Contracts & Grants FY 2015-16 Funding Report

The six-billion-dollar year

Extramural Funding Summary

UC's award total from all external sponsors rose to just above $6 billion in FY 2015-16. This is almost 4 percent more than last year's total of $5.8 billion, after adjusting for an inflation rate of 1.1 percent. Most of this increase is due to significant growth in private-sector funding, rather than in federal agency support, which has been hovering around $3.3 billion for the last three fiscal years.

This stability in federal support (or lack of growth, from another perspective) is a product of the Federal Budget Bill of 2013, which ended the mandatory cutback in federal agency spending (the Sequester) and has funded the academic research community at a fairly constant level. The current federal budget, passed by Congress at the end of 2015, increases agency appropriations for university research and development over the 2013 levels. This increase has not yet shown up in the federal award totals reported by campuses because there is a considerable lag between when proposals are submitted in anticipation of improved funding prospects and when the funds for approved projects are obligated and reported. Reporting from the fourth quarter of the federal fiscal year (July 1 to September 30), may begin to show the impact of the appropriaton increases.

This year's 4 percent growth in project sponsorship is due principally to a dramatic increase in corporate contracts, which grew 30 percent to a record total of $800 million. Nearly all of this growth in corporate sponsorship supports clinical trial research, which is not a new trend; over the last four years, corporate clinical trial research funding has more than doubled to over $450 million during 2015-16. Not only has the number of new clinical trial contracts been increasing, but the average funding per trial has also increased. This is an important shift in the mix of projects that make up UC's research enterprise, which in turn affects the composition of the research workforce, the training of clinicians and the focus of research publications.

For more information and analysis

Research awards generally constitute 80% or more of UC's annual 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.

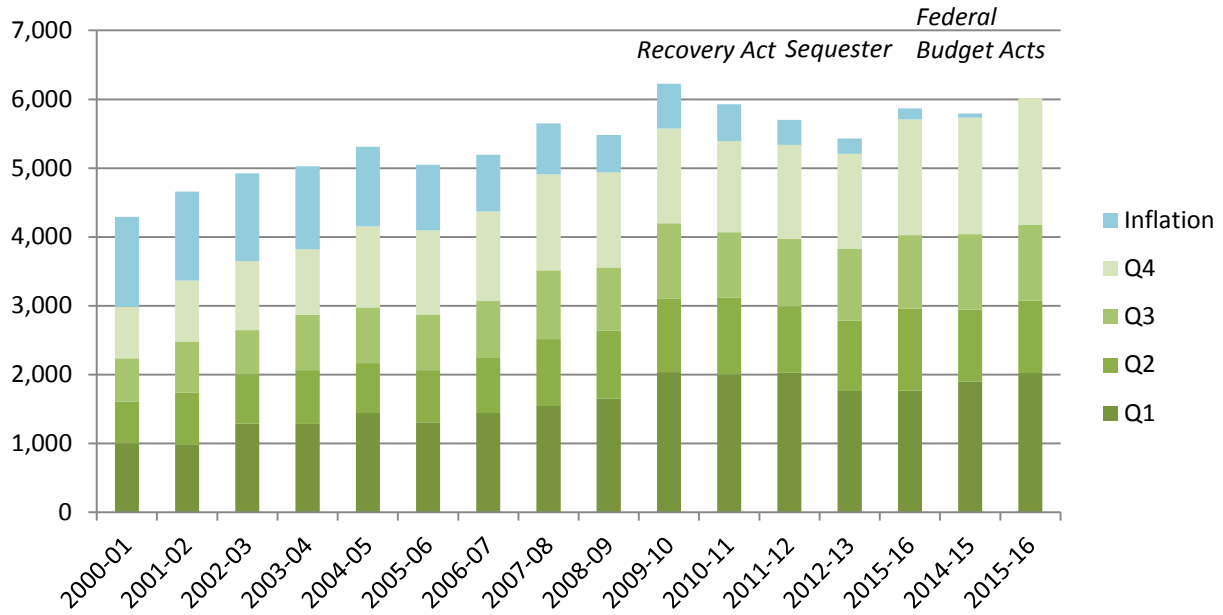
Also available in the Research section of the UCOP Institutional Research and Academic Planning website is a series of Topic Briefs presenting detailed analysis of recent trends in UC's federal, state, corporate and non-profit funding.

I. Yearly and Quarterly Award Metrics

For fiscal year 2015-16, award funding from all sources came to almost $6.02 billion, about 4% above last year's total of $5.8 billion, when inflation is taken into account. Extramural awards for Q416 totaled about $1.84 billion, about $150 million more in constant (non-adjusted) dollars than the amount reported during Q415 last year.

Extramural awards, 2000-01 to 2015-16

$ millions, inflation-adjusted

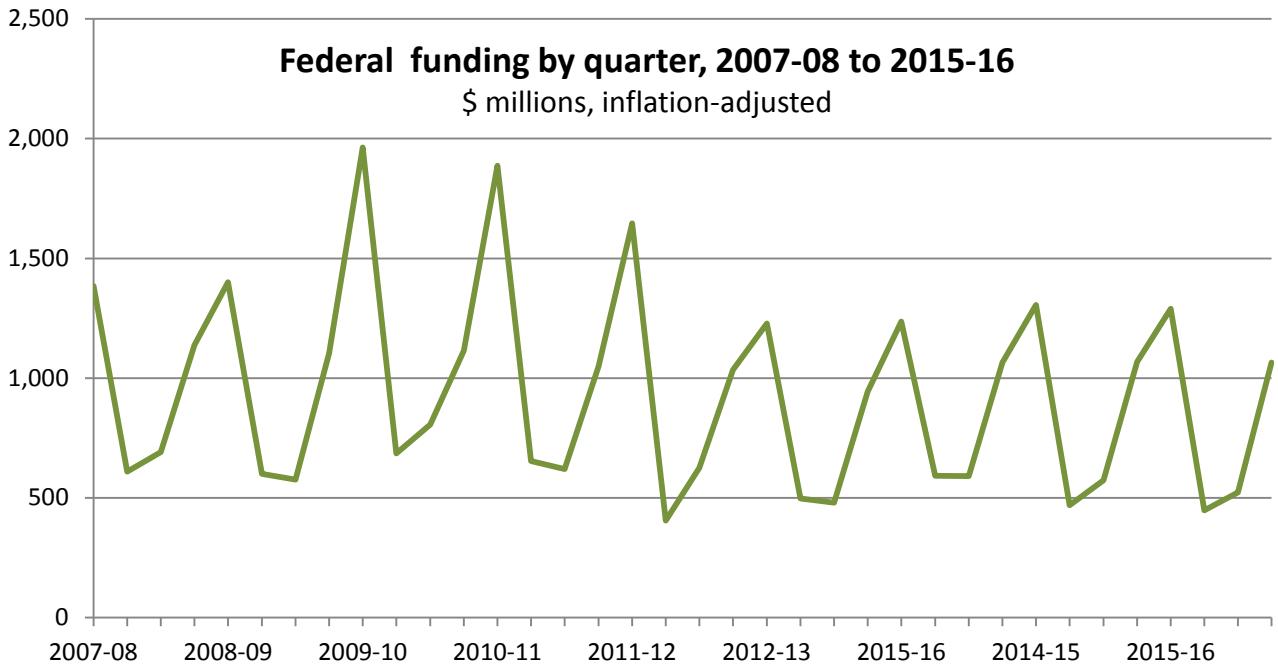


Extramural awards by quarter

$ millions, inflation-adjusted

	2001	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
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
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
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
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
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 greatly over the course of a fiscal year. The amounts reported during UC's first and fourth fiscal quarters are always higher than in Q2 and Q3. This is a product of the federal funding cycle, which releases the largest amounts in the final two quarters of the federal fiscal year (corresponding to UC's Q4 and Q1 of the following year). With direct federal sponsorship providing 55-65% 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 increase in total funding over the past several years derives from the private sector.

Awards by sponsor category, FY 2008-09 to 2015-16

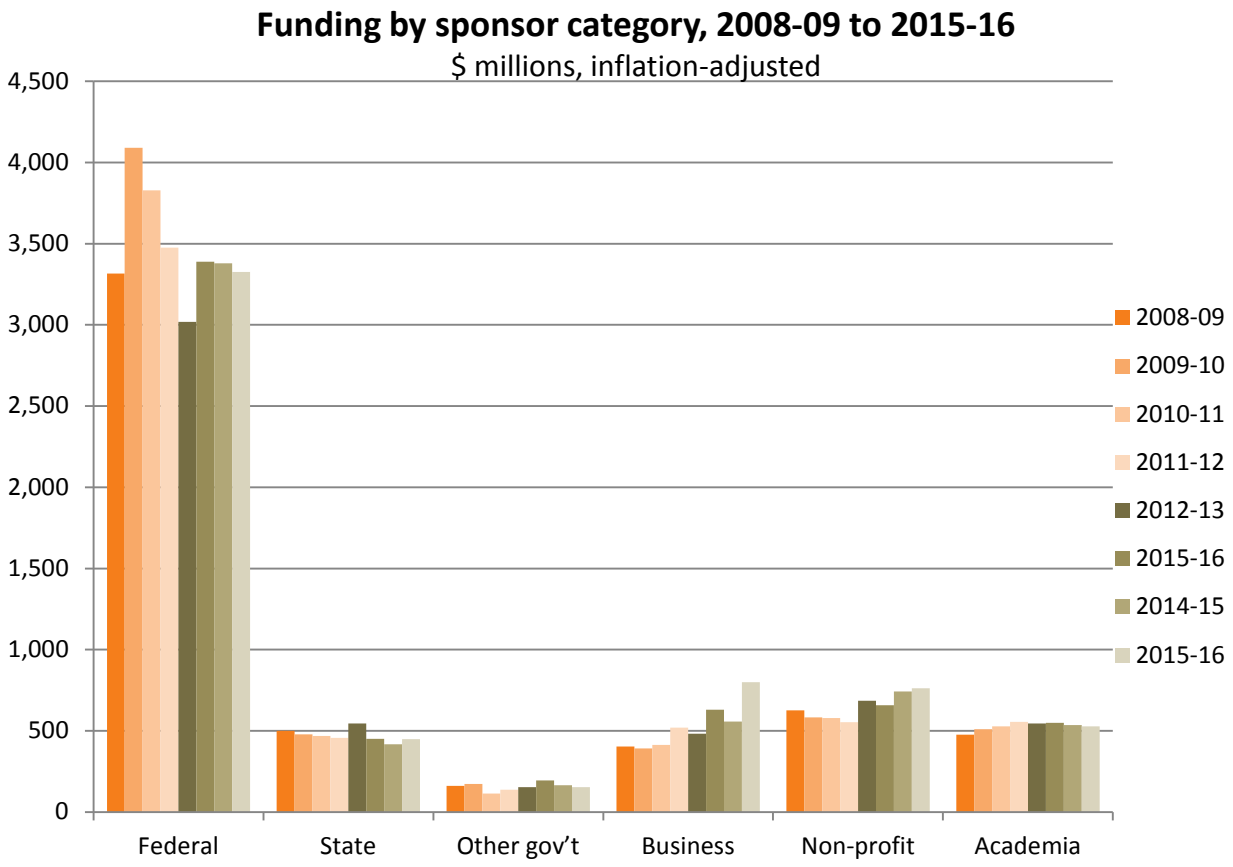
($ millions, inflation adjusted)

SPONSOR	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Federal	3,316	4,092	3,828	3,477	3,018	3,388	3,380	3,326
State	500	478	468	457	546	451	417	448
*Other gov't**	160	173	113	137	153	194	164	154
Business	403	390	414	520	482	629	557	800
Non-profit	626	582	578	554	685	657	742	762
*Academia***	477	509	527	555	545	550	535	528
TOTAL	***5,482***	***6,225***	***5,928***	***5,699***	***5,430***	***5,869***	***5,795***	***6,017***

** Other government includes agricultural market order boards.*

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

Direct federal funding to during Q416 was about $1.06 billion, and for the year as a whole, about $3.33 billion, or 55.3% of the total from all sources. Both quarterly and yearly amounts are roughly where they were last year, taking inflation into account. The steep decline in federal funding for FY 2012-13 was a direct consequence of the budget sequester. Two successive federal budget bills have kept federal support relatively stable for the past three years.



In addition to more than $3.3 billion in direct federal funding for 2015-16, $672 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 actually about 60.1% of the total.

Flow-through funds by sponsor category, FY 2015-16

($ millions, inflation adjusted)

Sponsor	*Flow-through $*	*Award total*	*% of total*
State	159	448	35.4%
Other gov't.	22	154	14.2%
Business	56	800	7.0%
Non-profit	118	762	15.5%
Higher ed	243	341	71.1%
DOE Labs	14	18	73.5%
Campuses/OP	62	168	36.8%
Total	***672***	***2,691***	***25.0%***

Nearly three-quarters of the roughly $243 million funds that UC receives from other higher education institutions originated as federal funds, sourced primarily from the same agencies that

support UC directly. Considerable federal funds also flow between UC locations. Nearly 37% of the funds that UC campuses receive from each other (about $62 million) also derive from federal awards to one prime contractor, which generates sub-awards to other UC locations. Overall, one-fourth of all the non-federal funds that UC receives originated as federal awards. This large proportion points to the heavy dependency of academic research on the federal government, and the dense network of collaborations among research universities promoted through the federal award system.

III. Federal Agency Funding Trends

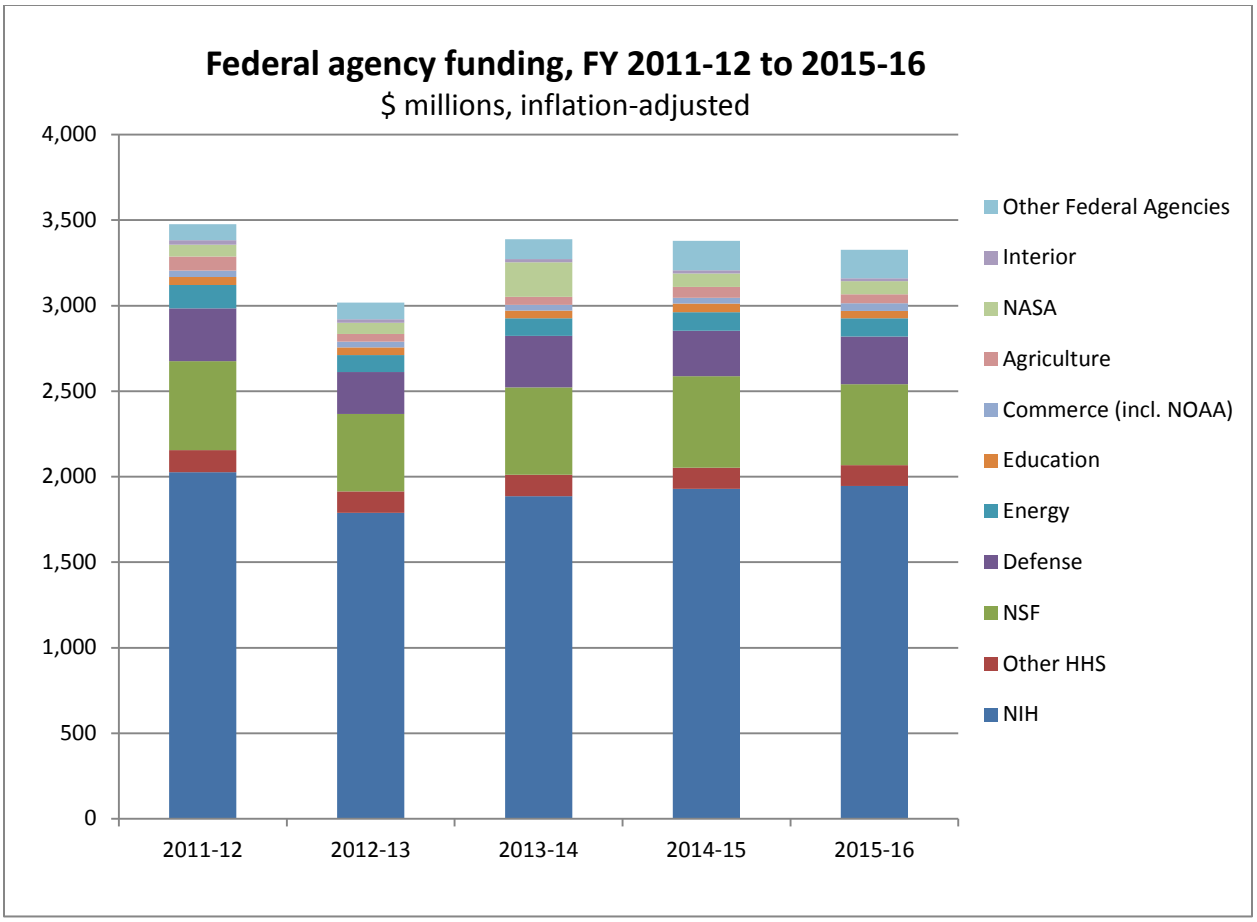
Federal funding has been at about the same level for the past three years, even after some small inflationary adjustments. This level remains well below the inflation-adjusted federal totals for 2010-11 and 2011-12, when Recovery Act funds were available, and is just about on a par with funding in the years prior to the recession. Without the Recovery Act, federal funding for UC would have been essentially flat for the past decade. Recent federal funding trends for specific agencies helps to pinpoint the major areas of change as funding went from the heights of the Recovery Act (2011-12) to the lows of the sequester (2012-13), and onward to three relatively stable years.

Recent funding from federal agencies, FY 2012-13 to 2016-16

$ millions, inflation-adjusted

AGENCY	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*change from 2014-15*
NIH	2,026	1,788	1,887	1,929	1,946	0.9%
Other HHS	130	127	125	123	122	-1.1%
NSF	520	452	511	536	472	-11.9%
Defense	308	245	300	265	279	5.1%
Energy	136	99	102	108	108	0.0%
Education	48	46	46	50	41	-17.6%
Commerce (incl. NOAA)	38	33	33	35	46	31.9%
Agriculture	82	44	47	64	52	-18.6%
NASA	70	67	201	78	77	-0.7%
Interior	25	20	20	20	18	-9.4%
Other Agencies	94	97	115	172	165	-3.9%
TOTAL	***3,477***	***3,018***	***3,388***	***3,380***	***3,326***	***-1.6%***

A single award of $132 million from the NASA Goddard Space Center to UC Berkeley as prime contractor in a multi-site ionospheric research project is responsible for the dramatic spike in 2013-14 NASA funding.

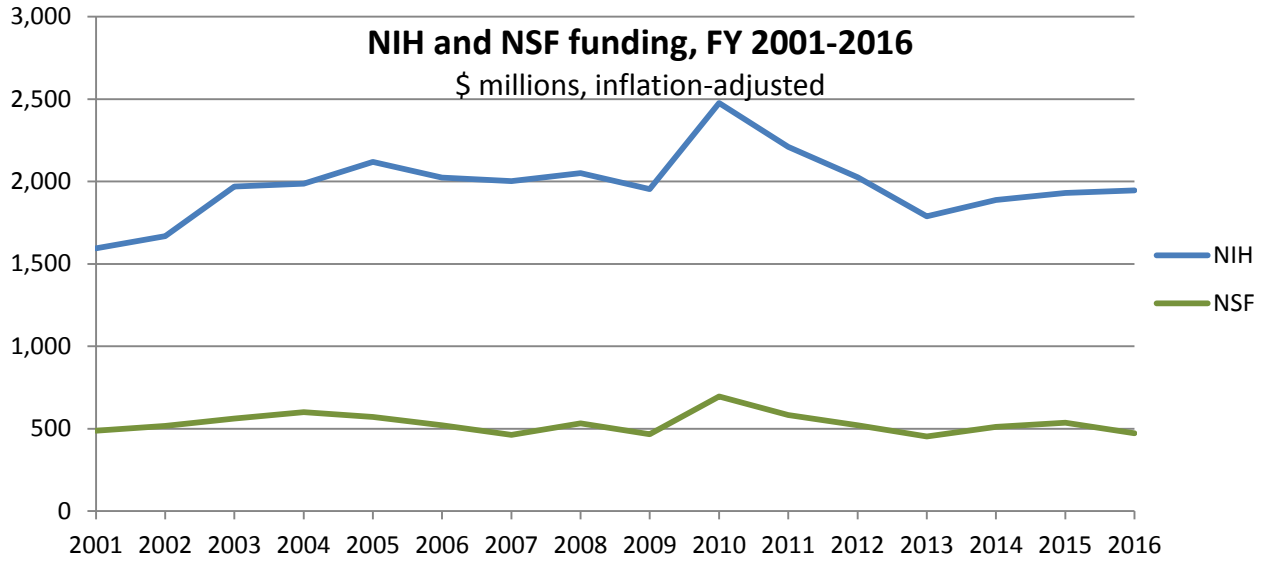


IV. NIH and NSF Funding Trends

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 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 2012-13, which slowed the flow of 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 ARRA 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	1,595	1,668	1,968	1,987	2,119	2,023	2,001	2,050	1,953	2,475	2,210	2,026	1,788	1,887	1,929	1,946
NSF	487	517	561	600	571	520	461	532	465	695	582	520	452	511	536	472

Award totals for the fourth quarter of the federal fiscal year, which ended September 30, may begin to show the impact of the appropriaton increases called for in the Bipartisan Budget Act of 2015.

V. Award Trends by Project Type

Research awards from all sources during Q416 amounted to $1.52 billion, including $124 million in clinical trial sponsorship. Training, service and other awards came to about $319 million. For the year, research awards came to about $4.97 billion, including $513 million in clinical trial awards. The dramatic increase in clinical trial funding since 2013 is due almost entirely to corporate sponsorship. Between 2015 and 2016, the number of new corporate clinical trial awards increased from about 1,050 to 1,200 and the average award went from $270K to over $375K. This trend is likely to parallel the continued growth of the global pharmaceutical industry.

Fiscal year award amounts by project type

$ millions, inflation-adjusted

PROJECT TYPE	2008	2009	2010	2011	2012	2013	2014	2015	2016
Research	4,300	4,134	4,895	4,601	4,521	4,067	4,402	4,434	4,453
Clinical trials	228	184	207	192	236	315	412	328	513
Training	380	352	371	374	331	282	285	288	303
Public service	354	434	372	380	330	413	434	379	440
Other	388	377	380	382	281	353	336	366	309
TOTAL	**5,651**	**5,482**	**6,225**	**5,928**	**5,699**	**5,430**	**5,869**	**5,795**	**6,017**

VI. Significant Awards

During FY 2015-16, UC received some 30,000 contracts and grants from about 3,600 sponsors, plus nearly five thousand 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. It is noteworthy that several of these projects involve a combination of federal and state funding for public service programs managed by UC. For example, the social work training program operated by UC Berkeley receives both state and federal flow-through funds, and involves 22 social welfare schools throughout the state that benefit from this multi-tier project partnership.

LOCATION	SPONSOR CATEGORY	SPONSOR	PROJECT TITLE	AMOUNT
Agriculture & Natural Resources	Federal and State	U.S. Dep't of Agriculture and California Department of Social Services	UC CalFresh Nutrition Education Program	6,275,000
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	36,617,250
Davis	State	California Department of Health	Statewide Communicable Disease Emergency Response Program	48,986,000
Irvine	State	California Energy Commission	California Natural Gas Vehicle Incentive Program	11,192,000
Lawrence Berkeley Lab	Higher Education	Stanford Linear Accelerator Center (SLAC)	HXR Undulators for the linear accelerator	15,811,000
Los Angeles	Non-Profit	Cleveland Clinic Foundation	Effects of dexmedetomidine sedation cardiac surgery	21,876,000
Merced	Federal	U.S. Small Business Administration	UC Merced Small-Business Development Center regional network	1,524,000
Office of the President	Non-Profit	Gordon and Betty Moore Foundation	Construction of the 30-meter telescope in Hawaii	10,000,000
Riverside	Federal	National Institute for Food and Agriculture	Effects off the Huanglongbing HLB-associated pathogen	3,991,000
San Diego	Non-Profit	Simons Foundation	The Simons Observatory	32,591,000
San Francisco	Non-Profit	Parker Foundation	Parker Institute for Cancer Immunotherapy	35,000,000
Santa Barbara	Federal	National Science Foundation	Kavli Institute for Theoretical Physics Program Support	4,615,000
Santa Cruz	Non-Profit	Scripps Research Institute	Investigations in Fisheries Ecology	4,560,000

VII. Award Trends by Recipient Location

Award totals for FY 2015-16 are about 3.8% above last year, after adjusting for inflation.

Awards by location

$ millions, inflation-adjusted

UC LOCATION	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	Change from 2015
Berkeley	757	739	758	702	676	-3.7%
San Francisco	981	1,069	1,327	1,250	1,405	12.4%
Davis	801	786	724	794	760	-4.3%
Los Angeles	1,053	894	981	1,045	1,051	0.6%
Riverside	119	97	114	125	138	10.3%
San Diego	1,078	1,027	1,087	1,023	1,070	4.6%
Santa Cruz	150	138	141	136	124	-9.1%
Santa Barbara	233	173	214	188	184	-2.3%
Irvine	325	313	319	296	395	33.4%
Merced	18	18	31	26	24	-8.7%
UCOP	32	29	13	28	23	-16.6%
LBNL	134	125	135	154	130	-15.3%
Ag & Nat Res	19	21	26	27	37	35.4%
TOTAL	***5,699***	***5,430***	***5,869***	***5,795***	***6,017***	***3.8%***

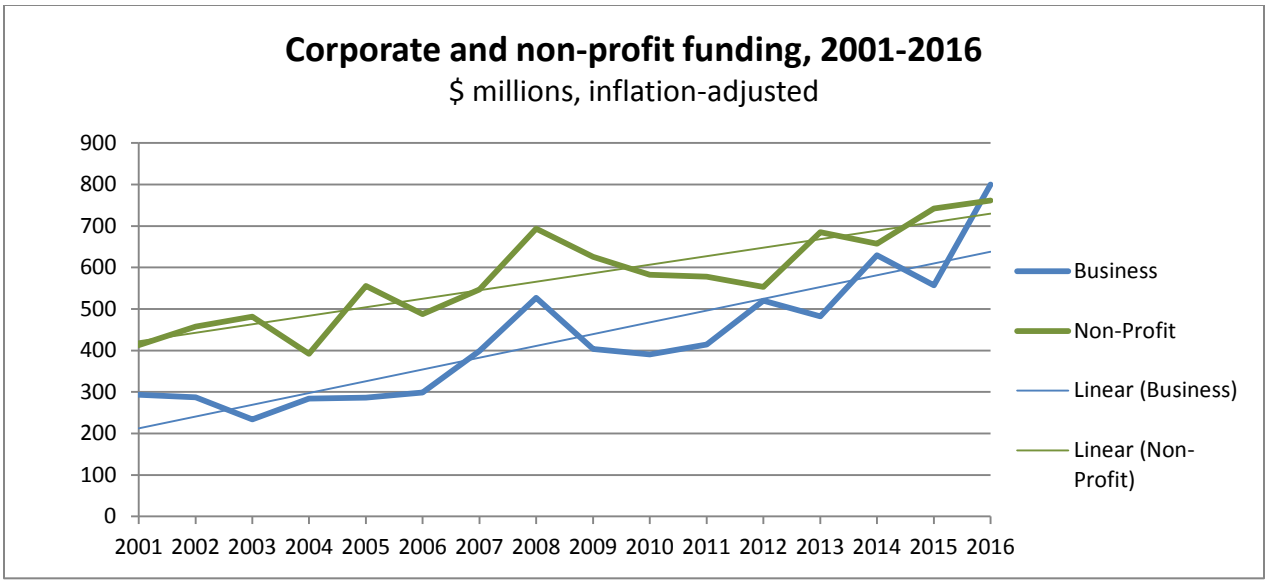
Most locations show slight declines or only modest gains compared to last year. The notable exception is UCSF, with about $150 million more in awards this year, primarily due to higher levels of corporate sponsorship for clinical trial research. Much of the recent growth in award funding over the past several years is due to the increase in corporate support for clinical trials, as well as increased non-profit sponsorship.

VIII. Private Funding Increases

Federal agency support remains the dominant source of extramural funding, but it has remained essentially flat for the last decade. Meanwhile, private sources of funding have been steadily increasing in both dollar amount and relative importance. In 2015-16, industry and the non-profit sector provided about $1.56 billion. This represents 26% of the award total, up significantly from the previous two years, and much of this increase represents corporate clinical trials.

Funding Sources, % of Total

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Federal	64.6%	62.1%	58.8%	60.5%	65.7%	64.6%	61.0%	55.6%	57.7%	58.3%	55.3%
State	9.1%	7.4%	8.6%	9.1%	7.7%	7.9%	8.0%	10.1%	7.7%	7.2%	7.4%
Other gov't	2.4%	3.6%	2.6%	2.9%	2.8%	1.9%	2.4%	2.8%	3.3%	2.8%	2.6%
Business	5.9%	7.7%	9.3%	7.4%	6.3%	7.0%	9.1%	8.9%	10.7%	9.6%	13.3%
Non-profit	9.7%	10.6%	12.3%	11.4%	9.3%	9.8%	9.7%	12.6%	11.2%	12.8%	12.7%
Academia	8.3%	8.7%	8.5%	8.7%	8.2%	8.9%	9.7%	10.0%	9.4%	9.2%	8.8%



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 awards. The sharp increase in 2015-16 is also due to an increase in clinical trial sponsorship, but the growth is more broadly distributed across many projects. 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.

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 the Bipartisan Budget Act of 2013, which ended some of the sequestration cuts that had reduced federal awards, and the 2015 budget, which calls for increased agency appropriations for academic R&D. Overall, agency funding could increase by up to 4.7%, and as much as 6.6% for the National Institutes of Health, UC's largest single source of funding for research and related projects. However, the current budget agreement also extends the sequester's spending cuts through 2025 — four years past the original ten-year term of the 2011 Budget Control Act. This means the cuts to agency appropriations could return in two years' time, unless yet another legislative hiatus is put in place.

The partnership between the federal government and the nation's research universities has long been a key component in driving the nation's innovation economy. The federal budget process, however, introduces considerable long-term uncertainty. State and private sources can take up some of the funding slack, but their project emphasis is quite different. Federal funds are directed primarily towards basic, fundamental research, while state and private funding emphasizes applied and developmental research, as well as the management and delivery of health care and social services. In the long run, the innovation pipeline for new technologies and treatments will continue to depend on federal research sponsorship.

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