4,033	3,661	3,105	3,028	3,462	3,354

UC's federal funding is strongly influenced by the often politicized Congressional budget process, and this is most evident in the period from 2008 to the present. The Recovery Act pumped about \$1 billion into UC's research enterprise from 2009 through 2011. This was followed by the Congressional budget stalemate and the Sequester, which drove UC's federal funding for 2012 and 2013 down to levels not seen since the early years of the millennium. The budget bill of 2013 lifted many of these constraints on discretionary spending, and federal support to UC returned to pre-recession funding levels.

VIII. Federal Agency Award Trends

The two largest sources of UC's funding are the National Institutes of Health (NIH) and the National Science Foundation (NSF). Funding from both agencies over the last decade has been volatile, again reflecting economic forces and political processes.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
NIH	1,546	1,817	2,066	2,009	2,015	2,023	2,035	2,045	2,188	2,435	2,156	1,791	1,785	1,884	1,881
NSF	494	573	628	584	497	512	491	511	692	553	552	498	474	527	509



Federal agency funding since 2001 has been through two distinct boom-and-bust cycles, the most recent of which reached its nadir in 2013. The lack of stable research funding has caused concern and disruption in the academic research community. Thanks to the budget bill of 2013, however, funding has been relatively stable for the last two years. And the 2016 federal budget passed at the end of last

year—much to the surprise of many observers—calls for substantial increases in federal agency appropriations for academic research and other projects.

The percentage increases in appropriations for research vary widely among federal agencies, ranging from 1.4% to 6.6%, depending on Congressional priorities. A useful summary of the implications of the budget's R&D appropriations appeared in the AAAS journal, *Science*, shortly after the budget was published, and table below draws on that analysis. (See <http://www.sciencemag.org/news/2015/12/updated-budget-agreement-boosts-us-science>.)

Based on UC's federal agency funding levels for 2015, it is possible to project the likely increases in systemwide federal support for the next two years. In addition to the increases in direct agency funding, we also estimate the likely increase in federal funding that comes to UC indirectly, as flow-through funds from other institutions serving as prime contractors for federal awards. (The increase percentages in red are estimates based on total agency appropriation increases, rather than specific line items for research.)

Federal Funding FY2016 Projection, \$ millions

<i>Agency</i>	<i>Federal FY 2015 funding</i>	<i>Increase %</i>	<i>Increase \$</i>	<i>Projected FY2016 funding</i>
NIH	1,880.6	6.6%	124.1	2,004.8
Other HHS	134.9	1.6%	2.2	137.0
NSF	509.4	1.6%	8.2	517.6
Defense	297.5	1.4%	4.2	301.7
Energy	109.0	5.5%	6.0	115.0
NASA	84.5	6.6%	5.6	90.0
Education	62.7	1.8%	1.1	63.8
Agriculture	59.1	1.4%	0.8	59.9
Commerce (incl NOAA)	37.3	4.0%	1.5	38.8
Interior	19.4	1.6%	0.3	19.7
Other Federal Agencies	159.5	1.6%	2.6	162.0
Sub-total	3,353.9	4.7%	156.5	3,510.4
Flow-through funds	635.4	4.7%	29.6	665.0
Total federal funding	3,989.3	4.7%	186.1	4,175.4

This projection depends on two key assumptions: first, that UC continues to receive its historic share of federal agency appropriations; and second, that flow-through funds increase by the same percentage as direct federal funding. If these assumptions prove correct, then the 2016 federal budget points to a likely increase in UC's overall federal funding of about 4.7%, or \$186 million, including the flow-through funds. And, barring Congressional amendments to the budget next year, these agency funding levels should remain intact for 2017.

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January, 2016*