

Contracts & Grants Q215 Award Report

Extramural funding and the UC research workforce

Summary

UC's award funding for the second quarter of FY 2014-2015 amounted to \$1.05 billion, bringing the year-to-date total to about \$2.94 billion—very nearly the same amount as last year at this time. However, even though the totals for the two years are almost identical, the individual quarterly comparisons are quite different. While Q215 awards are about \$144 million (12%) below Q2 last year, Q115 awards are \$130 million higher.

One reason for the quarterly differences is that federal agency award cycles and reporting patterns have been very variable. Many awards from the National Institutes of Health were reported during Q2 last year, rather than Q1, because of procedural changes at the agency that delayed the release of funds. A second reason for the high award total during Q214 is that UC San Diego received and reported two major research contracts from pharmaceutical companies, totaling nearly \$111 million, for Alzheimer's disease studies.

Even though the year-to-date award total for 2014-15 matches last year's amount, it is still uncertain whether this year's awards will equal the record \$5.7 billion UC received during 2013-14. Federal R&D appropriations to UC's two largest external sponsors, the National Institutes of Health and the National Science Foundation, are about the same as last year, but the possibility of another budget sequester in 2016 could affect how these agencies manage their existing funds.

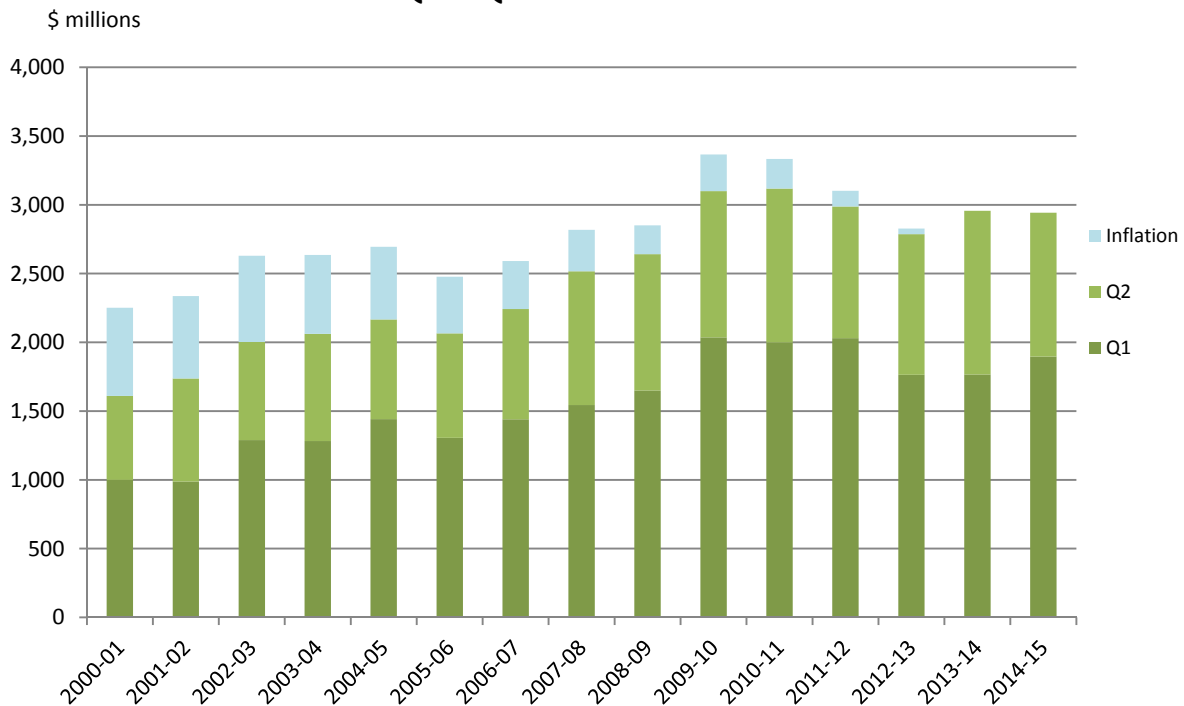
Key findings for Q215 and the year to date are as follows:

- Federal funding for the fiscal year to date, for awards of all types, totals \$1.7 billion, essentially the same as last year at this point.
- Corporate funding for the fiscal year to date totals about \$275 million. This is some \$42 million below last year's total at this point, a difference mainly attributable to the large Alzheimer's research awards to UC San Diego.
- Several years of declining research award totals have had a significant impact on UC's research workforce. Personnel data show a decline from about 29,600 FTE in 2010-11, when federal stimulus funds were available to boost research activity, down to about 27,300 in 2013-14, a difference of about 7.6%.
- Even though the research workforce declined in 2013-14, research awards increased that year. The impact of new awards on the workforce is gradual, so if research funding continues at last year's level, the UC research workforce is likely to stabilize and may show modest growth over the next several years.

I. Quarterly Performance Metrics

Extramural awards for Q215 totaled about \$1.05 billion, \$144 million (12.1%) below the amount reported for Q214 last year. Awards for the first quarter of 2014-15, however, were \$130 million above Q114 last year, so the year-to-date totals are only \$14 million, or 0.5%, apart. These quarterly differences are due in part to variations in funding and reporting patterns for National Institutes of Health awards, and partly to UC San Diego's Alzheimer's research awards.

Q1 + Q2 Extramural Awards



Quarterly Extramural Awards \$ millions, inflation-adjusted

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Q1	1,396	1,328	1,693	1,639	1,794	1,565	1,665	1,729	1,782	2,212	2,137	2,107	1,789	1,766	1,896
Q2	855	1,009	936	997	901	912	927	1,089	1,069	1,154	1,198	995	1,038	1,191	1,047
YTD	2,251	2,337	2,629	2,636	2,695	2,477	2,591	2,818	2,851	3,367	3,334	3,102	2,827	2,957	2,943
Q3	874	991	845	1,029	1,006	969	955	1,116	987	1,194	1,015	1,020	1,060	1,068	
Q4	1,049	1,202	1,315	1,222	1,464	1,467	1,504	1,561	1,493	1,493	1,416	1,421	1,393	1,683	
FY	4,173	4,529	4,789	4,888	5,164	4,912	5,050	5,495	5,331	6,054	5,765	5,542	5,280	5,708	

Award totals for UC's second fiscal quarter 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 direct federal sponsorship providing about two-thirds of all UC's awards, this produces sharp quarterly spikes in funding.

II. Award Trends by Sponsor Category

While the award total of \$1.05 billion for Q215 is significantly below the Q214 total of nearly \$1.2 billion, several unusual circumstances increased the Q2 award total last year. As the table below indicates, business sponsorship increased dramatically during Q214, largely due to two awards totaling about \$111 million from pharmaceutical companies to UC San Diego, for Alzheimer's clinical trial research. Q214 also saw a spike in the reporting of federal funding, which is at least partly a reporting artifact; procedural changes at the National Institutes of Health delayed the release of some funds, which campuses then reported during Q2 rather than Q1 last year.

Q2 Awards by Sponsor Category, FY 2004-05 to 2014-15
(\$ millions, inflation-adjusted)

SPONSOR	Q205	Q206	Q207	Q208	Q209	Q210	Q211	Q212	Q213	Q214	Q215
<i>Federal</i>	546	531	478	515	526	597	578	369	464	559	459
<i>State</i>	49	80	103	110	101	104	148	100	104	57	44
<i>Other Gov't*</i>	20	15	28	19	26	27	24	57	33	23	26
<i>Corporate</i>	66	65	88	162	106	77	101	124	113	224	141
<i>Non-Profit</i>	110	122	116	170	180	203	176	186	166	192	214
<i>Academia**</i>	110	98	113	112	129	147	171	159	159	135	163
TOTAL	901	912	927	1,089	1,069	1,154	1,198	995	1,038	1,191	1,047

* *Other Gov't includes Agricultural Market Order Boards.*

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

Fiscal-year-to-date comparisons provide a better sense of funding prospects for the year than just the second quarter, which, as the first quarter of the federal fiscal year, can be skewed by federal budget issues. 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 over three years.

Q1- Q2 Awards by Sponsor Category, FY 2005-06 to 2014-15
(\$ millions, inflation-adjusted)

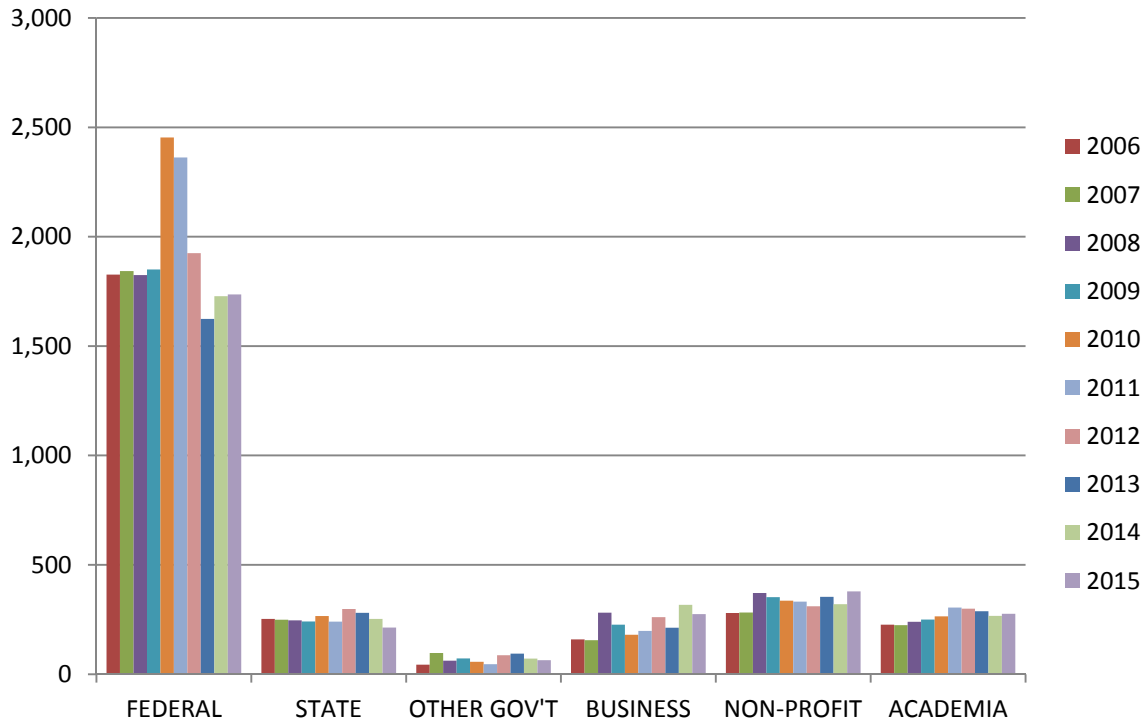
SPONSOR	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>Federal</i>	1,827	1,843	1,825	1,850	2,454	2,362	1,925	1,624	1,728	1,736
<i>State</i>	253	249	246	241	266	240	298	281	253	213
<i>Other Gov't*</i>	44	97	62	72	57	46	87	94	72	64
<i>Corporate</i>	159	155	281	227	181	198	261	213	317	275
<i>Non-Profit</i>	280	282	371	352	336	332	311	354	320	379
<i>Academia**</i>	226	224	240	250	265	305	300	288	267	276
TOTAL	2,789	2,850	3,024	2,992	3,557	3,482	3,181	2,853	2,957	2,943

* *Other Gov't includes Agricultural Market Order Boards.*

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

Q1+Q2 Awards by Sponsor Category, FY 2006 - 2015

\$ millions, inflation-adjusted



III. Award Trends by Project Type

Research awards during Q215 amounted to \$824 million, including \$73 million in clinical trial sponsorship. Training, service, and other awards came to about \$223 million. Research awards during Q214, by comparison, amounted to \$952 million, which included \$111 million to UC San Diego from corporate sponsors for Alzheimer's clinical trial research.

Q2 Award Amounts by Project Type, FY 2006-2014

\$ millions, inflation-adjusted

PROJECT TYPE	Q206	Q207	Q208	Q209	Q210	Q211	Q212	Q213	Q214	Q215
Research	735	642	773	782	922	870	709	758	773	751
Clinical Trials	32	41	74	42	42	43	57	68	179	73
Training	55	56	59	50	52	51	41	48	60	42
Service	43	110	71	101	84	108	94	90	97	58
Other	47	78	111	95	55	126	93	73	81	124
TOTAL	912	927	1,089	1,069	1,154	1,198	995	1,038	1,191	1,047

IV. Significant Awards by Location

During Q215, UC received about 4,500 contracts and grants from over 1,400 different sponsors (in addition to 1,200 Material Transfer Agreements). Listed below are the largest 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	Local Government	Santa Clara County	Santa Clara County Home Composting Education Program	237,500
Berkeley	Non-Profit	Berkeley Education Alliance for Research in Singapore	The Singapore-Berkeley Institute for Sustainable Energy (SINBERISE)	6,021,420
Davis	Non-Profit	Gordon and Betty Moore Foundation	Final Implementation And Sustainability Grant for the Betty Irene Moore School of Nursing	49,472,266
Irvine	Federal	National Cancer Institute	Mechano-Sensing Stem Cells to Study, Detect and Treat Cancer Metastases	2,317,500
Lawrence Berkeley Lab	State	California Energy Commission	Optimized Electric Vehicle Fleet Management and Grid Transaction at Mountain View Army Reserve Base	2,300,000
Los Angeles	Federal	National Cancer Institute	AIDS Malignancy Clinical Trials Consortium (AMC)	6,300,000
Merced	Federal	Defense Threat Reduction Agency	Quantum-Enriched Motion Sensing Using Entangled Spins in Quantum Dots	1,048,897
Office of the President	State	California Department of Education Curriculum and Instruction	California Subject Matter Projects (No Child Left Behind) Technical Assistance & Support Program	3,210,300
Riverside	Corporate	Syngenta, AG	Discovery and Optimization of ABA Receptor Ligands for Stress Mitigation	889,592
San Diego	Federal	National Institute of Allergy and Infectious Diseases	Innate Immune Receptors and Adjuvant Discovery	7,925,626
San Francisco	Federal	NIH National Center for Advancing Translational Sciences	Clinical and Translational Science Institute	19,370,123
Santa Barbara	Federal	National Institute Of Diabetes, Digestive & Kidney Diseases	Pediatric Artificial Pancreas for Enhanced Diabetes Management in Young Children	1,821,639
Santa Cruz	Federal	National Cancer Institute	Center for Big Data in Translational Genomics	1,996,651

V. Award Trends by Recipient Location

Award totals for the first two quarters of FY 2014-15 were virtually the same as last year, despite significant quarter-over-quarter variations. This increase was not evenly divided across reporting locations. The most notable decrease was at San Diego, once again reflecting the large influx of Alzhemier's clinical trial research awards during Q214.

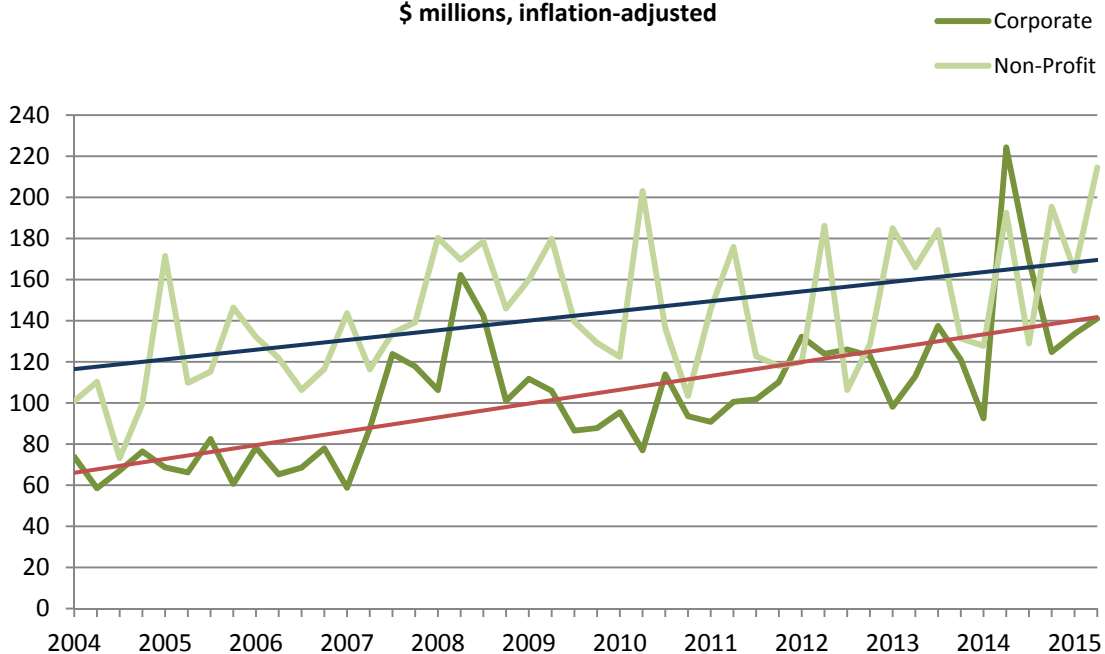
Q1+Q2 Award Amounts by Location \$ millions, inflation-adjusted

UC Location	FYTD 2013	FYTD 2014	FYTD 2015	2015-14 Change
Berkeley	450	375	417	11.4%
San Francisco	670	772	714	-7.5%
Davis	398	359	406	13.3%
Los Angeles	382	413	483	17.1%
Riverside	55	54	60	10.8%
San Diego	461	543	457	-15.9%
Santa Cruz	73	72	72	0.1%
Santa Barbara	87	110	85	-22.5%
Irvine	143	155	152	-1.8%
Merced	12	20	14	-31.2%
UCOP	25	12	6	-52.6%
LBNL	61	65	68	4.6%
Ag & Nat Res	9	9	9	5.8%
Total	2,827	2,957	2,943	-0.5%

VI. Private Funding

Awards from both corporate and non-profit sponsors display much variation, quarter by quarter, but both categories show long-term increases. Several of the specific projects contributing to the Q215 totals are noted above, in the list of major awards.

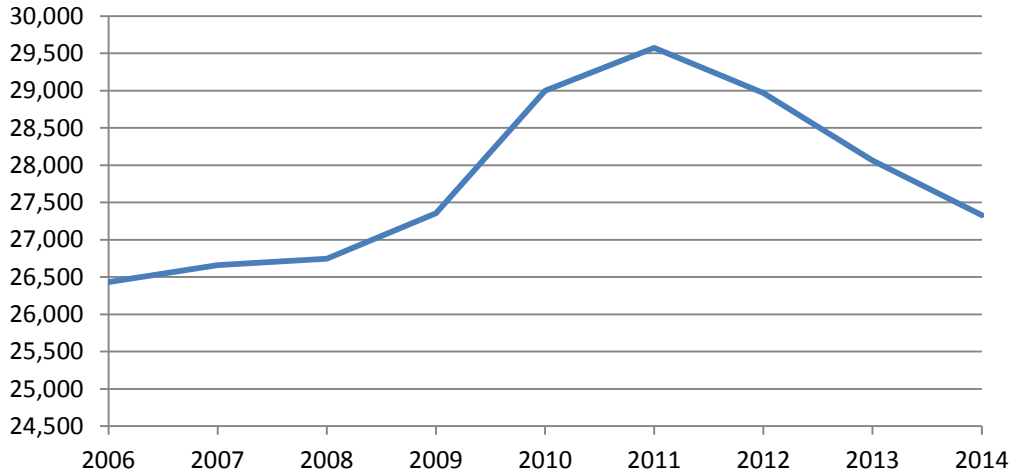
Corporate and Non-Profit Sponsorship, Q104 - Q215 \$ millions, inflation-adjusted



VI. Workforce Implications

With a federal budget in place, federal funding for 2014-15 should approximate the \$3.3 billion received from federal agencies last year. The private funding prospect also appears positive, despite a good deal of quarterly variability. These award trends suggest there may soon be a shift in the size of the UC research workforce.

UC Research Workforce, FTE

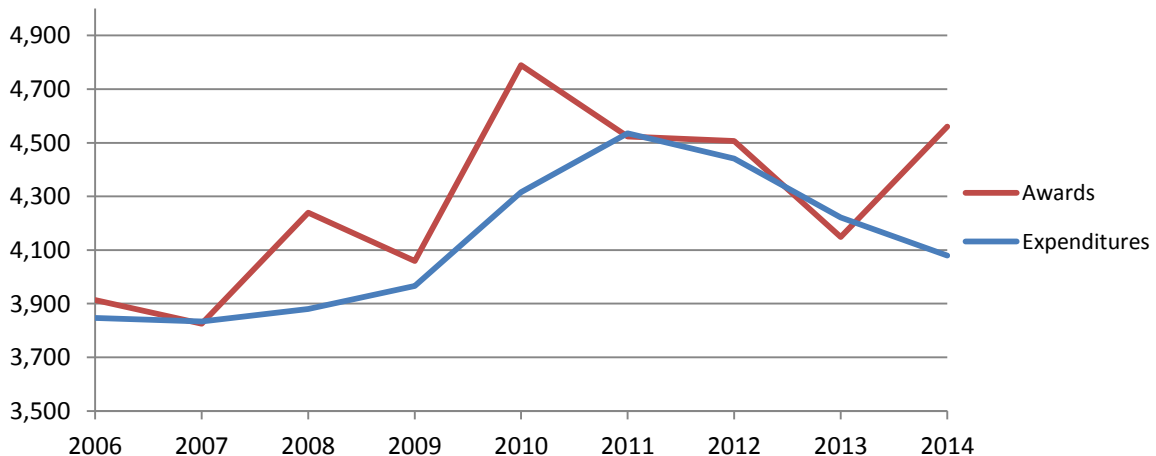


The past few years have seen a 7.6% decline in the research workforce, from a peak of 29,600 full-time equivalent personnel in 2011, when Recovery Act funding expanded the research enterprise, down to about 27,300 in FY 2013-14. This boom-and-bust cycle has had a detrimental effect on research productivity, graduate student training and professional development of research scientists in many disciplines.

However, FY 2013-14 and the first two quarters of this year have seen an increase in research award funding from all sources, and as the graph below demonstrates, research awards are a leading indicator of research expenditures—most of which pays for personnel.

Research Awards and Expenditures

\$ millions, inflation-adjusted



(Note that awards to the DOE national laboratories are not included here because their expenditures are not tracked in the UC corporate financial system. Also, only research expenditures attributable to research awards from extramural sponsors are included in expenditure totals.)

The match between research awards and research expenditures is not precise, partly because some externally sponsored projects that campus locations code as “research awards” are categorized as “instructional expenditures” when the funds are spent. Nonetheless, it is evident that increases in award amounts result in increased research expenditures over the subsequent several years.

These two graphs also show the close match between research expenditures and the size of the UC research workforce. The good news is that after a three-year decline, research awards have been increasing significantly since FY 2013-14. This is a strong signal that for the next year or two, UC may experience stability and even modest growth in the research enterprise.

*Charles Drucker
Institutional Research
April, 2015*