2012 Taulbee Survey
Strong Increases in Undergraduate CS Enrollment and Degree Production; Record Degree Production at Doctoral Level

By Stuart Zweben and Betsy Bizot

The *CRA Taulbee Survey*[1] is conducted annually by the Computing Research Association to document trends in student enrollment, degree production, employment of graduates, and faculty salaries in academic units in the United States and Canada that grant the Ph.D. in computer science (CS), computer engineering (CE) or information (I)[2]. Most of these academic units are departments, but some are colleges or schools of information or computing. In this report, we will use the term "department" to refer to the unit offering the program. This article and the accompanying figures and tables present the results from the 42nd annual *CRA Taulbee Survey*.

Information is gathered during the fall. Responses received by January 7, 2013 are included in the analysis. The period covered by the data varies from table to table. Degree production and enrollment (Ph.D., Master's, and Bachelor's) refer to the previous academic year (2011-12). Data for new students in all categories refer to the current academic year (2012-13). Projected student production and information on faculty salaries are also for the current academic year; salaries are those effective January 1, 2013.

We surveyed a total of 277 Ph.D.-granting departments; 193 completed the online survey form, for a response rate of 70 percent. This is slightly higher than last year's 69 percent. The response rate from the U.S. CS departments was 80 percent this year, compared with 77 percent last year. The response rates from CE, I and Canadian departments continue to be rather low. Figure 1 shows the history of response

Figure 1. Number of Respondents to the Taulbee Survey

Year	US CS Depts.	US CE Depts.	Canadian	US Information	Total
1995	110/133 (83%)	9/13 (69%)	11/16 (69%)		130/162 (80%)
1996	98/131 (75%)	8/13 (62%)	9/16 (56%)		115/160 (72%)
1997	111/133 (83%)	6/13 (46%)	13/17 (76%)		130/163 (80%)
1998	122/145 (84%)	7/19 (37%)	12/18 (67%)		141/182 (77%)
1999	132/156 (85%)	5/24 (21%)	19/23 (83%)		156/203 (77%)
2000	148/163 (91%)	6/28 (21%)	19/23 (83%)		173/214 (81%)
2001	142/164 (87%)	8/28 (29%)	23/23 (100%)		173/215 (80%)
2002	150/170 (88%)	10/28 (36%)	22/27 (82%)		182/225 (80%)
2003	148/170 (87%)	6/28 (21%)	19/27 (70%)		173/225 (77%)
2004	158/172 (92%)	10/30 (33%)	21/27 (78%)		189/229 (83%)
2005	156/174 (90%)	10/31 (32%)	22/27 (81%)		188/232 (81%)
2006	156/175 (89%)	12/33 (36%)	20/28 (71%)		188/235 (80%)
2007	155/176 (88%)	10/30 (33%)	21/28 (75%)		186/234 (79%)
2008	151/181 (83%)	12/32 (38%)	20/30 (67%)	9/19 (47%)	192/264 (73%)
2009	147/184 (80%)	13/31 (42%)	16/30 (53.3%)	12/20 (60%)	188/265 (71%)
2010	150/184 (82%)	12/30 (40%)	18/29 (62%)	15/22 (68%)	195/265 (74%)
2011	142/185 (77%)	13/31 (42%)	13/30 (43%)	16/21 (76%)	184/267 (69%)
2012	152/189 (80%)	11/32 (34%)	14/30 (47%)	16/26 (62%)	193/277 (70%)

rates to the survey. Response rates are inexact because some departments provide only partial data, and some institutions provide a single joint response for multiple departments. Thus, in some tables the number of departments shown as reporting will not equal the overall total number of respondents shown in Figure 1 for that category of department.

To account for the changes in response rate, we will comment not only on aggregate totals but also on averages per department reporting or data from those departments that responded to both this year's and last year's surveys. This will be a more accurate indication of the one-year changes affecting the data.

Departments that responded to the survey were sent preliminary results about faculty salaries in December 2012; these results included additional distributional information not contained in this report. The CRA Board views this as a benefit of participating in the survey.

Degree, enrollment and faculty salary data are stratified according to a) whether the institution is public or private, and b) the tenure-track faculty size of the reporting department. The faculty size strata deliberately overlap, so that data from most departments affect multiple strata. This may be especially useful to departments near the boundary of one stratum. Salary data also is stratified according to the population of the locale in which the institution is located.[3] This allows our readers to see multiple views of important data, and hopefully gain new insights from them. We no longer stratify the data according to any ranking of academic departments. In addition to tabular presentations of data, we will use "box and whisker" diagrams to show medians, quartiles, and the range between the 10th and 90th percentile data points.

We thank all respondents to this year's questionnaire. Departments that participated are listed at the end of this article.

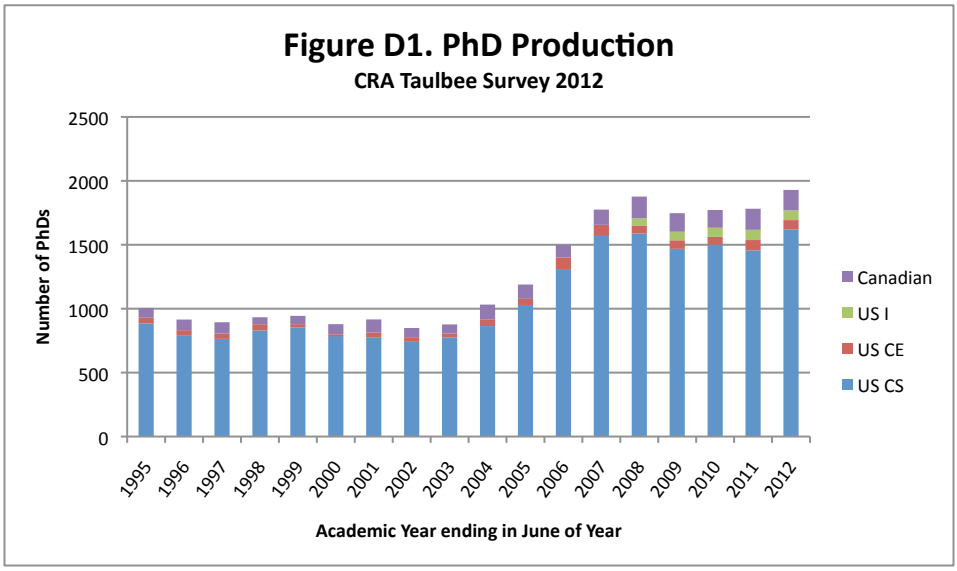
Doctoral Degree Production, Enrollments and Employment

(Tables D1-D8; Figures D1-D6)

Overall reported Ph.D. production in computing programs (Table D1, Figure D1) rose 8.2 percent in 2011-12, with 1,929 degrees granted compared with 1,782 in 2010-11. Among departments reporting both this year and last year,

Table D1. PhD Production and Pipeline by Department Type

Department Type	# Depts	PhDs Awarded		PhDs Next Year		Passed Qualifier		Passed Thesis (if dept has)		
		#	Avg/ Dept	#	Avg/ Dept	#	Avg/ Dept	#	# Dept	Avg/ Dept
US CS Public	109	1,177	10.8	1,326	12.2	1,395	12.8	1,064	87	12.2
US CS Private	42	443	10.5	471	11.2	389	9.3	254	29	8.8
US CS Total	151	1,620	10.7	1,797	11.9	1,784	11.8	1,318	116	11.4
US CE	10	73	7.3	81	8.1	120	12.0	107	7	15.3
US Info	14	76	5.4	66	4.7	92	6.6	59	11	5.4
Canadian	14	160	11.4	163	11.6	142	10.1	155	12	12.9
Grand Total	189	1,929	10.2	2,107	11.1	2,138	11.3	1,639	146	11.2



the number of total doctoral degrees increased 5.2 percent, and the number of doctoral degrees in U.S. CS programs rose 6.8 percent. (See Table 1 on p. 23). The 1,929 doctoral degrees is the highest number ever reported in the Taulbee Survey, surpassing the previous high of 1,877 in 2008. The CS Ph.D. count of 1,606 also is the highest ever reported, besting the 2007 count of 1,599.

The fraction of the 2011-12 computer science graduates who were women (Table D2) declined slightly, to 17.8 percent from 18.4 percent in 2010-11 and 18.8 percent in 2009-10). Also, a smaller fraction of CE graduates were women (13.3 percent vs. 22.1 percent in 2010-11), but a much larger fraction of I graduates were women (44.9 percent vs. 32.5 percent in 2010-11). The annual CE and I department fluctuations are larger due to the comparatively small number of departments reporting in these categories. Once again, a smaller fraction of this past year's graduates were White (33.2 percent vs. 34.3 percent in 2010-11 and 36.7 percent in 2009-10). The fraction of graduates who are non-resident Aliens increased slightly overall, but more significantly within CS programs (from 48.1 percent to 51.3 percent in the latter category).[4]

The number of new students per department passing qualifier exams in U.S. CS departments is similar to that reported last year, while the number who passed thesis candidacy exams (most, but not all, departments have such exams) increased. This suggests that the number of doctoral degrees produced will continue to increase in the near term. In fact, next year the departments predict an increase of more than 11 percent in doctoral degree production, though they consistently have over-predicted the number of Ph.D. graduates in past estimates.

The overall number of new Ph.D. students (Table D5) increased compared with last year (3,064 this year vs. 2,812 last year). However, on a per department basis, this total is similar to that of last year. The number of new students per department in CE and Canadian programs also increased compared with last year's figures, while the number of new students per department in I programs decreased. These comparisons are much more

Table D2. PhDs Awarded by Gender

	CS		CE		I		Total	
Male	1,275	82.2%	163	86.7%	70	55.1%	1,508	80.8%
Female	276	17.8%	25	13.3%	57	44.9%	358	19.2%
Total Known Gender	1,551		188		127		1,866	
Gender Unknown	55		6		2		63	
Grand Total	1,606		194		129		1,929	

Table D3. PhDs Awarded by Ethnicity

	CS		CE		I		Total	
Nonresident Alien	763	51.3%	99	55.3%	32	26.9%	894	50.1%
Amer Indian or Alaska Native	1	0.1%	0	0.0%	1	0.8%	2	0.1%
Asian	168	11.3%	32	17.9%	27	22.7%	227	12.7%
Black or African-American	27	1.8%	1	0.6%	7	5.9%	35	2.0%
Native Hawaiian/Pac Islander	5	0.3%	0	0.0%	0	0.0%	5	0.3%
White	496	33.4%	45	25.1%	51	42.9%	592	33.2%
Multiracial, not Hispanic	5	0.3%	0	0.0%	0	0.0%	5	0.3%
Hispanic, any race	22	1.5%	2	1.1%	1	0.8%	25	1.4%
Total Residency & Ethnicity Known	1,487		179		119		1,785	
Resident, ethnicity unknown	25		1		5		31	
Residency unknown	94		14		5		113	
Grand Total	1,606		194		129		1,929	

volatile than that for CS programs due to the small number of programs reporting in the CE, I and Canadian strata. There was a slight increase in the proportion of new doctoral students from outside North America (Table P5a), from 56.3 percent last year to 57.4 percent this year. CE programs had the largest percentage from outside North America (71.3 percent) while I programs had the smallest (39.8 percent).

Total enrollment in U.S. computer science doctoral programs (Table D1) increased 10 percent compared with last year. Among programs that reported both years, the increase was 6.5 percent. When CE, I and Canadian programs are included, the overall one-year increase in doctoral program enrollment is 6.7 percent, and the increase among programs reporting both years is 4.0 percent. Total CS enrollment by Non-resident Aliens is higher this year (59.6 percent vs 56.1 percent last year), while Non-resident Aliens made up a somewhat smaller fraction of CE and I programs this year. Among all doctoral programs, the proportion of Non-resident Aliens increased from 57.3 percent last year to 59.8 percent this year. This is almost exactly offset by a decrease in the proportion of resident Asians in

Table D4. Employment of New PhD Recipients By Specialty

	Artificial Intelligence	Computer-Supported Cooperative Work	Databases / Information Retrieval	Graphics/Visualization	Hardware/Architecture	Human-Computer Interaction	High-Performance Computing	Informatics: Biomedica/ Other Science	Information Assurance/Security	Information Science	Information Systems	Networks	Operating Systems	Programming Languages/ Compilers	Robotics/Vision	Scientific/ Numerical Computing	Social Computing/ Social Informatics	Software Engineering	Theory and Algorithms	Other	Total	
North American PhD Granting Depts.																						
Tenure-track	3	0	10	3	3	10	1	5	4	13	2	9	6	7	2	0	3	6	6	11	104	6.6%
Researcher	10	0	3	3	0	1	0	9	1	0	2	5	0	2	5	3	0	6	2	14	66	4.2%
Postdoc	29	2	4	15	4	8	6	28	8	7	4	12	6	5	15	4	1	5	19	30	212	13.4%
Teaching Faculty	2	0	2	1	1	3	1	0	1	0	4	4	2	2	3	2	1	6	0	3	38	2.4%
North American, Other Academic																						
Other CS/CE/I Dept.	3	0	0	1	2	4	4	6	1	3	1	0	1	1	3	2	0	5	1	1	39	2.5%
Non-CS/CE/I Dept.																						
North American, Non-Academic																						
Industry	101	3	81	40	64	30	22	26	31	11	18	77	38	37	32	11	8	95	53	102	880	55.5%
Government	6	1	4	8	0	1	5	5	7	1	0	3	3	0	1	3	0	3	0	5	56	3.5%
Self-Employed	3	0	0	1	0	1	0	0	2	1	0	1	1	0	1	0	0	3	0	7	21	1.3%
Unemployed	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	6	0.4%
Other	1	0	0	2	0	1	0	4	0	4	0	0	0	0	2	0	0	1	0	6	21	1.3%
Total Inside North America																						
	159	6	105	74	74	60	39	83	55	40	31	111	57	55	64	26	13	130	81	180	1443	90.9%

Table D4. Employment of New PhD Recipients By Specialty (Continued)

	Artificial Intelligence	Computer-Supported Cooperative Work	Databases / Information Retrieval	Graphics/Visualization	Hardware/Architecture	Human-Computer Interaction	High-Performance Computing	Informatics: Biomedica/ Other Science	Information Assurance/Security	Information Science	Information Systems	Networks	Operating Systems	Programming Languages/ Compilers	Robotics/Vision	Scientific/ Numerical Computing	Social Computing/ Social Informatics	Software Engineering	Theory and Algorithms	Other	Total	
Outside North America																						
Ten-Track in PhD	3	0	5	1	2	4	2	2	1	3	0	2	1	0	0	0	0	0	1	4	31	2.0%
Researcher in PhD	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1	4	0.3%
Postdoc in PhD	10	0	0	0	0	1	0	1	1	0	1	2	0	1	3	0	0	0	7	3	30	1.9%
Teaching in PhD	2	1	0	0	0	0	0	0	1	0	0	2	0	1	0	0	1	0	1	1	10	0.6%
Other Academic	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	2	10	0.6%
Industry	9	0	1	5	1	2	1	0	4	1	4	4	2	1	1	1	0	4	3	3	47	3.0%
Government	1	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	5	0.3%
Other	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	1	1	0	1	7	0.4%
Total Outside NA	26	1	6	7	6	9	4	5	8	5	5	13	4	4	4	2	2	6	12	15	144	9.1%
Total with Employment Data, Inside North America plus Outside North America																						
	185	7	111	81	80	69	43	88	63	45	36	124	61	59	68	28	15	136	93	195	1587	
Employment Type & Location Unknown																						
	18	1	11	18	10	11	6	9	6	12	13	23	5	5	10	4	5	13	23	139	342	
Grand Total	203	8	122	99	90	80	49	97	69	57	49	147	66	64	78	32	20	149	116	334	1,929	

Table D5. New PhD Students by Department Type

	CS				CE				I				Total	
Department Type	New Admit	MS to PhD	Total	Avg. per Dept.	New Admit	MS to PhD	Total	Avg. per Dept.	New Admit	MS to PhD	Total	Avg. per Dept.	Total	Avg. per Dept
US CS Public	1,474	152	1,626	14.9	250	11	261	2.4	71	0	71	0.7	1,958	18.0
US CS Private	687	39	726	17.3	8	0	8	0.2	9	1	10	0.2	744	17.7
US CS Total	2,161	191	2,352	15.6	258	11	269	1.8	80	1	81	0.5	2,702	17.9
US CE	0	0	0	0.0	65	8	73	7.3	6	1	7	0.7	80	8.0
US Information	0	0	0	0.0	0	0	0	0.0	86	12	98	7.0	98	7.0
Canadian	149	12	161	11.5	23	0	23	1.6	0	0	0	0.0	184	13.1
Grand Total	2,310	203	2,513	14.1	346	19	365	2.1	172	14	186	1.0	3,064	17.2

Table D5a. New PhD Students from Outside North America

Department Type	CS	CE	I	Total New Outside	Total New	% outside North America
US CS Public	928	205	22	1,155	1,958	59.0%
US CS Private	391	8	4	403	744	54.2%
Total US CS	1,319	213	26	1,558	2,702	57.7%
US CE	0	54	3	57	80	71.3%
US Info	0	0	39	39	98	39.8%
Canadian	98	7	0	105	184	57.1%
Grand Total	1,417	274	68	1,759	3,064	57.4%

Table D6. PhD Enrollment by Department Type

Department Type	# Depts	CS		CE		I		Total	
US CS Public	109	9,122	69.6%	781	47.6%	333	37.0%	10,236	65.4%
US CS Private	42	2,911	22.2%	65	4.0%	23	2.6%	2,999	19.2%
Total US CS	151	12,033	91.8%	846	51.6%	356	39.6%	13,235	84.6%
US CE	10	0	0.0%	691	42.1%	0	0.0%	691	4.4%
US Info	14	0	0.0%	0	0.0%	544	60.4%	544	3.5%
Canadian	14	1,074	8.2%	104	6.3%	0	0.0%	1,178	7.5%
Grand Total	189	13,107		1,641		900		15,648	

Table D7. PhD Enrollment by Gender

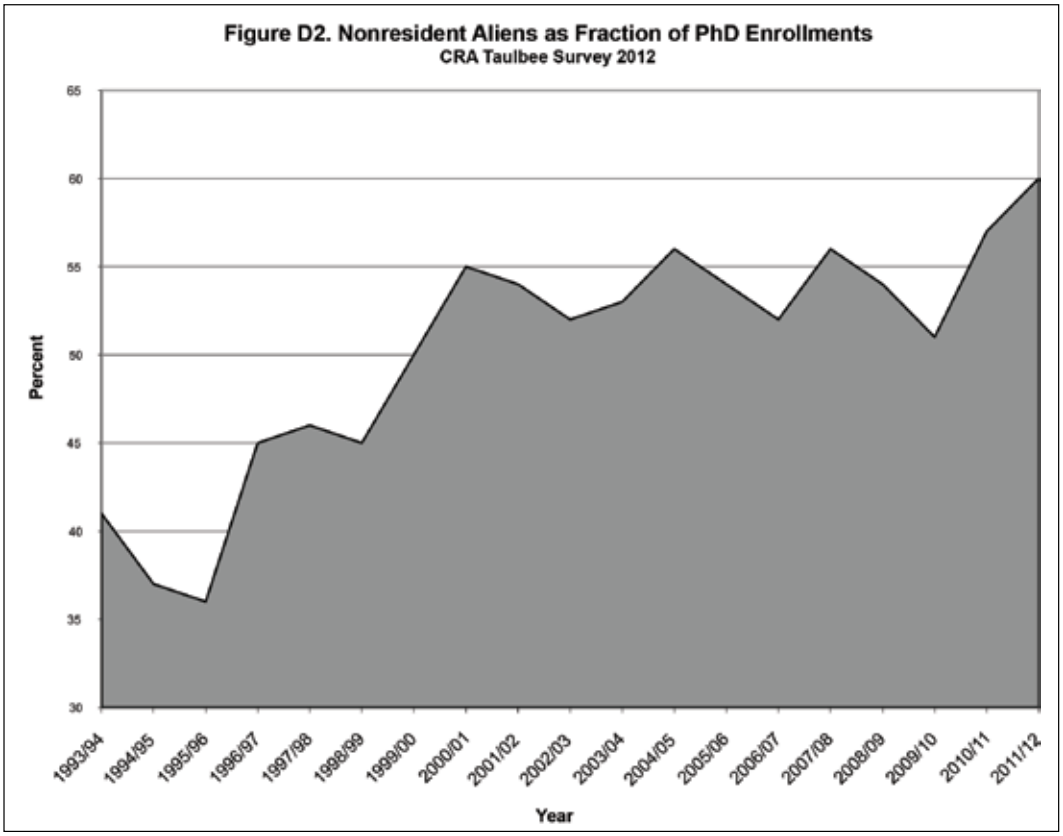
	CS		CE		I		Total	
Male	10,677	81.5%	1,386	84.6%	525	58.7%	12,588	80.5%
Female	2,428	18.5%	253	15.4%	370	41.3%	3,051	19.5%
Total Known Gender	13,105		1,639		895		15,639	
Gender Unknown	2		2		5		9	
Grand Total	13,107		1,641		900		15,648	

doctoral programs. Since most Non-resident Alien graduate students come from Asia, these changes may be due to a shift in the way some programs categorized such students. (Table D8 and Figure D2).

Again this past year, approximately 73 percent of the doctoral degrees at U.S. CS departments were granted by public universities, though the average per department is similar at public and private universities. Compared with last year, a similar fraction of new doctoral students (72 percent) are at public universities, and a similar fraction of new doctoral students from outside North America (approximately 74 percent) are at the public universities. As was the case last year, at public universities there are more doctoral students per

Table D8. PhD Enrollment by Ethnicity

	CS		CE		I		Total	
Nonresident Alien	6,963	59.6%	1,097	72.8%	343	39.9%	8,403	59.8%
Amer Indian or Alaska Native	19	0.2%	1	0.1%	4	0.5%	24	0.2%
Asian	659	5.6%	57	3.8%	87	10.1%	803	5.7%
Black or African-American	181	1.5%	25	1.7%	36	4.2%	242	1.7%
Native Hawaiian/Pac Islander	6	0.1%	19	1.3%	3	0.3%	28	0.2%
White	3,637	31.1%	281	18.7%	343	39.9%	4,261	30.3%
Multiracial, not Hispanic	35	0.3%	3	0.2%	26	3.0%	64	0.5%
Hispanic, any race	191	1.6%	23	1.5%	17	2.0%	231	1.6%
Total Known	11,691		1,506		859		14,056	
Resident, ethnicity unknown	335		131		19		485	
Residency unknown	1081		4		22		1,107	
Grand Total	13,107		1,641		900		15,648	



tenure-track faculty member and more degrees are given per tenure-track faculty member in larger departments, while at private universities there is less variability as department size increases (Figures D3 and D4).

Figure D5 shows a graphical view of the Ph.D. pipeline for computer science programs. The data in this graph are normalized by the number of departments reporting. The graph offsets the qualifier data by two years from the data for new students, and offsets the graduation data by five years from the data for new students. These data have been useful in estimating the timing of changes in production rates. The qualifier data offset changed from previous graphs, which only offset new student data by one year, to more accurately reflect the fact that the qualifier data are for students passing in the previous academic year, while the new student data are data reflecting the current academic year. The new offset's consistency with new student data and subsequent graduation is improved as a result.

Figure D3. PhD Degrees Granted by Tenure-Track Size
CRA Taulbee Survey 2012

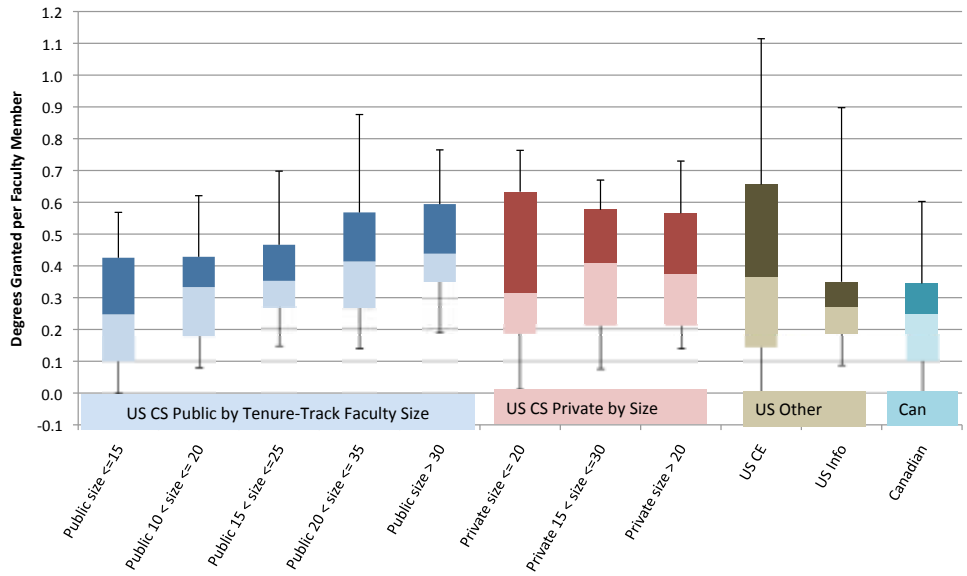
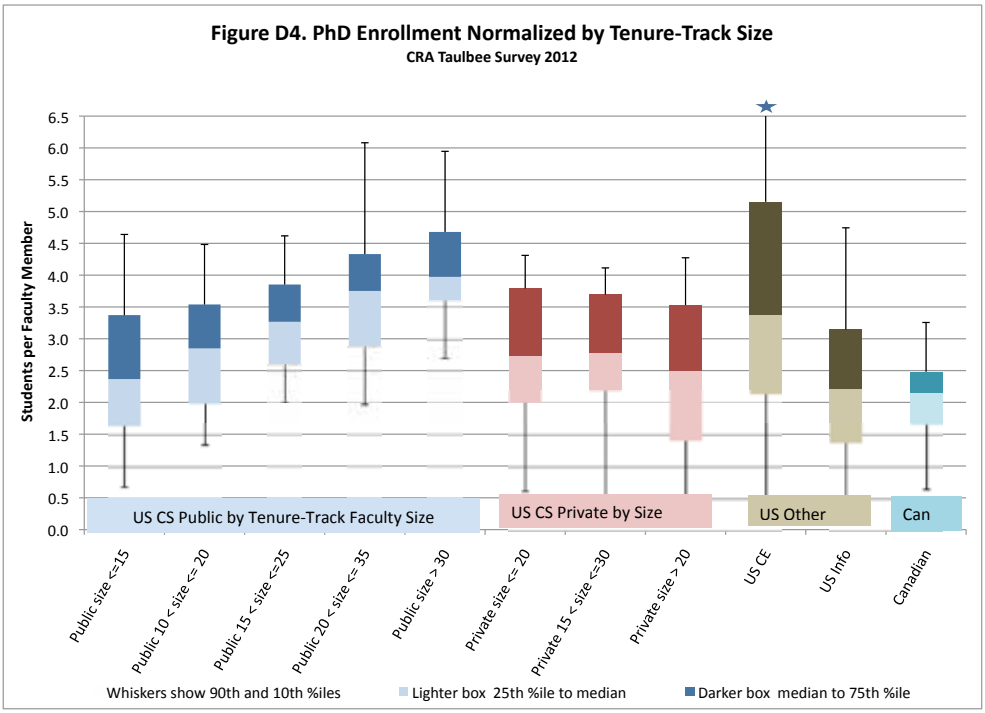


Figure D4. PhD Enrollment Normalized by Tenure-Track Size
CRA Taulbee Survey 2012

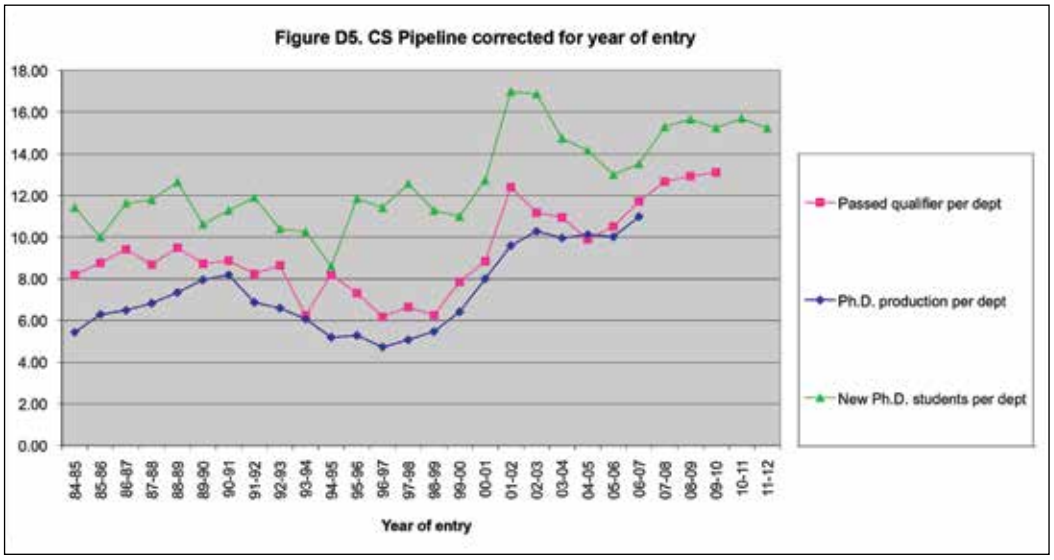


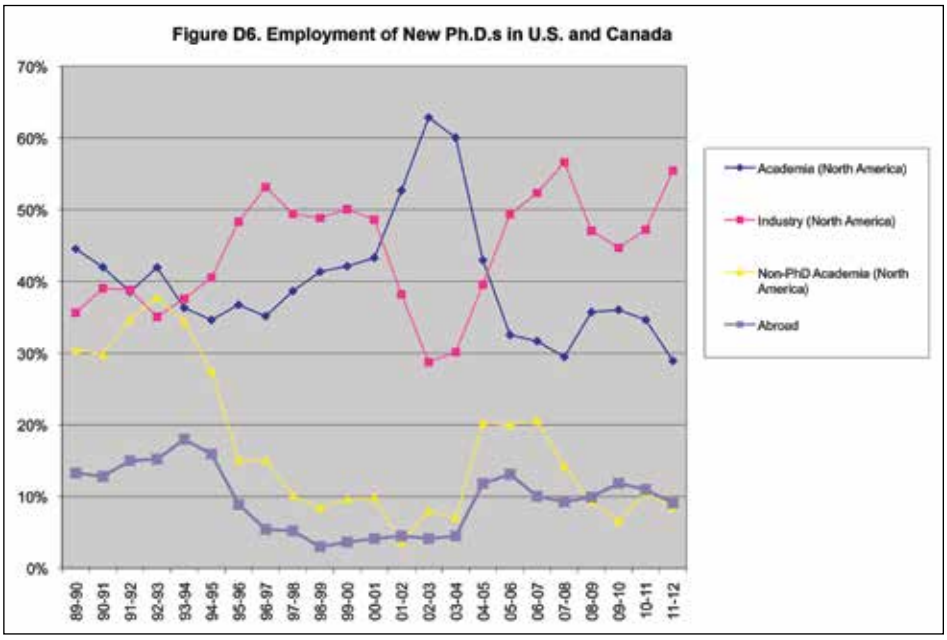
★ Outlier: Value outside chart range

Figure D6 shows the employment trend of new Ph.D.s in academia and industry, those taking employment outside of North America, and those going to academia who took positions in departments other than Ph.D.-granting CS/CE departments. Table D4 shows a more detailed breakdown of the employment data for new Ph.D.s. There was a significant increase in the fraction of new Ph.D.s who took positions in North American industry (to 55.5 percent vs. 47.2 percent in 2010-11 and 44.7 percent in 2009-10). The 2011-12 level is close to the historic high of 56.6 percent, set in 2007-08. A smaller fraction (28.9 percent) of 2011-12 graduates took North American academic jobs as compared with 2010-11 graduates (34.6 percent). The fraction taking tenure-track positions in North American doctoral granting institutions dropped again this year, from 7.1 percent for 2010-11 graduates to 6.6 percent for 2011-12 graduates. The fraction taking positions in North American non-Ph.D.-granting departments dropped from 3.6 percent for 2010-11 graduates to 2.5 percent for 2011-12 graduates. This is about the same level as reported for 2009-10 graduates. The fraction taking North American postdoctoral positions declined for the second straight year, to 13.4 percent from 16.8 percent.

The proportion of Ph.D. graduates who were reported taking positions outside of North America, among those whose employment is known, declined to 9.1 percent from 11.0 percent for 2010-11 graduates and 11.8 percent for 2009-10 graduates. About 1/3 of those employed outside of North America went to industry, while just over 20% went to tenure-track academic positions and another 20% went to postdoctoral positions.

The unemployment rate for new Ph.D.s dropped considerably for 2011-12 graduates, to 0.4 percent from 1.6 percent the previous year. The fraction of new Ph.D.s whose employment status





was unknown was 17.7 percent in 2011-12; in 2010-11 it was 19.6 percent. It is possible that the lack of information about the employment of more than one in six graduates skews the real overall percentages for certain employment categories.

Table D4 also indicates the areas of specialty of new Ph.D.s. Artificial intelligence, software engineering, and networking continue to be the most popular areas of specialization for doctoral graduates. Databases, and theory and algorithms were the next most popular areas.

Master's and Bachelor's Degree Production and Enrollments

This section reports data about enrollment and degree production for Master's and Bachelor's programs in the doctoral-granting departments. Although the absolute number of degrees and enrolled students reported herein only reflect departments that offer the doctoral degree, the trends observed in the master's and bachelor's data from these departments tend to strongly reflect trends in the larger population of programs that offer such degrees.

Master's (Tables M1-M6; Figures M1-M2)

Overall Master's degree production in CS increased in 2011-12. The increase was particularly strong among U.S. private institutions, which generated 40 percent of this past year's U.S. CS master's graduates compared with only 1/3 the previous year. The increase in overall CS master's production is surprising given last year's departmental predictions of a decline in production, fewer departments reporting master's data this year than there were last year, and the total enrollment decrease observed last year in master's programs.

The proportion of female graduates among computer science master's recipients decreased from 24.6 percent in 2010-11 to 22.6 percent in 2011-12. However, there was a slightly larger fraction of women among I graduates this past year as compared with the previous year (51.7 percent vs. 47.8 percent). A higher fraction of the master's recipients were Non-resident Aliens this past year, but this was almost exactly offset by a decrease in those reported as resident Asians. Once again, this may be a function of the manner in which certain persons of Asian descent were counted during these two years, rather than reflecting any demographic shift.

The number of new master's students increased among CS programs, both public and private. The total increase in the CS programs is more than 10 percent. A somewhat larger proportion of new CS master's students are from outside of North America this year as compared with last year (62.3 percent vs. 61.1 percent last year), but the difference is entirely due to master's programs at private universities; the fraction of new master's students at U.S. public universities who are from outside North America actually declined slightly. Consistent with this year's increased number of new master's students, departments are predicting an increase in master's degree production for the coming year.

Table M1. Master's Degrees Awarded by Department Type

Department Type	# Depts	CS		CE		I		Total	
US CS Public	107	4,156	55.7%	402	45.8%	544	25.0%	5,102	48.5%
US CS Private	41	2,817	37.8%	75	8.5%	385	17.7%	3,277	31.2%
Total US CS	148	6,973	93.4%	477	54.3%	929	42.7%	8,379	79.7%
US CE	9	0	0.0%	312	35.5%	45	2.1%	357	3.4%
US Info	12	0	0.0%	0	0.0%	1204	55.3%	1,204	11.4%
Canadian	14	489	6.6%	89	10.1%	0	0.0%	578	5.5%
Grand Total	183	7,462		878		2,178		10,518	

Table M2. Master's Degrees Awarded by Gender

	CS		CE		I		Total	
Male	5,645	77.4%	682	77.7%	1052	48.3%	7,379	71.3%
Female	1,644	22.6%	196	22.3%	1126	51.7%	2,966	28.7%
Total Known Gender	7,289		878		2,178		10,345	
Gender Unknown	173		0		0		173	
Grand Total	7,462		878		2,178		10,518	

Table M3. Master's Degrees Awarded by Ethnicity

	CS		CE		I		Total	
Nonresident Alien	4,123	62.3%	544	69.3%	397	19.8%	5,064	53.8%
Amer Indian or Alaska Native	10	0.2%	1	0.1%	9	0.4%	20	0.2%
Asian	484	7.3%	52	6.6%	213	10.6%	749	8.0%
Black or African-American	123	1.9%	8	1.0%	122	6.1%	253	2.7%
Native Hawaiian/Pac Island	9	0.1%	0	0.0%	0	0.0%	9	0.1%
White	1,725	26.1%	161	20.5%	1,144	57.0%	3,030	32.2%
Multiracial, not Hispanic	22	0.3%	1	0.1%	25	1.2%	48	0.5%
Hispanic, any race	123	1.9%	18	2.3%	96	4.8%	237	2.5%
Total Residency & Ethnicity Known	6,619		785		2,006		9,410	
Resident, ethnicity unknown	285		78		144		507	
Residency unknown	558		15		28		601	
Grand Total	7,462		878		2,178		10,518	

Table M4. Master's Degrees Expected Next Year by Department Type

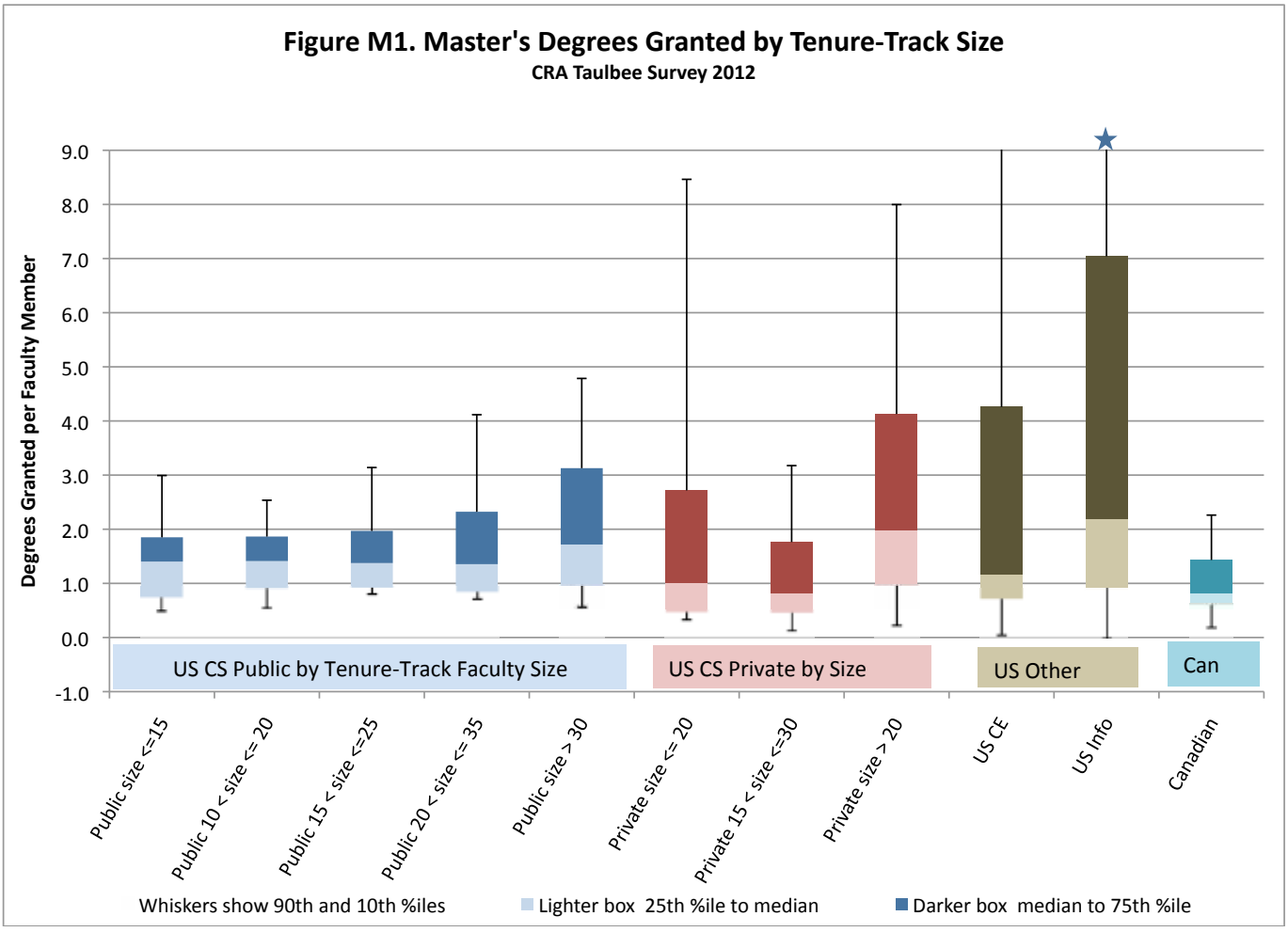
Department Type	# Depts	CS		CE		I		Total	
US CS Public	107	3,493	52.2%	379	46.3%	500	25.3%	4,372	46.1%
US CS Private	41	2,755	41.2%	141	17.2%	326	16.5%	3,222	34.0%
Total US CS	148	6,248	93.4%	520	63.5%	826	41.7%	7,594	80.0%
US CE	9	0	0.0%	294	35.9%	0	0.0%	294	3.1%
US Info	12	0	0.0%	0	0.0%	1153	58.3%	1,153	12.1%
Canadian	14	444	6.6%	5	0.6%	0	0.0%	449	4.7%
Grand Total	183	6,692		819		1,979		9,490	

Table M5. New Master's Students by Department Type

Department Type	CS			CE			I			Total			Outside North America	
	Total	# Depts	Avg / Dept	Total	# Depts	Avg / Dept	Total	# Dept	Avg / Dept	Total	# Dept	Avg / Dept	Total	%
US CS Public	3,436	104	33.0	356	18	19.8	400	13	30.8	4,192	106	39.5	2,600	62.0%
US CS Private	2,500	40	62.5	75	6	12.5	244	4	61.0	2,819	40	70.5	1,767	62.7%
Total US CS	5,936	144	41.2	431	24	18.0	644	17	37.9	7,011	146	48.0	4,367	62.3%
US CE	0	0		309	9	34.3	69	1		378	9	42.0	226	59.8%
US Info	0	0		0	0		1,145	12	95.4	1,145	12	95.4	339	29.6%
Canadian	527	14	37.6	34	2	17.0	0	0		561	14	40.1	320	57.0%
Grand Total	6,463	158	40.9	774	35	22.1	1,858	30	61.9	9,095	223	40.8	5,252	57.7%

Table M6. Total Master's Enrollment by Department Type

Department Type	CS			CE			I			Total		
	Total	# Depts	Avg / Dept	Total	# Depts	Avg / Dept	Total	# Dept	Avg / Dept	Total	# Dept	Avg / Dept
US CS Public	8,711	104	83.8	754	19	39.7	1,272	12	106.0	10,737	106	101.3
US CS Private	5,826	40	145.7	164	6	27.3	1,474	4	368.5	7,464	40	186.6
Total US CS	14,537	144	101.0	918	25	36.7	2,746	16	171.6	18,201	146	124.7
US CE	0	0		845	9	93.9	242	1		1,087	9	120.8
US Info	0	0		0	0		2,466	12	205.5	2,466	12	205.5
Canadian	1,390	13	106.9	103	2	51.5	0	0		1,493	13	114.8
Grand Total	15,927	157	101.4	1,866	36	51.8	5,454	29	188.1	23,247	180	129.2



★ Outlier: Value outside chart range

Bachelor's (Tables 1, B1-B6; Figures B1-B4)

Bachelor's degree production increased by a double-digit percentage for the third straight year. Among all departments reporting, the increase was 15.7 percent, but if only those departments that reported both years are counted, the increase was 17.1 percent. In U.S. CS departments the increases were 19.8 percent overall and 16.6 percent among those departments that reported both years. U.S. CS departments at public universities tend to have a slightly larger rate of bachelor's degree production per faculty member than do those at private universities, though there is less of a pattern with respect to degree production per faculty member based on the size of the faculty at U.S. CS departments (Figure B3).

The fraction of women among CS bachelor's graduates increased from 11.7 percent in 2010-11 to 12.9

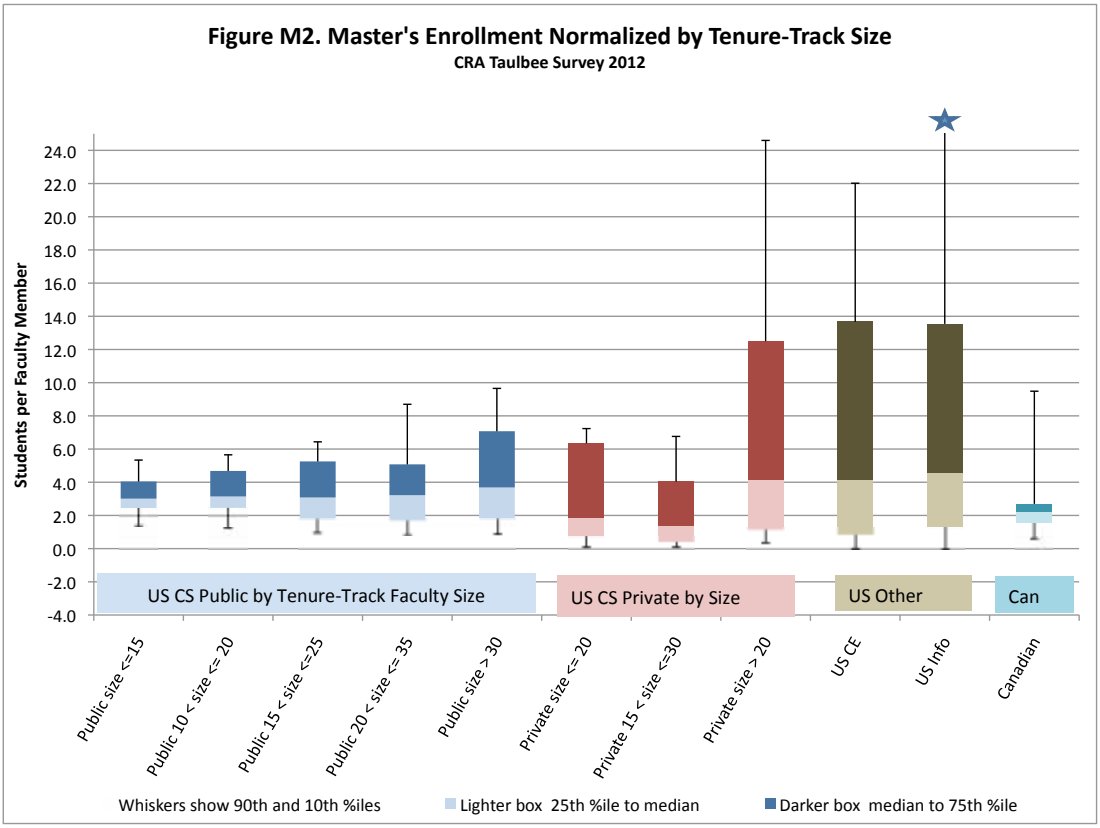


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Table 1. Degree Production and Enrollment Change From Previous Year

	Total						Only Departments Responding Both Years					
	US CS Only			All Departments			US CS Only			All Departments		
PhDs	**2011**	**2012**	**% chg**	**2011**	**2012**	**% chg**	**2011**	**2012**	**% chg**	**2011**	**2012**	**% chg**
# Departments	140	150	7.1%	178	187	5.1%	134	134		167	167	
PhD Awarded	1,457	1,620	11.2%	1,782	1,929	8.2%	1,435	1,532	6.8%	1,736	1,826	5.2%
PhD Enrollment	12,035	13,235	10.0%	14,671	15,648	6.7%	11,765	12,528	6.5%	14,217	14,783	4.0%
New PhD Enroll	2,442	2,702	10.6%	2,812	3,064	9.0%	2,396	2,532	5.7%	2,744	2,869	4.6%
Bachelor's	2011	2012	% chg	2011	2012	% chg	2011	2012	% chg	2011	2012	% chg
# Departments	133	142	6.8%	165	174	5.5%	127	127		151	151	
BS Awarded	10,901	13,055	19.8%	13,806	15,975	15.7%	10,438	12,171	16.6%	12,694	14,867	17.1%
BS Enrollment	48,817	56,742	16.2%	60,636	67,850	11.9%	47,105	52,396	11.2%	56,344	62,296	10.6%
New BS Majors	13,337	17,226	29.2%	16,279	20,618	26.7%	12,614	15,492	22.8%	15,149	18,294	20.8%
BS Enroll/Dept	367.0	399.6	8.9%	367.5	389.9	6.1%	370.9	412.6	11.2%	373.1	412.6	10.6%

Table B1. Bachelor's Degrees Awarded by Department Type

Department Type	# Depts	CS		CE		I		Total	
US CS Public	105	7,619	69.0%	1,578	67.0%	1,004	39.1%	10,201	63.9%
US CS Private	37	2,248	20.3%	268	11.4%	338	13.2%	2,854	17.9%
Total US CS	142	9,867	89.3%	1,846	78.4%	1,342	52.2%	13,055	81.7%
US CE	9	0	0.0%	406	17.2%	0	0.0%	406	2.5%
US Info	9	0	0.0%	0	0.0%	1,190	46.3%	1,190	7.4%
Canadian	14	1,182	10.7%	104	4.4%	38	1.5%	1,324	8.3%
Grand Total	174	11,049		2,356		2,570		15,975	

Table B2. Bachelor's Degrees Awarded by Gender

	CS		CE		I		Total	
Male	9,349	87.1%	2,106	89.4%	2,129	82.8%	13,584	86.7%
Female	1,387	12.9%	250	10.6%	441	17.2%	2,078	13.3%
Total Known Gender	10,736		2,356		2,570		15,662	
Gender Unknown	313		0		0		313	
Grand Total	11,049		2,356		2,570		15,975	

Table B3. Bachelor's Degrees Awarded by Ethnicity

	CS		CE		I		Total	
Nonresident Alien	619	6.8%	216	10.5%	98	4.1%	933	6.9%
Amer Indian or Alaska Native	39	0.4%	6	0.3%	12	0.5%	57	0.4%
Asian	1,477	16.3%	447	21.7%	341	14.2%	2,265	16.7%
Black or African-American	407	4.5%	107	5.2%	203	8.4%	717	5.3%
Native Hawaiian/Pac Islander	18	0.2%	4	0.2%	3	0.1%	25	0.2%
White	5,793	64.0%	1,154	55.9%	1,522	63.2%	8,469	62.6%
Multiracial, not Hispanic	130	1.4%	27	1.3%	26	1.1%	183	1.4%
Hispanic, any race	575	6.3%	102	4.9%	203	8.4%	880	6.5%
Total Residency & Ethnicity Known	9,058		2,063		2,408		13,529	
Resident, ethnicity unknown	732		117		89		938	
Residency unknown	1,259		176		73		1,508	
Grand Total	11,049		2,356		2,570		15,975	

Table B4. Bachelor's Degrees Expected Next Year by Department Type

Department Type	# Depts	CS		CE		I		Total	
US CS Public	105	7,634	64.1%	1,611	64.6%	1,136	42.4%	10,381	60.8%
US CS Private	37	2,680	22.5%	249	10.0%	364	13.6%	3,293	19.3%
Total US CS	142	10,314	86.6%	1,860	74.6%	1,500	56.0%	13,674	80.0%
US CE	9	0	0.0%	509	20.4%	0	0.0%	509	3.0%
US Info	9	0	0.0%	0	0.0%	1,140	42.6%	1,140	6.7%
Canadian	14	1,598	13.4%	125	5.0%	37	1.4%	1,760	10.3%
Grand Total	174	11,912		2,494		2,677		17,083	

Table B5. New Bachelor's Students by Department Type

	CS				CE				I				Total	
Department Type	Major	Pre-major	# Dept	Avg. Major per Dept.	Major	Pre-major	# Dept	Avg. Major per Dept.	Major	Pre-major	# Dept	Avg. Major per Dept.	Total Major	Avg. Major per Dept.
US CS Public	10,913	3,575	93	117.3	2,016	789	27	74.7	984	148	20	49.2	13,913	146.5
US CS Private	2,611	585	29	90.0	297	14	7	42.4	405	0	4	101.3	3,313	114.2
US CS Total	13,524	4,160	122	110.9	2,313	803	34	68.0	1,389	148	24	57.9	17,226	138.9
US CE	0	0	0	0.0	580	149	9	64.4	0	0	0	0.0	580	64.4
US Information	0	0	0	0.0	0	0	0	0.0	666	302	9	74.0	666	74.0
Canadian	2,059	385	9	228.8	87	0	2	43.5	0	10	0	0.0	2,146	238.4
Grand Total	15,583	4,545	131	119.0	2,980	952	45	66.2	2,055	460	33	62.3	20,618	136.5

Table B6. Total Bachelor's Enrollment by Department Type

	CS				CE				I				Total	
Department Type	Major	Pre-major	# Depts	Avg. Major per Dept.	Major	Pre-maj	Total	Avg. Major per Dept.	Major	Pre-major	Total	Avg. Major per Dept.	Major	Avg. Major per Dept
US CS Public	34,099	7,039	103	331.1	7,092	812	42	168.9	3,812	369	23	165.7	45,003	432.7
US CS Private	9,006	554	35	257.3	871	15	9	96.8	1,862	0	5	372.4	11,739	335.4
US CS Total	43,105	7,593	138	312.4	7,963	827	51	156.1	5,674	369	28	202.6	56,742	408.2
US CE	0	0	0	0.0	1,974	225	9	219.3	0	0	0	0.0	1,974	219.3
US Information	0	0	0	0.0	0	0	0	0.0	2,553	653	9	283.7	2,553	283.7
Canadian	6,351	449	13	488.5	230	0	2	115.0	0	40	0	0.0	6,581	598.3
Grand Total	49,456	8,042	151	327.5	10,167	1,052	62	164.0	8,227	1,062	37	222.4	67,850	403.9

percent in 2011-12. This year there was a smaller percentage of Whites and greater percentages of resident Asian, Black and Hispanic graduates in CS programs. I programs also had a smaller fraction of Whites and a larger fraction of Blacks among their graduates. CE programs had a slightly larger percentage of Whites, a larger percentage of Non-resident Aliens, and a smaller percentage of Blacks and Hispanics as graduates. In aggregate across the three areas, about 63 percent of the graduates were White, 17 percent Asian, 7 percent Non-resident Aliens, and 13 percent from all other ethnicity categories combined.

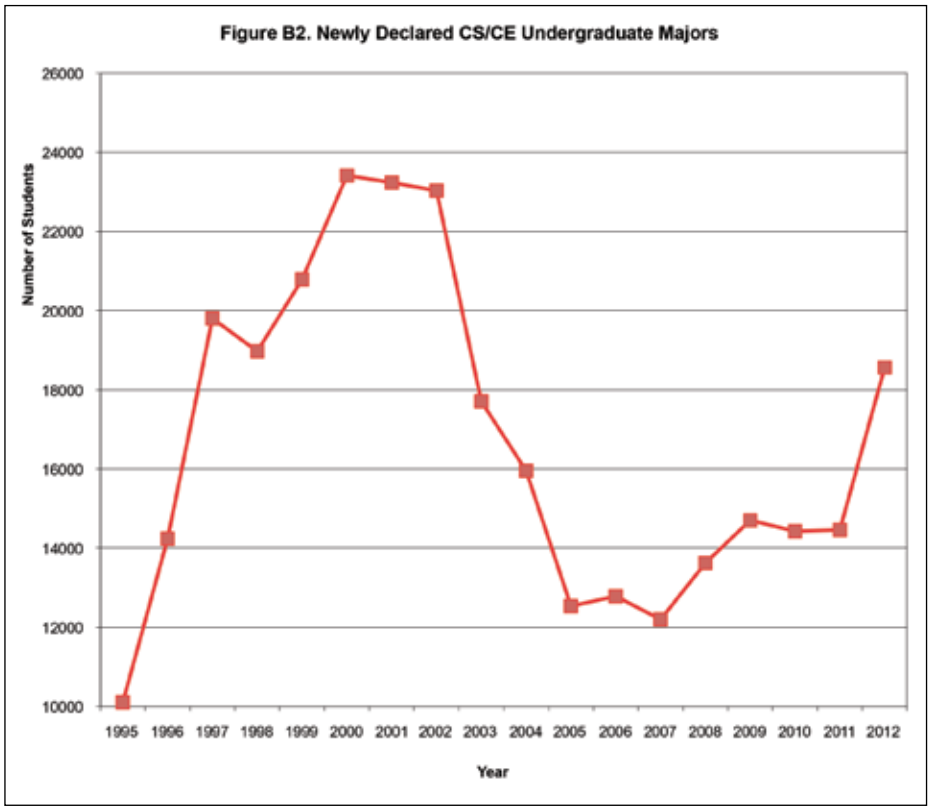
For next year, departments forecast an eight percent increase in CS bachelor degree production. More modest increases, in the five percent range, are forecast in CE and I bachelor's programs.

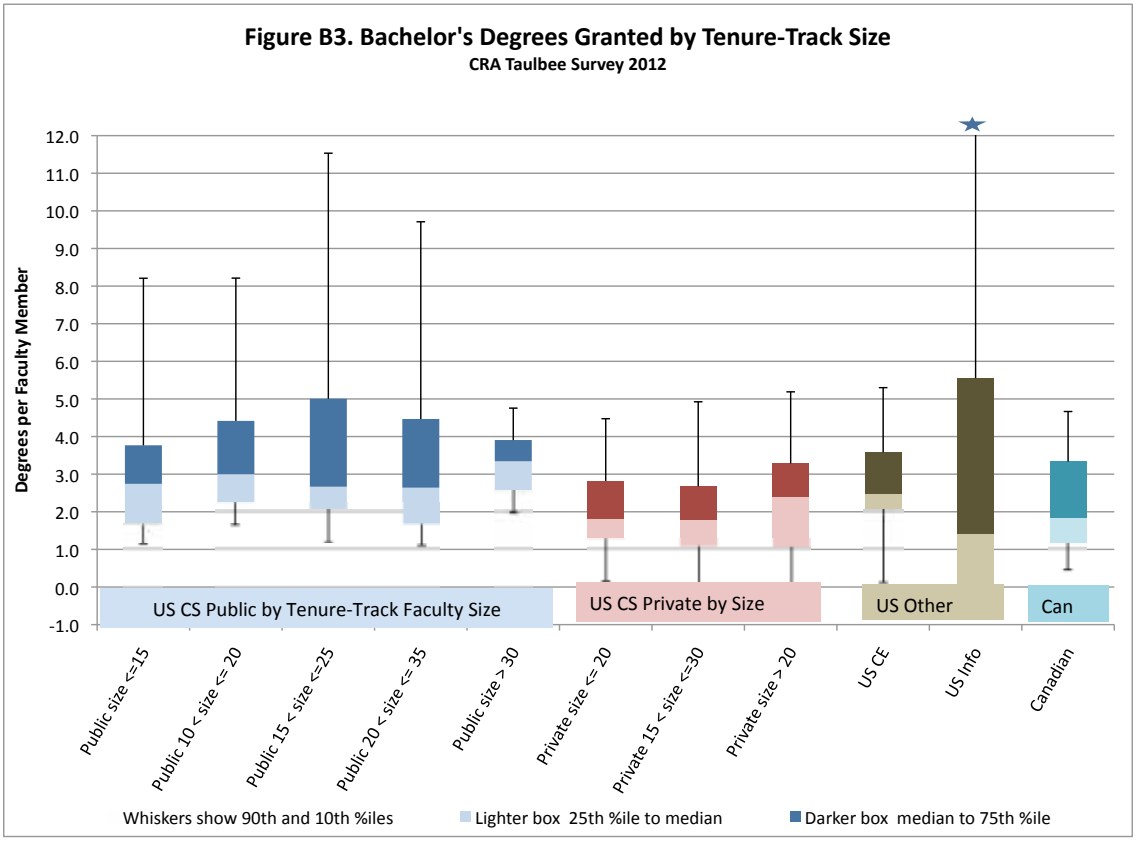
The number of new bachelor's level computing majors among U.S. CS departments rose an astonishing 29 percent (approximately 23 percent among those departments reporting both this year and last year). This is the fifth straight year of increased bachelor's level enrollment in computing majors by new students. Total bachelor's level enrollment in computing majors among U.S. CS departments increased 16.2 percent in aggregate (11.2 percent among departments reporting both this year and last year). Bachelor's level enrollment at public universities on a per faculty member basis is about twice as large as it is at private universities. However, there are less clear trends with respect to these enrollments at either public or private universities based on the size of the faculty (Figure B4).

Among the other departments, the overall bachelor's enrollment is down about six percent, due to declines in Canadian and I departments, while the new bachelor's enrollment is up 15 percent, with increases in all categories of departments. The bottom line seems to be that interest in computing is growing at a healthy clip among undergraduate students.

Figure B1. BS Production (CS & CE)

Figure B2. Newly Declared CS/CE Undergraduate Majors





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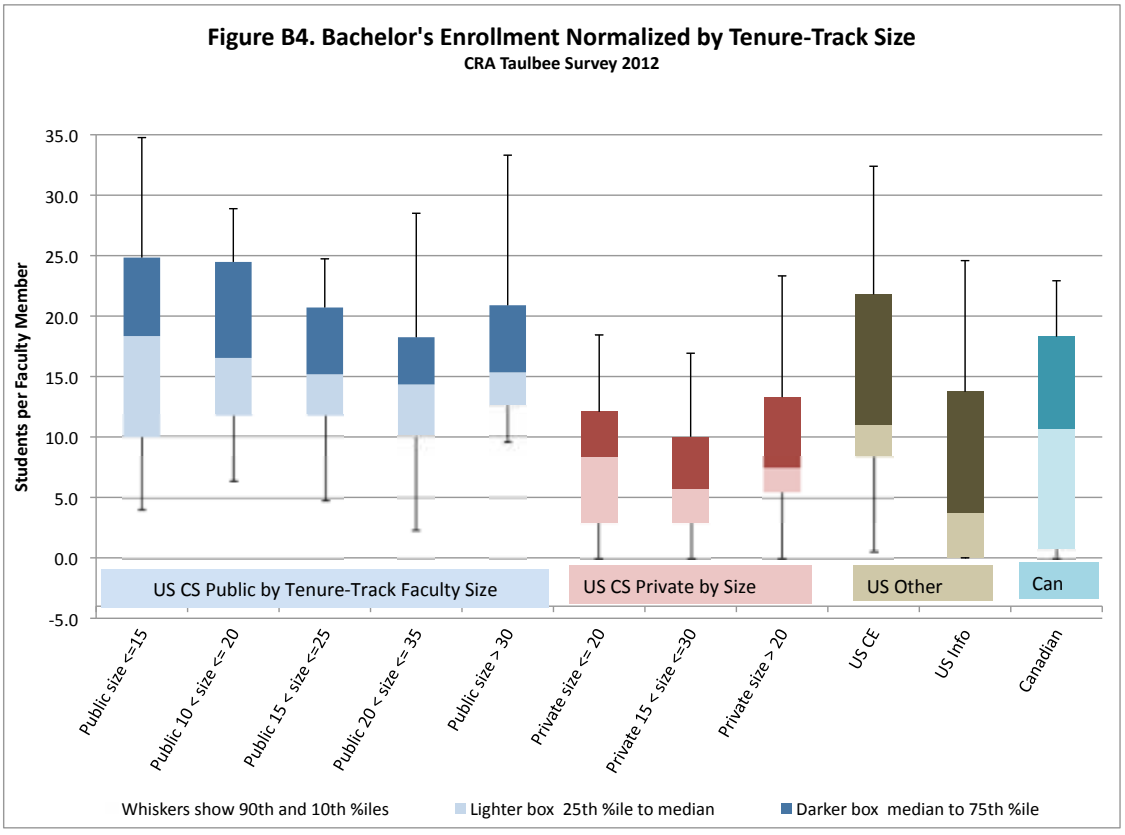


Faculty Demographics (Tables F1-F7)[5]

Table F1 shows the current and anticipated sizes, in FTE, for tenure-track, teaching and research faculty, and postdocs. In U.S. CS departments, the total tenure-track faculty count of 3,725 represents an increase of 7.8 percent from last year, but there also is a 7 percent increase in the number of departments reporting this year. There also are increases in the number of teaching faculty per department and the number of research faculty per department. However, despite the increase in the number of departments reporting this year, the total number of reported postdocs is almost identical to that of last year. Canadian, CE and I departments have much more volatile

Table F1. Actual and Anticipated Faculty Size by Position and Department Type

	Actual		Projected					
	2012-2013		2013-2014		2014-2015		Expected 2-Yr Growth	
US CS Public	Total	Average	Total	Average	Total	Average	#	%
TenureTrack	2,636	26.4	2,683	26.8	2,843	28.4	207	7.9%
Teaching	368	3.7	397	4.0	416	4.2	48	13.0%
Research	242	2.4	270	2.7	294	2.9	52	21.5%
Postdoc	298	3.0	337	3.4	359	3.6	61	20.5%
Total	3,544	35.4	3,687	36.9	3,912	39.1	368	10.4%
US CS Private								
TenureTrack	1,089	30.3	1,042	28.9	1,101	30.6	12	1.1%
Teaching	182	5.1	195	5.4	202	5.6	20	11.0%
Research	218	6.1	232	6.4	246	6.8	28	12.8%
Postdoc	223	6.2	250	6.9	274	7.6	51	22.9%
Total	1,712	47.6	1,719	47.8	1,823	50.6	111	6.5%
All US CS								
TenureTrack	3,725	27.4	3,725	27.4	3,944	29.0	219	5.9%
Teaching	550	4.0	592	4.4	618	4.5	68	12.4%
Research	460	3.4	502	3.7	540	4.0	80	17.4%
Postdoc	521	3.8	587	4.3	633	4.7	112	21.5%
Total	5,256	38.6	5,406	39.8	5,735	42.2	479	9.1%
US CE								
TenureTrack	121	11.0	126	11.5	130	11.8	9	7.4%
Teaching	16	1.5	18	1.6	18	1.6	2	12.5%
Research	13	1.2	14	1.3	14	1.3	1	7.7%
Postdoc	15	1.4	18	1.6	19	1.7	4	26.7%
Total	165	15.0	176	16.0	181	16.5	16	9.7%
US I								
TenureTrack	256	19.7	275	21.2	284	21.8	28	10.9%
Teaching	68	5.2	75	5.8	80	6.2	12	17.6%
Research	33	2.5	33	2.5	35	2.7	2	6.1%
Postdoc	28	2.2	33	2.5	36	2.8	8	28.6%
Total	385	29.6	416	32.0	435	33.5	50	13.0%
Canadian								
TenureTrack	434	33.4	432	33.2	438	33.7	4	0.9%
Teaching	27	2.1	27	2.1	26	2.0	-1	-3.7%
Research	9	0.7	9	0.7	9	0.7	0	0.0%
Postdoc	38	2.9	40	3.1	41	3.2	3	7.9%
Total	508	39.1	508	39.1	514	39.5	6	1.2%
Grand Total								
TenureTrack	4,536	26.2	4,558	26.3	4,796	27.7	260	5.7%
Teaching	661	3.8	712	4.1	742	4.3	81	12.3%
Research	515	3.0	558	3.2	598	3.5	83	16.1%
Postdoc	602	3.5	678	3.9	729	4.2	127	21.1%
Total	6,314	36.5	6,506	37.6	6,865	39.7	551	8.7%

data due to the small number of departments reporting in each of those categories.

Among U.S. CS departments, the average tenure-track faculty size is slightly larger at private universities (30.3 faculty per department) than at public universities (26.4 per department). As was the case last year, Canadian universities, on average, have more tenure-track faculty members per department than do U.S. universities, while on average U.S. I departments are smaller than U.S. CS departments and U.S. CE departments are smaller still. These last two observations may reflect the fact that we ask departments to report only computing-related faculty, so departments with Library Science or EE programs may report only part of their faculty.

Private universities also tend to have more teaching faculty, research faculty and postdocs than do public universities on average. The gap between private and public universities with respect to both teaching faculty per department and research faculty per department widened this year, while the gap with respect to postdocs narrowed somewhat.

Table F2 summarizes faculty hiring this past year. There were 372 tenure-track vacancies reported in 2011-12 vs. 245 in 2010-11. The strongest increase in vacancies (over 50%) was in U.S. CS departments. In aggregate, 31.7 percent of the total number of vacant tenure-track positions went unfilled, lower than the 37.6 percent in 2010-11 but higher than the 29.9 percent in 2009-10. Public universities had a better success rate than did private universities among U.S. CS departments, with more than 40 percent of the tenure-track vacancies unfilled at private universities. When examining the reasons why positions went unfilled (see Table F2a), the top reason was because offers were turned down (45.3 percent vs 34.1 percent in 2010-11) while not finding a good fit accounted for a similar fraction of the reasons (36.8 percent) in 2011-12 as in 2010-11.

The fraction of women hired into all categories of academic positions (tenure-track, teaching faculty, research faculty and postdoc) rose this year. In

Table F2. Vacant Positions 2011-2012 by Position and Department Type

	Tried to fill	Filled	Unfilled	% Unfilled
US CS Public				
TenureTrack	235	168	67	28.5%
Teaching	110	101	9	8.2%
Research	95	89	6	6.3%
Postdoc	124	107	17	13.7%
Total	564	465	99	17.6%
US CS Private				
TenureTrack	87	51	36	41.4%
Teaching	27	24	3	11.1%
Research	29	27	2	6.9%
Postdoc	56	56	0	0.0%
Total	199	158	41	20.6%
All US CS				
TenureTrack	322	219	103	32.0%
Teaching	137	125	12	8.8%
Research	124	116	8	6.5%
Postdoc	180	163	17	9.4%
Total	763	623	140	18.3%
US CE				
TenureTrack	11	7	4	36.4%
Teaching	14	14	0	0.0%
Research	13	13	0	0.0%
Postdoc	13	12	1	7.7%
Total	51	46	5	9.8%
US I				
TenureTrack	25	19	6	24.0%
Teaching	18	18	0	0.0%
Research	27	27	0	0.0%
Postdoc	23	23	0	0.0%
Total	93	87	6	6.5%
Canadian				
TenureTrack	14	9	5	35.7%
Teaching	6	5	1	16.7%
Research	0	0	0	0.0%
Postdoc	0	0	0	0.0%
Total	20	14	6	30.0%
Grand Total				
TenureTrack	372	254	118	31.7%
Teaching	175	162	13	7.4%
Research	164	156	8	4.9%
Postdoc	216	198	18	8.3%
Total	927	770	157	16.9%

aggregate, the fraction rose from 21.7 percent in 2010-11 to 25.3 percent in 2011-12. For tenure-track positions (Table F3) the fraction increased to 22.4 percent from 21.3 percent in 2010-11. Once again, the fraction of new female tenure-track and overall faculty hires outpaces the fraction of new female Ph.D.s produced this past year (17.8 percent).

Among tenure-track faculty, slightly over half of the new hires were white while Asians and Non-resident Aliens were the next most significant categories. Whites very much dominate the newly hired teaching faculty, with Asians a distant second. Among research faculty and postdocs, there is a significant number of new hires whose race/ethnicity was reported as unknown, though Whites and Non-resident Aliens appear to dominate these two categories, with Asians third. (Table F4).

There was a similar overall number of faculty losses this year as compared with last year, with an increased number of retirements and a slight increase in those moving to another academic position, and a decline in those who left for a non-academic position (Table F5). The increased number of retirements (89 this past year vs. 67 the previous year) bears watching as baby boomers hit their mid-60s and some retirement programs modify their rules to deal with financial issues exacerbated by the most recent recession.

This year, there was an increase in the overall fraction of women at all three academic ranks (Table F6). At the full professor rank, the fraction increased to 13.5 percent from 12.7 percent last year, at the associate professor rank to 19.5 percent from 17.9 percent, and at the assistant professor level to 26.0 percent from 25.3 percent. The overall fraction of women among teaching faculty also increased, while the fraction of women among both research faculty and postdocs declined this year but is still higher than two years ago in each category. Ethnicity patterns are similar to last year, except for a somewhat larger percentage of Non-resident Aliens and correspondingly smaller percentage of Whites as assistant professors, and a higher percentage of Asians and correspondingly smaller percentage of Non-resident Aliens as research faculty (Table F7).

Despite the enrollment growth at both undergraduate and graduate levels, for next year reporting departments surprisingly forecast less than a one percent growth in tenure-track faculty. U.S. private universities actually forecast a decline, while U.S. public universities forecast an offsetting increase.

Table F2a. Reasons Positions Left Unfilled

Reason	# Reported	% of Reasons
Didn't find a good fit	35	36.8%
Offers turned down	43	45.3%
Technically vacant, not filled for admin reasons	9	9.5%
Hiring in progress	4	4.2%
Other	4	4.2%
Total Reasons Provided	95	

Table F3. Gender of Newly Hired Faculty

	Tenure-Track		Teaching		Research		Postdoc		Total	
Male	228	77.6%	66	71.0%	78	77.2%	143	71.1%	515	74.7%
Female	66	22.4%	27	29.0%	23	22.8%	58	28.9%	174	25.3%
Unknown	0		2		40		2		44	
Total	294		95		141		203		733	

Table F4. Ethnicity of Newly Hired Faculty										
	Tenure-Track		Teaching		Research		Postdoc		Total	
Nonresident Alien	34	16.4%	1	1.1%	24	17.8%	63	31.7%	122	19.4%
American Indian/Alaska Native	1	0.5%	3	3.4%	0	0.0%	0	0.0%	4	0.6%
Asian	47	22.7%	11	12.5%	13	9.6%	36	18.1%	107	17.0%
Black or African-American	8	3.9%	3	3.4%	1	0.7%	3	1.5%	15	2.4%
Native Hawaiian/Pacific Islander	2	1.0%	0	0.0%	0	0.0%	0	0.0%	2	0.3%
White	109	52.7%	62	70.5%	51	37.8%	60	30.2%	282	44.8%
Multiracial, not Hispanic	2	1.0%	0	0.0%	0	0.0%	0	0.0%	2	0.3%
Hispanic, any race	4	1.9%	2	2.3%	3	2.2%	2	1.0%	11	1.7%
Resident, race/ethnic unknown	0	0.0%	6	6.8%	43	31.9%	35	17.6%	84	13.4%
Total known residency	207	100.0%	88	100.0%	135	100.0%	199	100.0%	629	100.0%
Residency Unknown	87		7		6		4		104	
Total	294		95		141		203		733	

Table F5. Faculty Losses	
Died	9
Retired	89
Took Academic Position Elsewhere	62
Took Nonacademic Position	27
Remained, but Changed to Part Time	11
Other	19
Unknown	4
Total	221

Table F6. Gender of Current Faculty														
	Full		Associate		Assistant		Teaching		Research		Postdoc		Total	
Male	1,948	86.4%	1,358	80.5%	615	74.0%	577	71.4%	414	79.0%	500	79.4%	5,412	80.4%
Female	305	13.5%	329	19.5%	216	26.0%	231	28.6%	107	20.4%	124	19.7%	1,312	19.5%
Unknown	1		0		0		0		3		6		10	
Total	2,254		1,687		831		808		524		630		6,734	

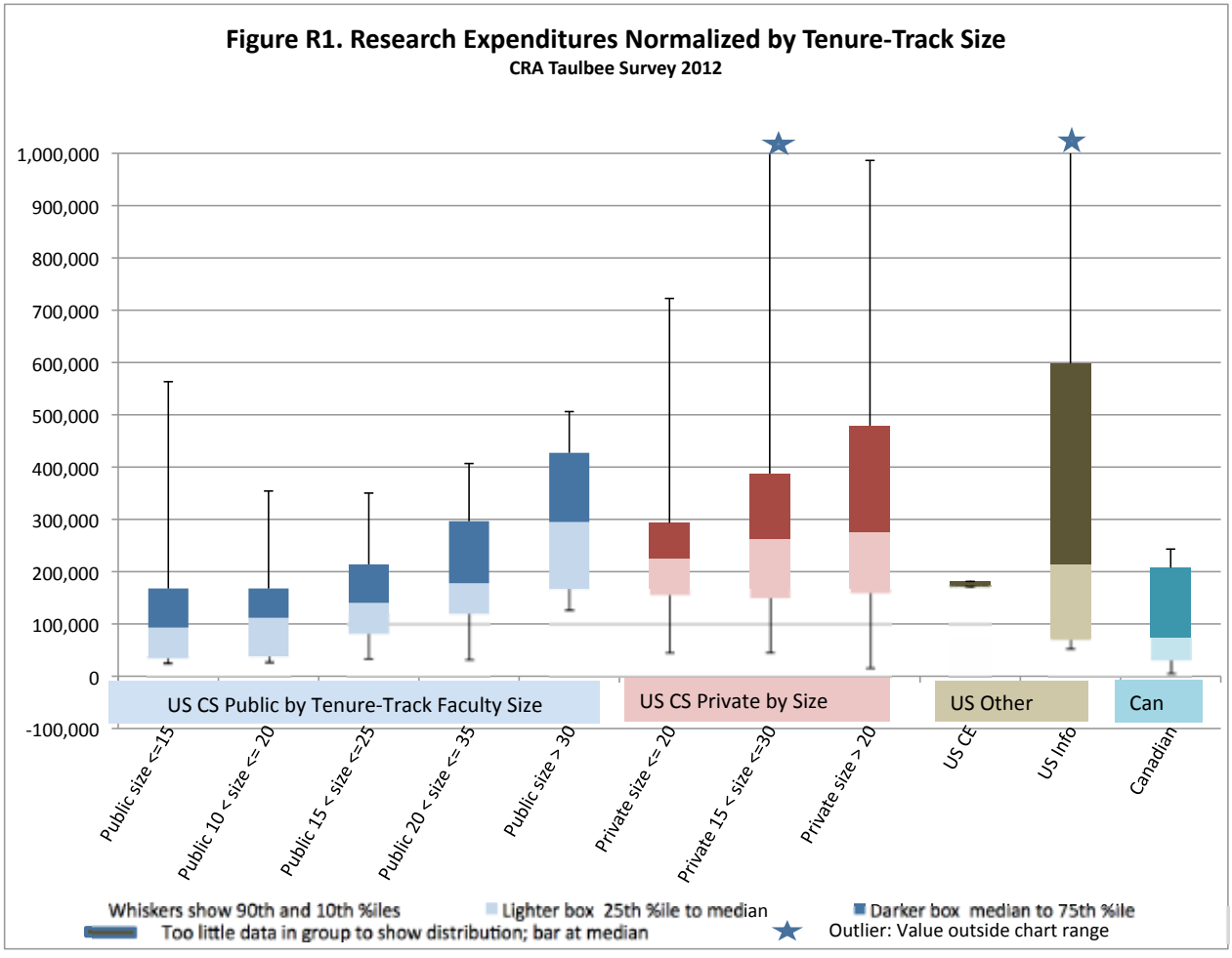
Table F7. Ethnicity of Current Faculty														
	Full		Associate		Assistant		Teaching		Research		Postdoc		Total	
Nonresident Alien	6	0.3%	49	3.2%	116	14.8%	14	1.9%	58	12.9%	214	37.3%	457	7.4%
American Indian / Alaska Native	6	0.3%	7	0.5%	6	0.8%	3	0.4%	9	2.0%	2	0.3%	33	0.5%
Asian	421	20.1%	426	27.8%	195	24.9%	63	8.3%	84	18.7%	110	19.2%	1,299	21.0%
Black or African-American	16	0.8%	25	1.6%	26	3.3%	20	2.6%	4	0.9%	6	1.0%	97	1.6%
Native Hawaiian/ Pacific Islander	13	0.6%	13	0.8%	6	0.8%	6	0.8%	1	0.2%	6	1.0%	45	0.7%
White	1,515	72.5%	910	59.3%	383	48.9%	607	80.4%	263	58.6%	205	35.7%	3,883	62.8%
Multiracial, not Hispanic	5	0.2%	3	0.2%	10	1.3%	4	0.5%	4	0.9%	2	0.3%	28	0.5%
Hispanic, any race	28	1.3%	38	2.5%	18	2.3%	17	2.3%	8	1.8%	13	2.3%	122	2.0%
Resident, race/ethnic unknown	81	3.9%	64	4.2%	24	3.1%	21	2.8%	18	4.0%	16	2.8%	224	3.6%
Total known residency	2,091	100.0%	1,535	100.0%	784	100.0%	755	100.0%	449	100.0%	574	100.0%	6,188	100.0%
Residency Unknown	163		152		47		53		75		56		546	
Total	2,254		1,687		831		808		524		630		6,734	

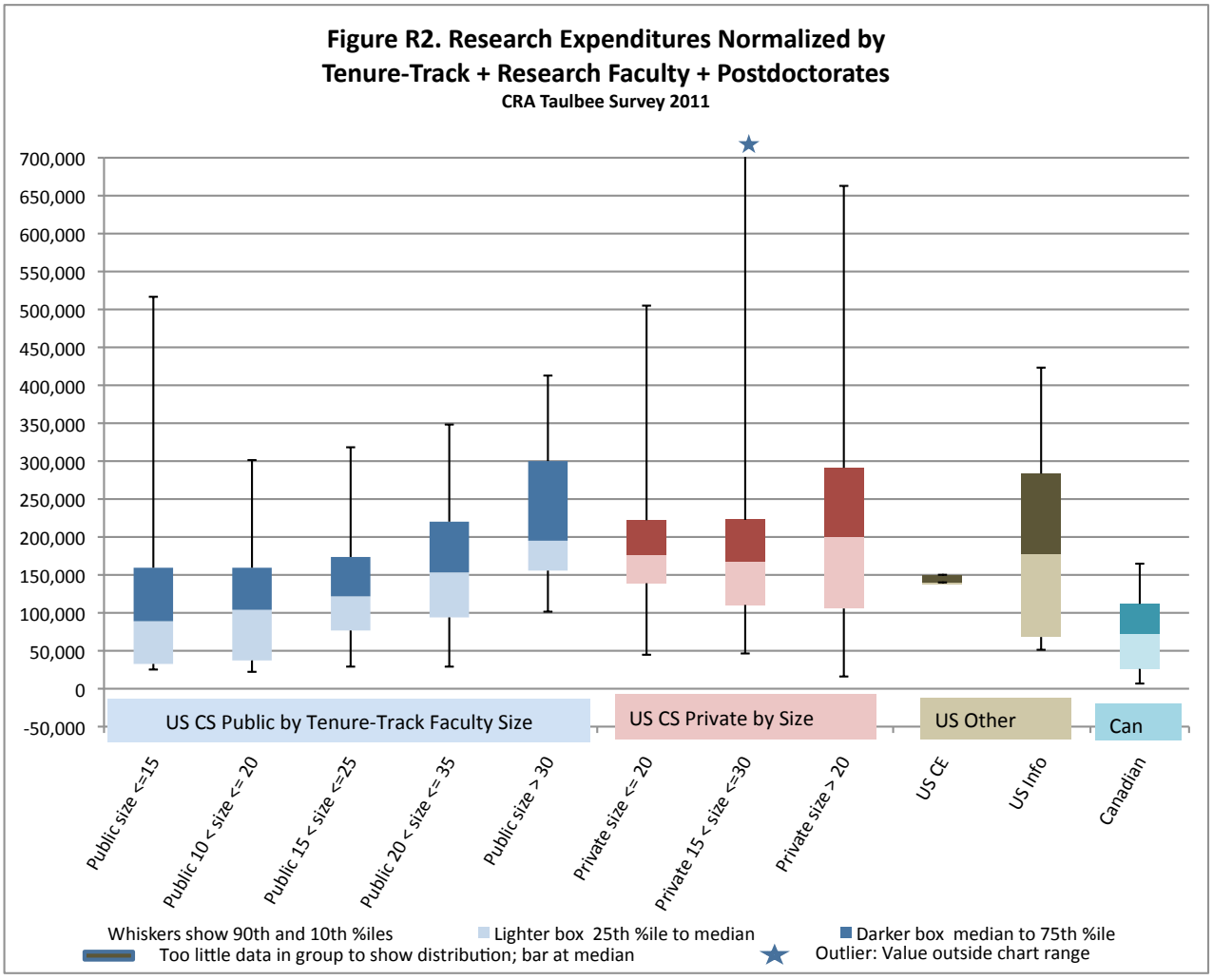
Research Expenditures (Table R1; Figures R1-R2)

Table R1 shows the department's total expenditure (including indirect costs or "overhead" as stated on project budgets) from external sources of support. Figures R1 and R2 show the per capita expenditure, where capitation is computed two ways. The first (Figure R1) is relative to the number of tenure-track faculty members. The second (Figure R2) is relative to researchers and postdocs as well as tenure-track faculty. Canadian levels are shown in Canadian dollars. The U.S. CS data for public institutions indicate that the larger the department, the more external funding is received by the department (both in total and per capita). Research expenditures at private institutions were less affected by the size of the department, though per capita they also tended to rise with department size. Overall, research expenditures at U.S. private universities tended to exceed that at public universities this year.

Table R1. Total Expenditure from External Sources for Computing Research

		Percentile of Department Averages				
Department Type	**# Depts**	**10th**	**25th**	**50th**	**75th**	**90th**
US CS Public	96	$397,076	$1,230,587	$3,674,956	$8,104,109	$16,210,237
US CS Private	35	$1,063,492	$2,406,355	$5,184,074	$10,401,629	$28,892,584
US CE	8			$2,997,903		
US Information	12	$845,641	$1,834,005	$4,043,881	$6,008,871	$14,507,343
Canadian	11	$183,028	$522,167	$3,127,906	$5,354,255	$6,367,192





Graduate Student Support
(Tables G1-G2; Figures G1-G3)

Table G1 shows the number of graduate students supported as full-time students as of fall 2011, further categorized as teaching assistants (TAs), research assistants (RAs), and full-support fellows, and also shows the split between those on institutional vs. external funds. The total number of TAs on institutional funds in CS departments decreased five percent this year although the number of departments reporting this year increased. The decline is attributed to private universities, where there were only about 2/3 the number of TAs this year as compared with last year. A very different story exists in total RA support; here the number on institutional support at private universities more than doubled, while the number at public universities declined. However, the number of RAs on external funding declined in both public and private U.S. universities, and declined at a much greater rate at the private universities. So it seems that the decline in externally funded RAs at private universities resulted in a greater number of institutionally funded RAs, at the expense of institutionally supported TAs. In contrast, at public universities the decline in external funding for RAs simply resulted in fewer supported RAs. The number of full-support fellows rose at private U.S. universities with respect to both institutional fund and external fund support, and declined in both categories of support at U.S. public universities.

U.S. CE programs, like the private universities, showed a shift of support from external to institutional funds for RAs and also showed an increase in institutionally supported fellows. U.S. I programs showed an increased number of externally supported RAs and fellows and a decreased number of institutionally supported RAs. Canadian programs also showed a decline in institutionally supported RAs and an increase in externally supported RAs, but a decline in externally supported fellows. Canadian programs also showed an increased number of institutionally supported TAs.

Table G2 shows the distribution of stipends for TAs, RAs, and full-support fellows. U.S. CS data are further broken down in this table by public

Table G1. Graduate Students Supported as Full-Time Students by Department Type														
		On Institutional Funds						On External Funds						Total
Department Type	# Dept	Teaching Assistants		Research Assistants		Full-Support Fellows		Teaching Assistants		Research Assistants		Full-Support Fellows		
US CS Public	111	2,348	32.6%	729	10.1%	269	3.7%	2	0.0%	3,598	50.0%	255	3.5%	7,201
US CS Private	42	477	16.5%	617	21.3%	282	9.8%	3	0.1%	1,195	41.3%	317	11.0%	2,891
US CS Total	153	2,825	28.0%	1,346	13.3%	551	5.5%	5	0.0%	4,793	47.5%	572	5.7%	10,092
US CE	11	77	27.5%	54	19.3%	24	8.6%	0	0.0%	118	42.1%	7	2.5%	280
US I	15	92	27.1%	65	19.2%	21	6.2%	10	2.9%	118	34.8%	33	9.7%	339
Canadian	14	348	37.6%	188	20.3%	65	7.0%	6	0.6%	304	32.8%	15	1.6%	926
Grand Total	193	3,342	28.7%	1,653	14.2%	661	5.7%	21	0.2%	5,333	45.8%	627	5.4%	11,637

Table G2. Fall 2011 Academic-Year Graduate Stipends by Department Type and Support Type						
Teaching Assistantships						
		Percentiles of Department Averages				
Department Type	# Depts	10th	25th	50th	75th	90th
US CS Public	101	$8,252	$12,878	$15,680	$17,444	$19,393
US CS Private	30	$2,490	$16,375	$20,475	$22,652	$26,047
US CE	8			$16,155		
US Information	9			$18,234		
Canadian	10	$4,644	$4,936	$8,075	$16,428	$18,711
Research Assistantships						
		Percentiles of Department Averages				
Department Type	# Depts	10th	25th	50th	75th	90th
US CS Public	98	$8,563	$14,553	$16,900	$18,171	$20,531
US CS Private	30	$3,450	$18,790	$21,375	$26,078	$27,078
US CE	8			$14,400		
US Information	12	$10,129	$15,480	$18,342	$19,849	$22,630
Canadian	10	$3,624	$13,625	$17,000	$21,250	$24,408
Full-Support Fellows						
		Percentiles of Department Averages				
Department Type	# Depts	10th	25th	50th	75th	90th
US CS Public	62	$11,155	$15,774	$19,063	$24,250	$30,000
US CS Private	24	$17,550	$20,238	$22,444	$26,965	$30,000
US CE	5			$18,000		
US Information	9			$22,000		
Canadian	4			$17,543		

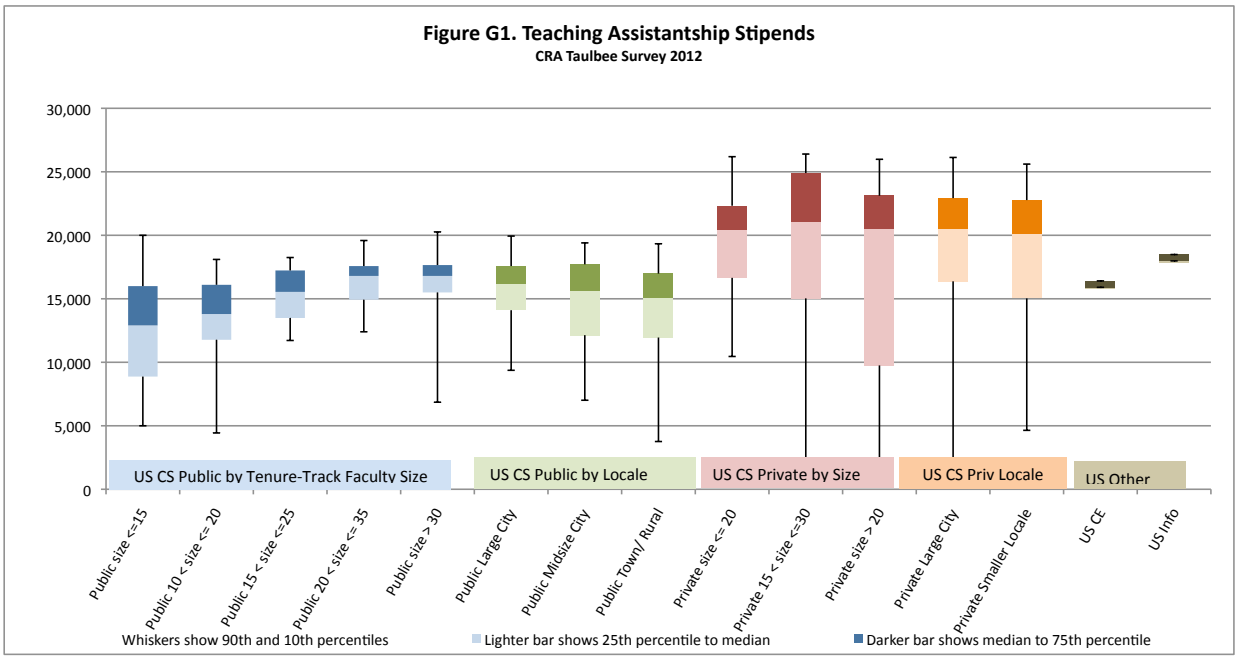


Figure G1. Teaching Assistantship Stipends
CRA Taulbee Survey 2012
30,000
25,000
20,000
15,000
10,000
5,000
0
US CS Public by Tenure-Track Faculty Size
US CS Public by Locale
US CS Private by Size
US CS Priv Locale
US Other
Public size <=15
Public 10 < size <= 20
Public 15 < size <=25
Public 20 < size <= 35
Public size > 30
Public Large City
Public Midsize City
Public Town/ Rural
Private size <= 20
Private 15 < size <=30
Private size > 20
Private Large City
Private Smaller Locale
US CE
US Info
Whiskers show 90th and 10th percentiles
Lighter bar shows 25th percentile to median
Darker bar shows median to 75th percentile

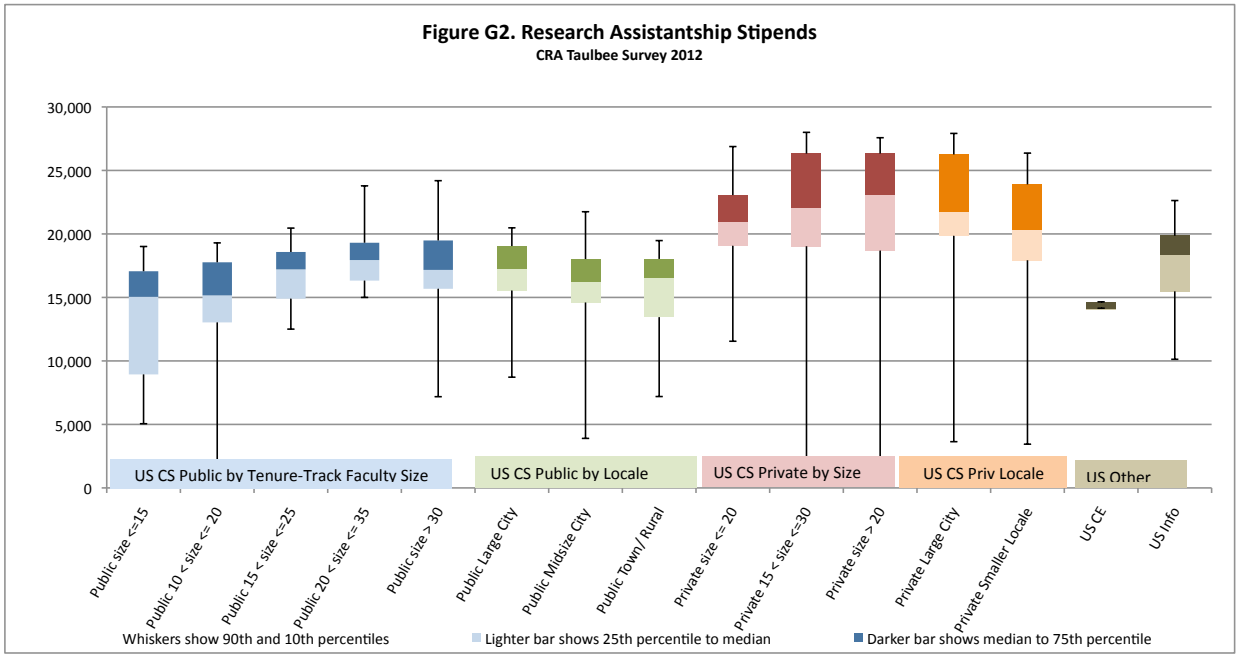


Figure G2. Research Assistantship Stipends
CRA Taulbee Survey 2012
30,000
25,000
20,000
15,000
10,000
5,000
0
US CS Public by Tenure-Track Faculty Size
US CS Public by Locale
US CS Private by Size
US CS Priv Locale
US Other
Public size <=15
Public 10 < size <= 20
Public 15 < size <=25
Public 20 < size <= 35
Public size > 30
Public Large City
Public Midsize City
Public Town/ Rural
Private size <= 20
Private 15 < size <=30
Private size > 20
Private Large City
Private Smaller Locale
US CE
US Info
Whiskers show 90th and 10th percentiles
Lighter bar shows 25th percentile to median
Darker bar shows median to 75th percentile

and private institution. Figures G1-G3 further break down the U.S. CS data by size of department and by geographic location of the university. Larger departments tend to offer higher stipends to all categories of grad students than do smaller departments, and private universities tend to offer higher stipends to all categories of grad students than do public universities. Departments located in larger population centers also tend to pay higher stipends to TAs and RAs, while the data for full-support fellows exhibits no clear trend relative to locale. The median salaries at U.S. private universities were flat across all categories of supported students. At U.S. public universities, medians of TA salaries were flat, those of RA salaries increased by 3 percent, and those for fellows dropped by nearly 6 percent.

Faculty Salaries (Tables S1-S21; Figures S1-S9)

Each department was asked to report individual (but anonymous) faculty salaries if possible; otherwise, the department was requested to provide the minimum, median, mean, and maximum salaries for each rank (full, associate, and assistant professors and non-tenure-track teaching faculty including post-doctorates) and the number of persons at each rank. The salaries are those in effect on January 1, 2013. For U.S. departments, nine-month salaries are reported in U.S. dollars. For Canadian departments, twelve-month salaries are reported in Canadian dollars. Respondents were asked to include salary supplements such as salary monies from endowed positions.

U.S. CS data are reported in Tables S1-S16 and in the box and whiskers diagrams. Data for CE, I, Canadian and new Ph.D.s are reported in Tables S17-S20. The tables and diagrams contain distributional data (first decile, quartiles, and ninth decile) computed from the department averages only. Thus, for example, a table row labeled "50" or the median line in a diagram is the median of the averages for the departments that reported within the stratum (the number of such departments reporting is shown in the "depts" row). It therefore is not a true median of all of the salaries.

We also report salary data for senior faculty based on time in rank, for meaningful comparison of individual or departmental faculty salaries with national averages. We report associate professor salaries for time in rank of 7 years or less, and of more than 7 years. For full professors, we report time in rank of 7 years or less, 8 to 15 years, and more than 15 years.

Those departments reporting salary data were provided a summary report in December 2012. Those departments that provided individual salaries were additionally provided more comprehensive distributional information based on these individual salaries. This year, 86 percent of those reporting salary data provided salaries at the individual level. The remainder of this section is an excerpt from the basic report sent in December to all departments that provided salary data.

As was the case last year, salaries at private universities tend to be higher than those at public universities in all faculty strata (Tables S2 and S3). At public universities, salaries tend to be higher for larger departments (Tables S4-S8). At private universities, assistant professor and early stage associate and full professor salaries are somewhat higher at larger departments, but salaries of senior faculty with more time in rank show little difference across changes in department size (Tables S9-S11). Public university salaries appear to be generally lower in smaller locales (Tables S12-S14), while private university salaries exhibit no clear pattern relative to type of locale (Tables S15-S16).

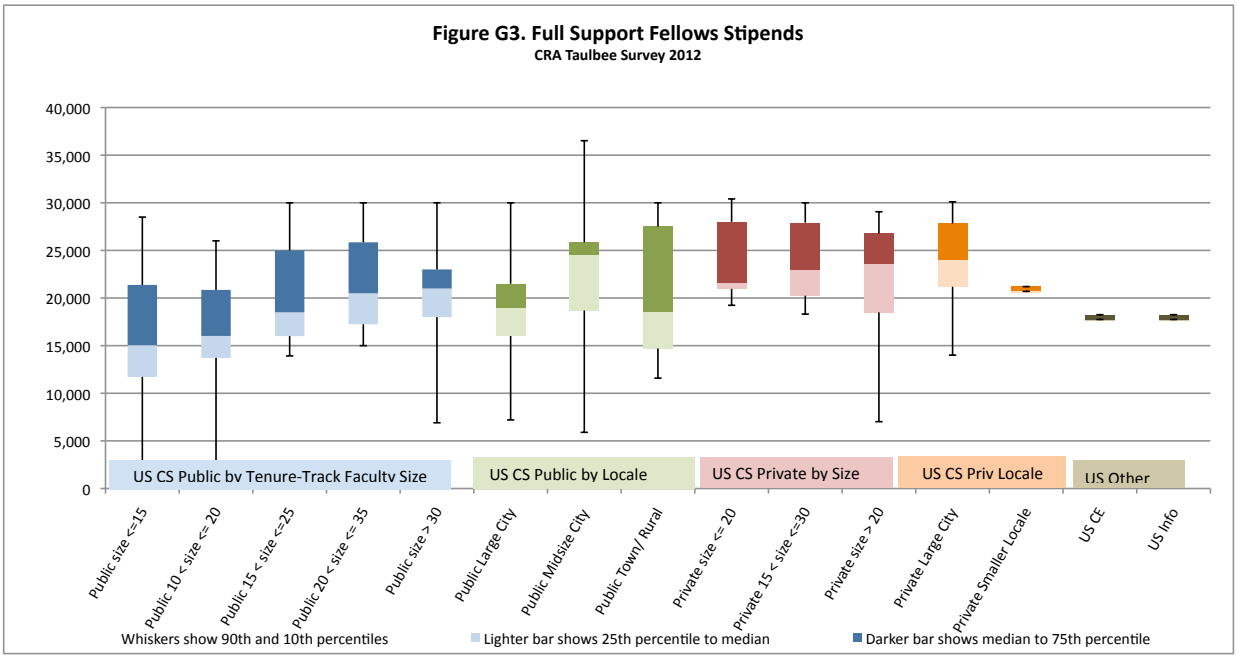


Table S1. Nine-month Salaries, 139 Responses of 189 US CS Departments, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	105	111	111	13	95	126	10	129	120	62	79
Indiv	509	509	530	101	292	815	70	620	515	365	450
10	$118,065	$114,810	$104,411	$124,282	$89,869	$91,824	$86,246	$82,550	$53,771	$52,194	$39,296
25	$130,721	$125,927	$115,012	$129,932	$95,600	$97,309	$98,263	$87,079	$59,782	$62,341	$44,526
50	$153,683	$139,679	$131,234	$148,485	$102,935	$105,500	$102,006	$91,666	$68,914	$83,640	$50,916
75	$170,100	$155,966	$150,000	$170,455	$112,450	$113,500	$115,653	$96,386	$81,787	$110,060	$59,885
90	$190,497	$182,223	$164,742	$194,459	$117,656	$122,857	$159,723	$102,000	$99,047	$128,476	$70,000

Table S2. Nine-month Salaries, 104 Responses of 136 US CS Public (All Public), Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	77	88	84	11	77	96	8	97	91	41	60
Indiv	347	360	385	73	224	606	61	453	363	218	250
10	$118,080	$114,637	$102,888	$122,511	$90,011	$91,155	*	$81,934	$53,418	$49,936	$37,658
25	$129,905	$123,856	$113,406	$129,884	$95,555	$96,565	*	$85,836	$58,335	$59,359	$42,653
50	$153,123	$138,764	$128,469	$148,485	$102,357	$103,497	$102,006	$90,200	$67,333	$76,170	$50,452
75	$166,877	$153,167	$145,801	$165,300	$111,350	$111,274	*	$94,275	$76,503	$95,768	$59,370
90	$182,561	$170,037	$163,898	$200,466	$116,230	$117,728	*	$97,706	$99,813	$118,055	$70,088

Table S3. Nine-month Salaries, 35 Responses of 53 US CS Private (All Private), Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	28	23	27	2	18	30	2	32	29	21	19
Indiv	162	149	145	28	68	209	9	167	152	147	200
10	$117,182	$119,417	$109,592		$85,733	$97,459		$85,732	$54,000	$58,956	$41,337
25	$132,296	$133,498	$122,007		$95,721	$106,490		$93,016	$66,346	$84,841	$50,000
50	$165,390	$155,966	$142,394		$106,807	$113,324		$98,010	$73,661	$103,357	$56,580
75	$192,127	$180,255	$162,773		$117,133	$123,311		$102,225	$94,460	$126,532	$62,768
90	$204,174	$189,793	$181,517		$125,128	$139,122		$106,008	$98,904	$159,303	$70,000

Table S4. Nine-month Salaries, 30 Responses of US CS Public With <=15 Tenure-Track Faculty, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	17	21	20	2	22	27	2	24	24	3	9
Indiv	38	51	42	7	48	95	5	73	57	4	11
10	$103,699	$106,311	$100,025	*	$80,114	$86,828	*	$75,893	$45,720	*	*
25	$115,217	$115,557	$102,957	*	$94,216	$91,370	*	$82,687	$55,758	*	*
50	$128,237	$126,752	$114,372	*	$100,114	$97,315	*	$86,782	$65,780	$83,800	$45,000
75	$158,897	$148,380	$124,448	*	$113,047	$105,876	*	$90,092	$74,526	*	*
90	$190,689	$191,187	$147,839	*	$117,677	$118,362	*	$95,701	$84,983	*	*

Table S5. Nine-month Salaries, 40 Responses of US CS Public With 10 < Tenure-Track Faculty <=20, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	30	35	30	2	34	39	1	37	34	8	13
Indiv	86	87	75	6	83	180	8	111	109	15	19
10	$113,890	$111,839	$101,421	*	$89,489	$89,171	*	$80,394	$46,970	*	$31,200
25	$123,478	$118,615	$110,727	*	$95,402	$94,702	*	$85,462	$55,387	*	$40,823
50	$138,461	$133,875	$118,350	*	$99,206	$100,860	*	$88,738	$62,259	$73,328	$50,000
75	$154,106	$150,383	$128,693	*	$109,168	$105,876	*	$91,250	$71,159	*	$60,000
90	$180,887	$177,502	$149,889	*	$115,165	$111,368	*	$94,615	$79,026	*	$81,440

Table S6. Nine-month Salaries, 37 Responses of US CS Public With 15 < Tenure-Track Faculty <=25, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	31	33	30	4	29	34	3	36	33	15	20
Indiv	105	91	91	20	84	193	27	129	132	60	53
10	$119,882	$113,820	$107,662	*	$88,825	$92,480	*	$81,392	$51,783	$37,424	$34,937
25	$130,918	$122,701	$115,449	*	$94,312	$96,808	*	$87,090	$57,126	$60,000	$41,806
50	$145,600	$137,671	$126,589	$152,174	$99,819	$103,077	$102,683	$90,210	$62,675	$71,655	$51,448
75	$163,134	$152,402	$146,997	*	$107,303	$107,883	*	$92,940	$70,331	$108,222	$59,638
90	$181,476	$160,189	$165,991	*	$113,472	$114,085	*	$95,078	$84,956	$118,412	$73,400

Table S7. Nine-month Salaries, 34 Responses of US CS Public With 20 < Tenure-Track Faculty <=35, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	27	31	30	4	26	32	3	33	30	19	28
Indiv	123	122	126	23	88	201	27	169	125	88	101
10	$122,125	$115,767	$103,266	*	$88,615	$93,826	*	$80,700	$53,376	$47,300	$37,285
25	$134,737	$126,074	$113,002	*	$95,914	$98,222	*	$87,167	$56,662	$58,718	$43,705
50	$155,176	$138,776	$137,483	$157,098	$104,173	$105,500	$102,683	$91,918	$67,676	$74,902	$50,150
75	$170,925	$154,695	$155,143	*	$113,698	$112,235	*	$94,655	$91,330	$95,798	$59,551
90	$182,755	$169,809	$166,148	*	$115,599	$118,999	*	$96,560	$105,511	$118,269	$74,400

Table S8. Nine-month Salaries, 26 Responses of US CS Public With Tenure-Track Faculty >30, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	21	24	24	5	18	24	3	26	25	18	21
Indiv	169	167	196	46	59	243	29	199	139	129	158
10	$145,664	$124,213	$109,899	*	$94,587	$98,214	*	$88,897	$57,848	$49,194	$38,700
25	$150,224	$137,579	$128,311	*	$98,480	$100,923	*	$90,168	$67,854	$53,207	$46,605
50	$156,524	$146,259	$135,067	$148,896	$107,497	$110,021	$101,637	$93,430	$75,518	$77,646	$50,916
75	$169,712	$157,728	$148,396	*	$113,907	$116,099	*	$97,706	$95,793	$95,278	$59,822
90	$184,094	$177,619	$159,009	*	$120,807	$126,676	*	$102,260	$114,793	$123,880	$64,425

Table S9. Nine-month Salaries, 17 Responses of US CS Private With <=20 Tenure-Track Faculty, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	11	9	11	1	9	15	1	16	14	8	7
Indiv	34	39	50	6	20	54	6	53	37	34	32
10	$113,827	*	$109,459	*	*	$96,854	*	$86,694	$45,645	*	*
25	$117,554	*	$116,410	*	*	$103,455	*	$93,253	$54,788	*	*
50	$165,273	$169,238	$132,255	*	$102,400	$110,608	*	$96,276	$71,973	$97,902	$56,580
75	$180,517	*	$164,035	*	*	$118,420	*	$101,296	$80,422	*	*
90	$194,500	*	$191,004	*	*	$134,414	*	$106,357	$103,485	*	*

Table S10. Nine-month Salaries, 19 Responses of US CS Private With 15 < Tenure-Track Faculty <=30, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	15	14	14	0	9	17	0	16	15	12	13
Indiv	72	73	73	0	23	72	0	71	56	44	99
10	$117,447	$131,829	$113,016		*	$102,325		$85,956	$47,837	$48,875	$46,861
25	$136,207	$144,953	$127,999		*	$108,142		$93,358	$65,600	$89,204	$51,989
50	$167,693	$165,528	$147,149		$99,656	$112,648		$99,801	$71,620	$110,120	$56,944
75	$196,301	$185,896	$169,602		*	$120,609		$104,261	$95,781	$131,572	$65,752
90	$212,326	$194,736	$187,143		*	$144,753		$106,390	$102,669	$167,835	$72,160

Table S11. Nine-month Salaries, 18 Responses of US CS Private With Tenure-Track Faculty >20, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	17	14	16	1	9	15	1	16	15	13	12
Indiv	128	110	95	22	48	155	3	114	115	113	168
10	$125,246	$120,776	$109,578	$175,610	$91,168	$97,070	$120,645	$83,672	$65,933	$49,929	$42,294
25	$133,600	$132,622	$123,388	$175,610	$94,992	$107,357	$120,645	$91,801	$68,808	$69,396	$46,076
50	$165,506	$150,464	$145,836	$175,610	$108,349	$115,573	$120,645	$99,603	$81,490	$110,000	$54,012
75	$196,640	$171,807	$161,442	$175,610	$118,874	$125,756	$120,645	$104,261	$98,075	$132,775	$61,982
90	$211,413	$191,434	$183,955	$175,610	.	$141,799	$120,645	$106,362	$103,542	$154,340	$66,937

Table S12. Nine-month Salaries, 43 Responses of US CS Public In Large City or Suburbs, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	33	33	35	6	29	38	4	40	41	20	28
Indiv	173	141	197	27	86	248	33	200	183	113	142
10	$114,905	$112,771	$108,403	*	$88,825	$92,707	*	$83,235	$53,568	$50,034	$34,377
25	$132,828	$132,156	$124,857	*	$97,871	$100,505	*	$88,808	$60,992	$65,135	$40,595
50	$155,176	$143,813	$134,846	$143,916	$104,067	$105,500	$102,006	$91,799	$68,901	$83,640	$53,073
75	$166,877	$157,636	$144,454	*	$110,533	$112,571	*	$95,050	$78,304	$105,658	$59,971
90	$185,018	$180,609	$160,947	*	$117,629	$116,616	*	$100,833	$97,262	$122,492	$70,989

Table S13. Nine-month Salaries, 25 Responses of US CS Public In Midsize City or Suburbs, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	20	23	21	3	20	23	3	24	20	9	12
Indiv	79	93	91	37	45	132	24	115	70	53	35
10	$118,458	$111,850	$101,463	*	$89,513	$91,630	*	$80,858	$53,794	*	$30,083
25	$125,576	$120,300	$111,365	*	$94,899	$98,190	*	$86,006	$60,500	*	$44,545
50	$150,809	$136,972	$120,830	$165,300	$101,436	$103,988	$113,989	$90,603	$65,989	$79,122	$52,159
75	$170,131	$144,771	$141,716	*	$113,726	$111,368	*	$96,356	$91,834	*	$60,000
90	$188,737	$170,221	$161,343	*	$117,546	$123,069	*	$101,918	$117,336	*	$81,680

Table S14. Nine-month Salaries, 36 Responses of US CS Public in Small City, Town, or Rural, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	24	32	28	2	28	35	1	33	30	12	20
Indiv	95	126	97	9	93	226	4	138	110	52	73
10	$116,257	$114,829	$102,755	*	$91,127	$88,468	*	$80,118	$47,568	$41,344	$40,453
25	$128,507	$118,819	$109,833	*	$94,300	$94,702	*	$83,700	$55,419	$54,761	$42,369
50	$151,428	$133,711	$123,884	*	$98,703	$97,315	*	$88,613	$64,019	$62,182	$50,000
75	$166,893	$150,275	$149,205	*	$111,181	$106,955	*	$91,565	$75,067	$80,384	$50,843
90	$176,708	$159,605	$166,048	*	$114,413	$119,373	*	$94,808	$100,654	$99,478	$60,558

Table S15. Nine-month Salaries, 23 Responses of US CS Private in Large City or Suburbs, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	18	14	19	2	14	19	2	23	21	14	11
Indiv	100	91	102	28	55	159	9	125	123	129	139
10	$117,181	$107,362	$109,477	*	$84,147	$96,778	*	$86,326	$53,169	$68,719	$40,707
25	$141,677	$130,668	$122,007	*	$98,125	$107,357	*	$93,000	$68,160	$86,421	$44,526
50	$165,525	$141,926	$132,255	*	$113,165	$114,000	*	$97,892	$73,661	$92,313	$56,944
75	$188,905	$181,365	$157,450	*	$119,487	$124,260	*	$101,900	$88,070	$131,815	$60,000
90	$196,458	$194,736	$196,520	*	$130,838	$140,288	*	$105,010	$98,835	$172,133	$72,623

Table S16. Nine-month Salaries, 12 Responses of US CS Private in Other than Large City, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	10	9	8	0	4	11	0	9	8	7	8
Indiv	62	58	43	0	13	50	0	42	29	18	61
10	$114,436	*	*		*	$98,260		*	*	*	*
25	$124,909	*	*		*	$103,890		*	*	*	*
50	$158,143	$156,406	$147,738		$97,242	$110,976		$98,129	$76,163	$110,240	$55,091
75	$205,229	*	*		*	$122,994		*	*	*	*
90	$214,608	*	*		*	$143,151		*	*	*	*

Table S17. Nine-month Salaries, 7 Responses of 32 US Computer Engineering Departments, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	3	4	4	2	4	6	2	7	6	5	4
Indiv	9	14	22	22	8	23	6	18	26	16	20
10	*	*	*	*	*	*	*	*	*	*	*
25	*	*	*	*	*	*	*	*	*	*	*
50	$155,925	$130,462	$118,035	*	$88,851	$95,584	*	$87,321	$63,001	$82,500	$52,139
75	*	*	*	*	*	*	*	*	*	*	*
90	*	*	*	*	*	*	*	*	*	*	*

Table S18. Nine-month Salaries, 14 Responses of 25 US Information Departments, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	9	11	12	0	10	14	0	14	13	6	7
Indiv	18	39	44	0	40	67	0	75	93	40	29
10	*	$103,919	$112,741		$80,841	$84,526		$70,896	$52,650	*	*
25	*	$116,791	$120,218		$91,214	$88,779		$74,409	$62,786	*	*
50	$138,037	$159,964	$133,461		$102,789	$101,912		$90,454	$68,685	$87,015	$50,667
75	*	$167,629	$152,223		$108,086	$110,881		$97,725	$81,761	*	*
90	*	$175,550	$165,950		$118,927	$120,440		$104,441	$97,127	*	*

Table S19. Nine-month Salaries, 11 Responses of 30 Canadian Departments, Percentiles from Department Averages

	Full Professor				Associate			Assistant	Non-Tenure Track		
	In rank 16+ yrs	In rank 8-15 yrs	In rank 0-7 years	Years not given	In rank 8+ years	In rank 0-7 years	Years not given		Teach	Research	Postdoc
Depts	9	9	7	1	8	10	1	10	9	2	4
Indiv	56	73	54	11	42	97	23	42	38	4	41
10	*	*	*	*	*	$95,275	*	$81,227	*	*	*
25	*	*	*	*	*	$107,058	*	$94,040	*	*	*
50	$155,386	$152,167	$134,004	*	$127,469	$117,963	*	$102,364	$84,523	$75,866	$47,364
75	*	*	*	*	*	$135,287	*	$111,462	*	*	*
90	*	*	*	*	*	$156,141	*	$136,001	*	*	*

Table S20. Nine-month Salaries for New PhDs

	US (CS, CE, and Info Combined)				Canadian			
	Tenure-Track	Non-ten Teaching	Non-ten Research	Postdoc	Tenure-Track	Non-ten Teaching	Non-ten Research	Postdoc
Depts	50	16	16	36	2	0	0	2
Indiv	80	26	20	103	3	0	0	16
10	$79,621	$40,800	$42,750	$37,672	*			*
25	$84,180	$46,002	$55,163	$44,698	*			*
50	$90,838	$55,218	$78,520	$52,532	*			*
75	$95,000	$71,875	$92,462	$60,368	*			*
90	$99,313	$77,936	$113,600	$67,635	*			*

Table S21. Salary Changes for Departments that Reported in Both 2011 and 2012

	U.S. CS (125)	U.S. CE (7)	U.S. I (13)	Canadian (8)
Full Profs	+4.3%	+2.3%	+3.9%	+4.0%
Assoc. Profs.	+1.7%	+7.5%	+0.6%	+2.0%
Asst. Profs.	+1.2%	-2.7%	+1.6%	+1.1%
Non-ten-track teaching faculty	+1.1%	-5.3%	-2.1%	+7.5%
Research faculty	-0.7%	+16.1%	-6.1%	-6.1%
Post doctorates	+0.7%	+13.8%	+3.9%	-1.7%

Figure S1. US CS Department Average Salary, Full Professor in Rank 16+ Years
CRA Taulbee Survey 2012

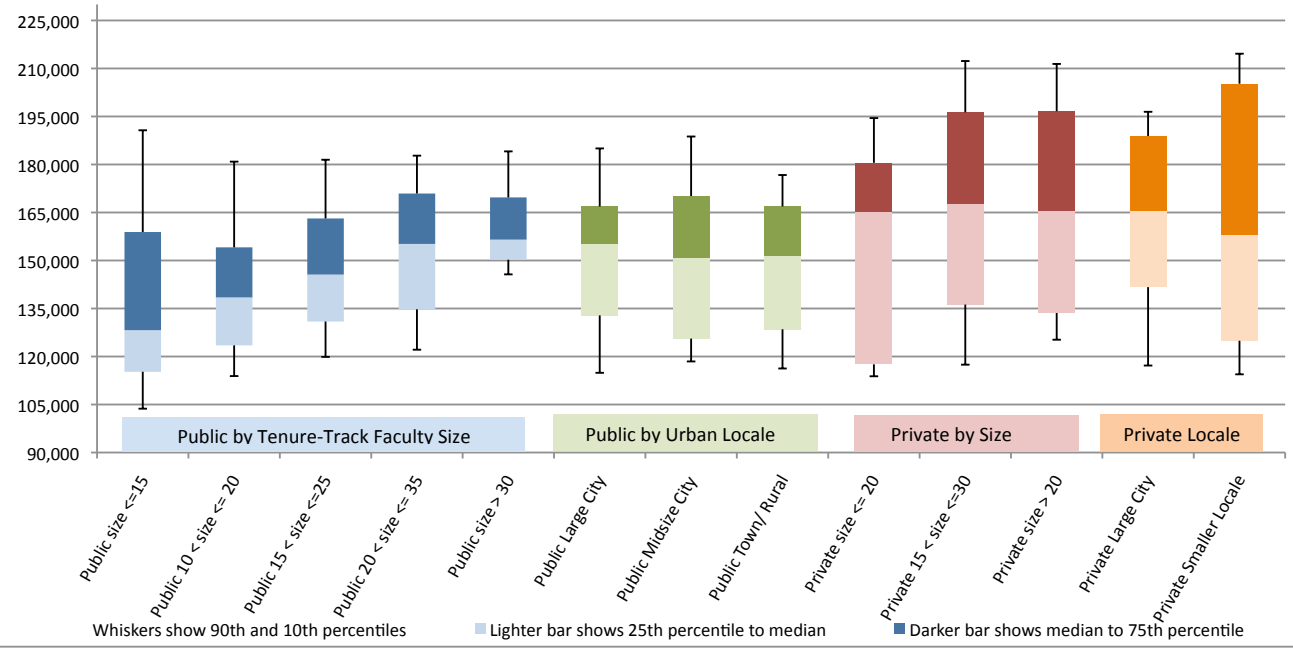


Figure S2. US CS Department Average Salary, Full Professor in Rank 8-15 Years
CRA Taulbee Survey 2012

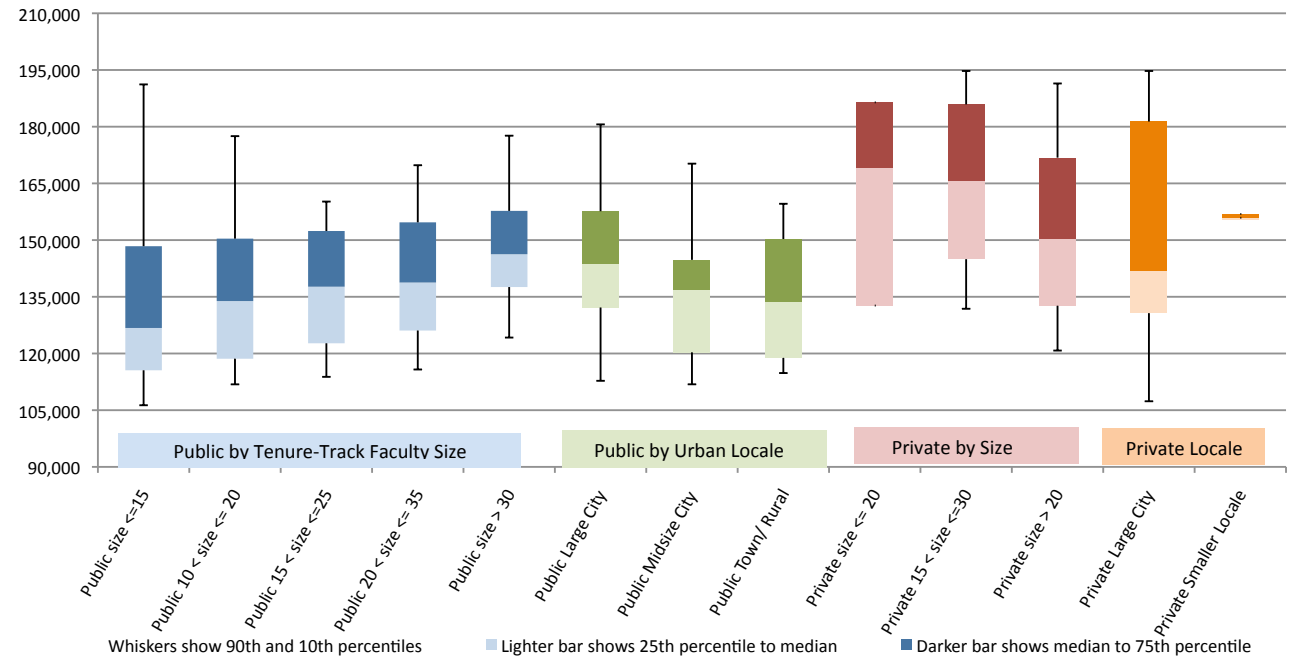


Figure S3. US CS Department Average Salary, Full Professor in Rank 0-7 Years
CRA Taulbee Survey 2012

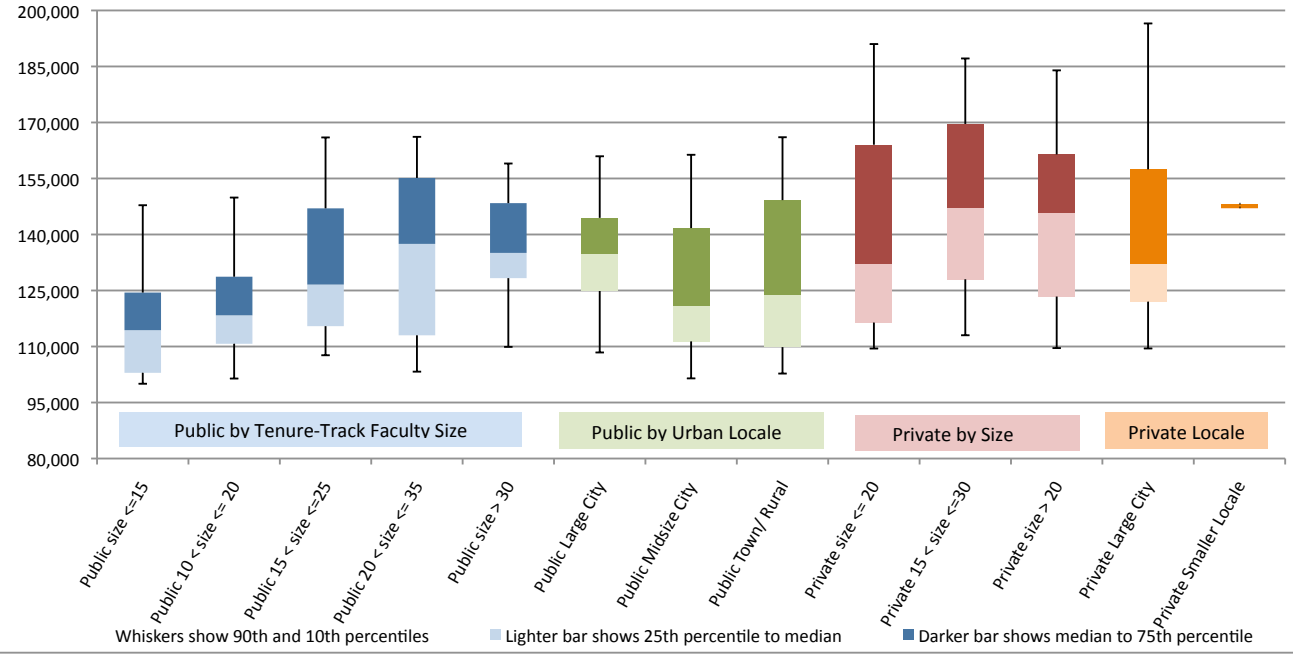


Figure S4. US CS Department Average Salary, Associate Professor in Rank 8+ Years
CRA Taulbee Survey 2012

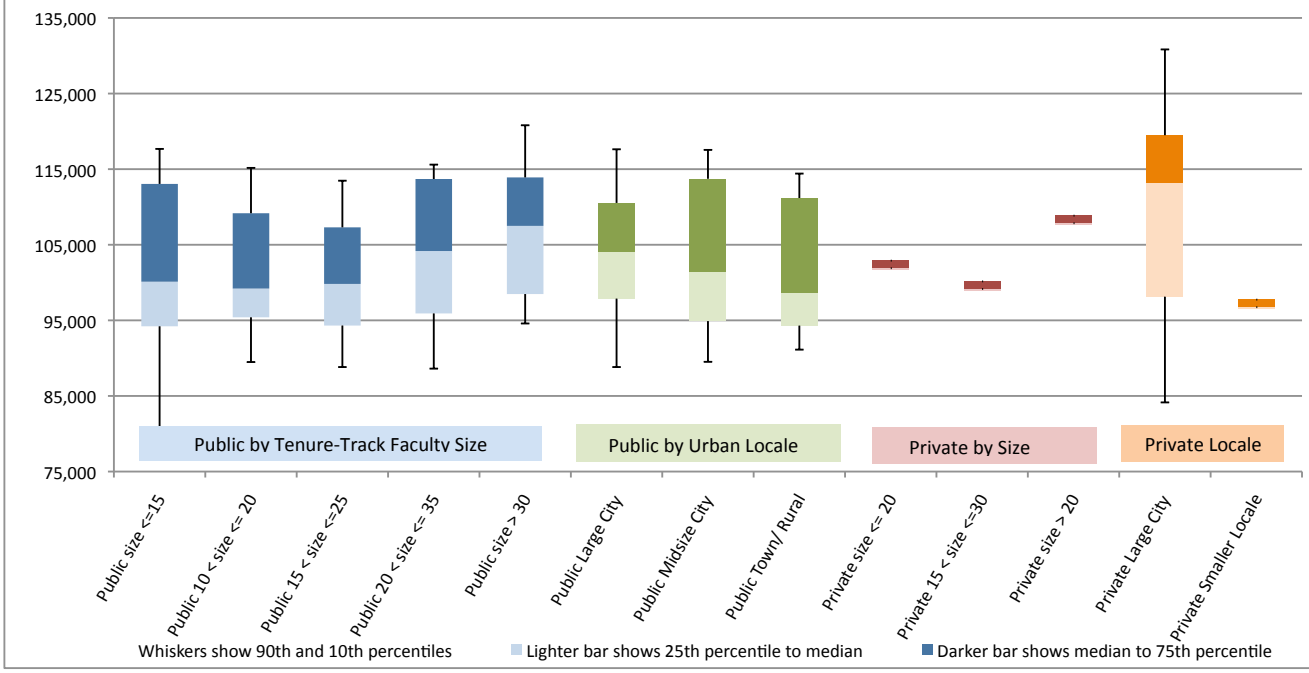


Figure S5. US CS Department Average Salary, Associate Professor in Rank 0-7 Years
CRA Taulbee Survey 2012

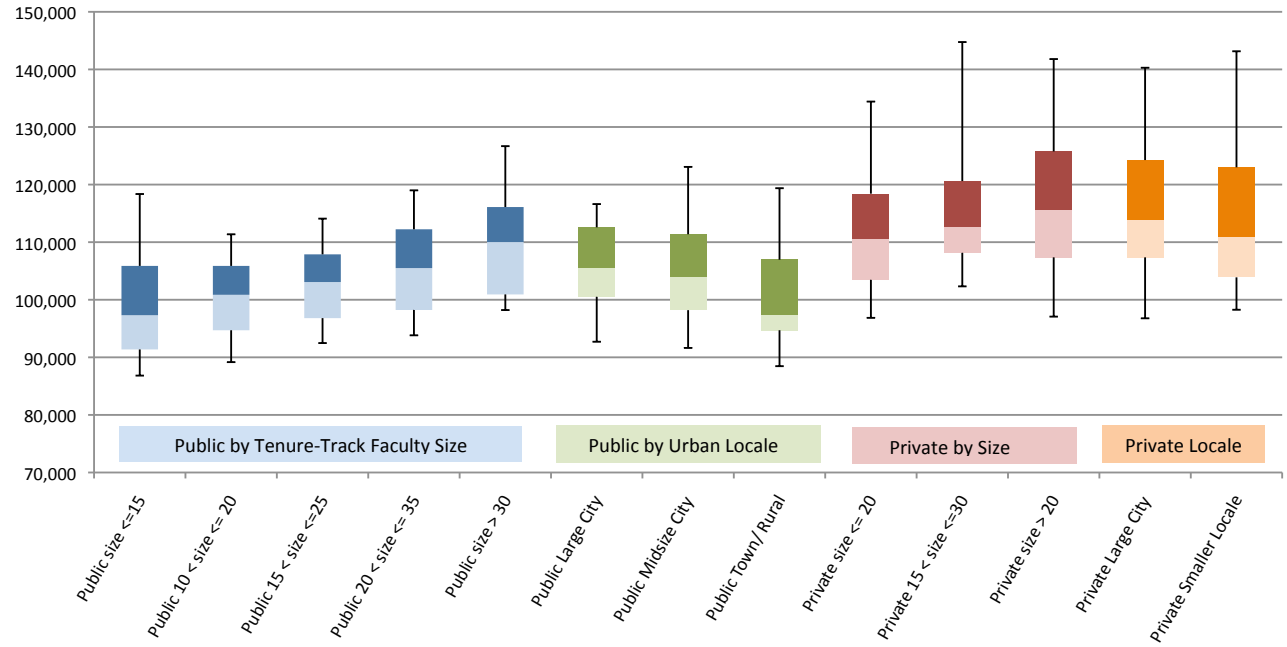


Figure S6. US CS Department Average Salary, Assistant Professor
CRA Taulbee Survey 2012

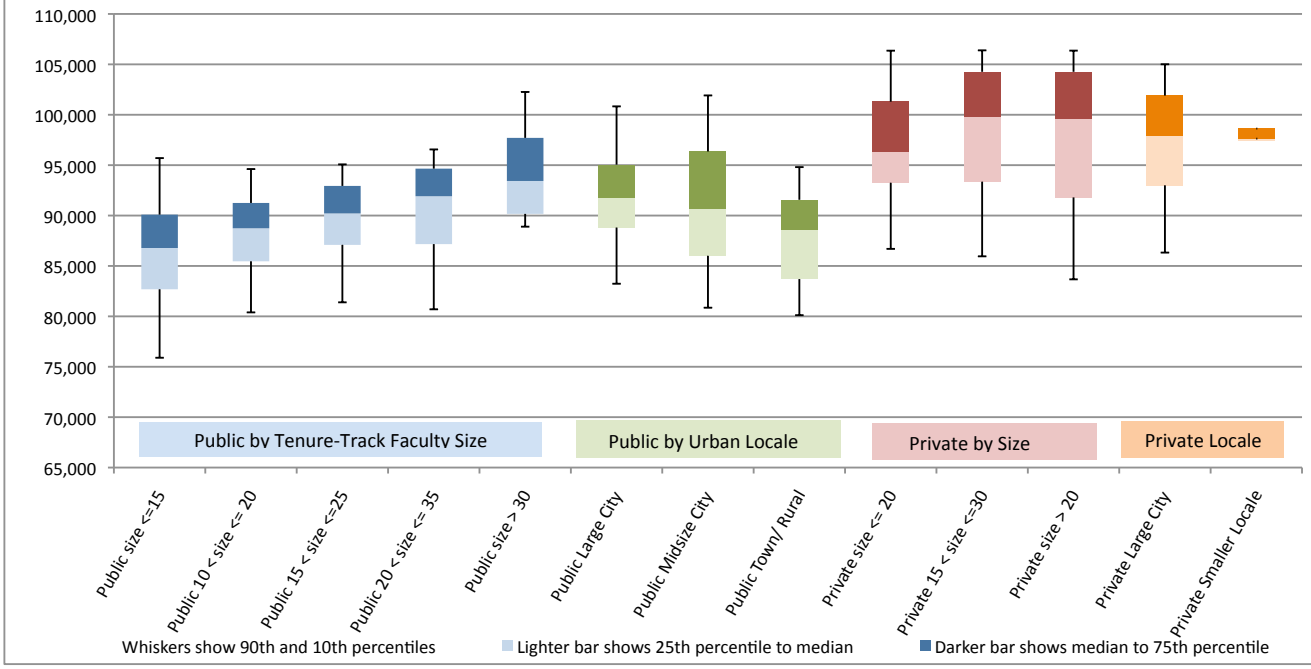


Figure S7. US CS Department Average Salary, Non-Tenure Track Teaching Faculty
CRA Taulbee Survey 2012

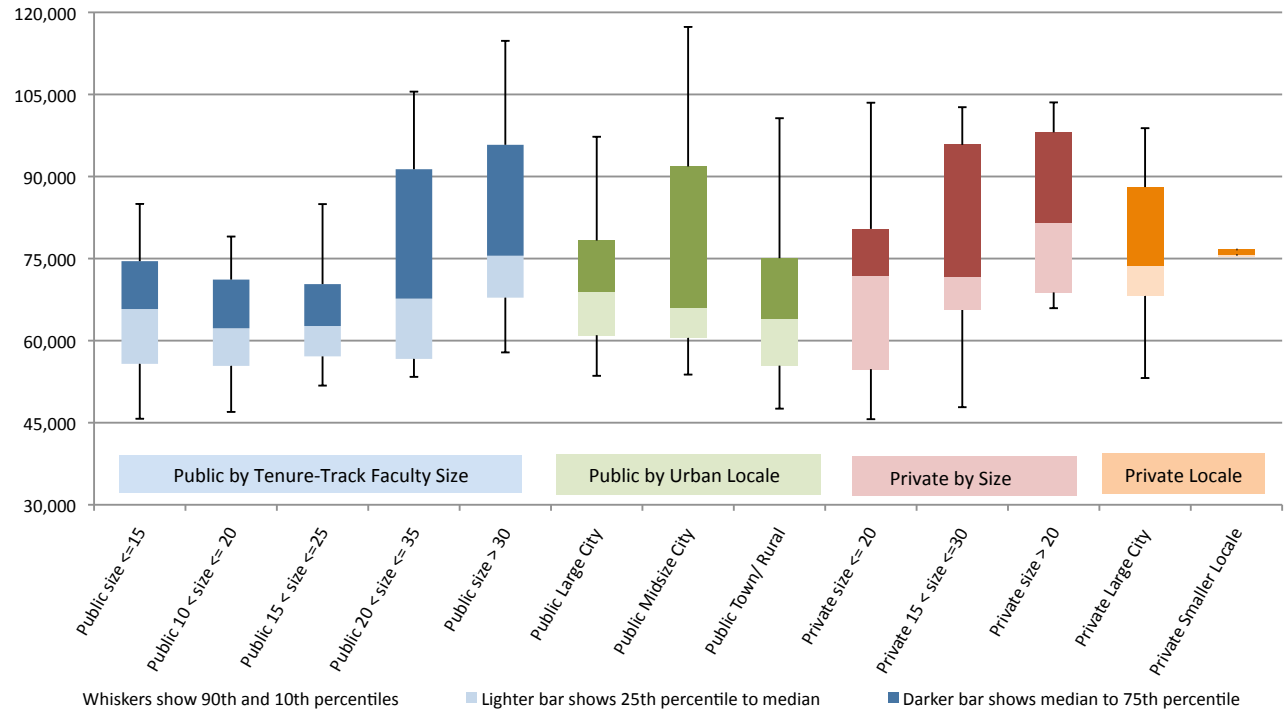
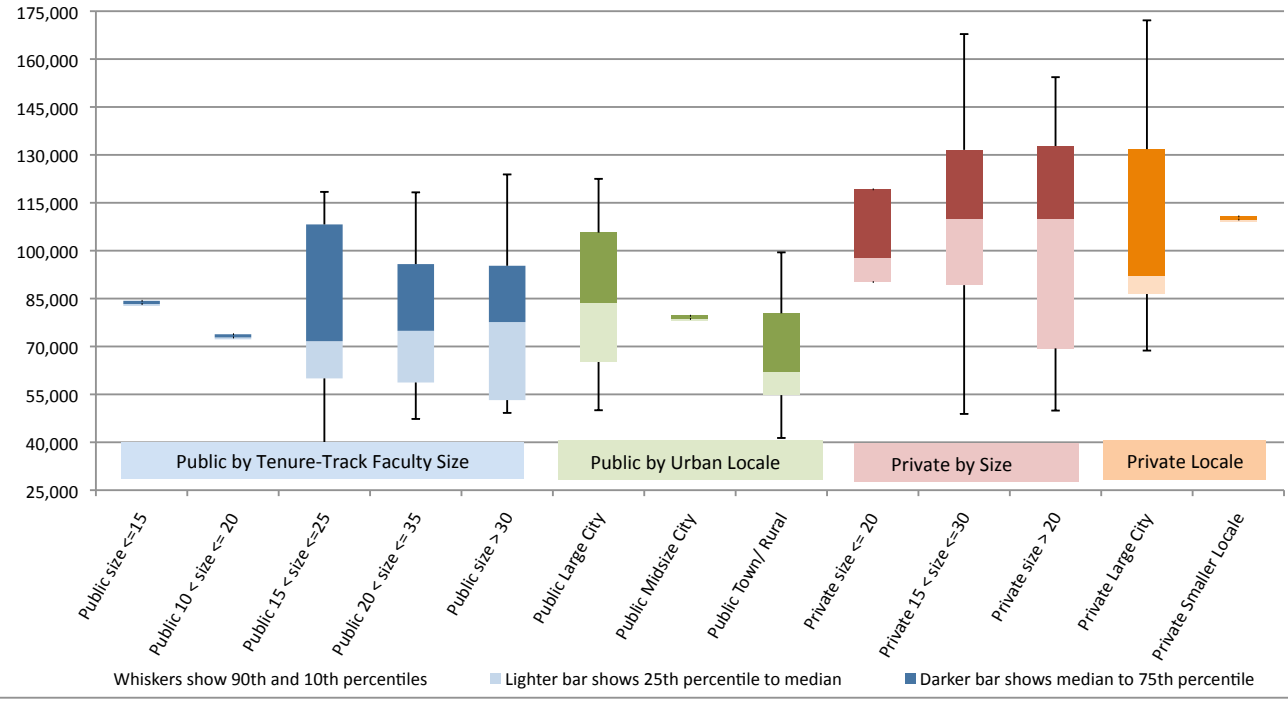


Figure S8. US CS Department Average Salary, Non-Tenure Track Research Faculty
CRA Taulbee Survey 2012



When comparing this year's salaries with those from last year's Taulbee report, we use only those departments that reported both years; otherwise, the departments that reported during only one year can skew the comparison. Because some departments that reported both years provided only aggregate salaries for their full and associate professors during one year and in the other year reported them by years in rank, we only include the salaries for all full professors and for all associate professors in the year-to-year comparison. Table S21 shows the change in median of the average salaries in departments that reported both years (the number of departments being compared is indicated in parenthesis in the first row of each column).

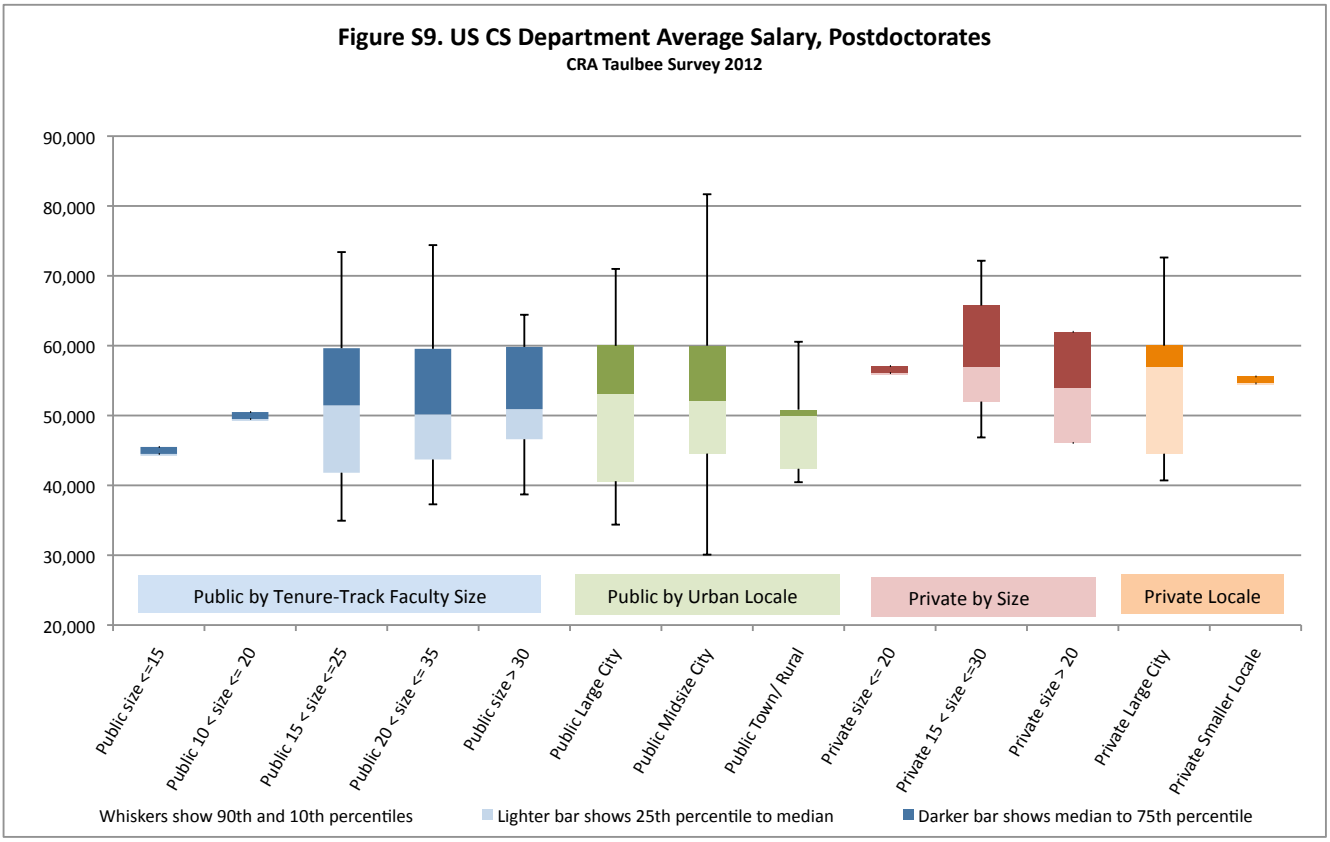
When interpreting these changes, it is important to remember the effect that promotions have on the departmental data from one year to the next, since individual faculty members move from one rank to another. Thus, a department with a small number of faculty members in a particular rank can have its average salary in that rank change appreciably (in either direction) by a single promotion to or from that rank. Departures via resignation or retirement also impact these figures, particularly in the non-tenure-track categories. Because of the small number of Canadian and Computer Engineering departments reporting, the values in those columns are considerably more volatile.

For new Ph.D.s in tenure-track positions at U.S. computer science, computer engineering, and I-school departments (Table S20) the median of the averages increased by just 0.9% vs. last year. Again this year, there are too few reported Canadian salaries for new Ph.D.s to make meaningful comparisons.

Additional Department Profiles Analysis

Every three years, the Taulbee Survey collects data about elements of department activities that are not expected to change much from year to year. Included are data about teaching loads, sources of external funding, methods of recruiting graduate students, department support staff, and space. The most recent data about these activities were collected in the 2008-09 Taulbee Survey. The results of this survey are available on the CRA web site at (http://cra.org/uploads/documents/resources/taulbee/0809.pdf).

Figure S9. US CS Department Average Salary, Postdoctorates
CRA Taulbee Survey 2012



Teaching Loads (Tables Prof1–Prof4)

Tables Prof1 – Prof4 have information on the official teaching loads of tenured and tenure-track faculty. Across all departments, the median teaching load in semester courses per year is 3.0, which is unchanged from three years ago. US CS public institutions have a higher teaching load (median 3.0) than US CS private institutions (median 2.0), but lower than US CE (4.0) or Information (3.5). Table Prof2 summarizes whether a decrease or increase in teaching load is possible in the department; overall, the numbers have changed little from three years ago. 95.6% allow load reduction compared to 98.3% three years ago, and 68.4% now allow a load increase compared to 66.3%.

Tables Prof3 and Prof4 show reasons why adjustments might be allowed. Although the total percent of departments allowing load reduction is similar to three years ago, the percentage allowing most types of reduction is either unchanged or

Table Prof1. Official Teaching Load of Tenured and Tenure-Track Faculty

		Official Teaching Load*				Academic Calendar		
Department Type	# Dept	Minimum	Mean	Median	Maximum	Semester	Quarter	Other
US CS Public	91	2.0	3.4	3.0	8.0	94	12	0
US CS Private	39	0.7	2.8	2.0	6.0	32	7	1
US CE	9	2.0	3.5	4.0	4.7	7	2	0
US I	10	2.0	3.3	3.5	5.0	8	4	0
Canadian	12	2.0	3.3	3.0	4.0	11	0	3
Grand Total	162	0.7	3.3	3.0	8.0	153	25	4

* Teaching load is given for a semester calendar. Loads for a quarter system were multiplied by 2/3. To convert back to quarter-system equivalent, multiply these values by 1.5.

Table Prof2. Faculty Load Reductions and Increases

		Faculty Load Reduction Possible		Faculty Load Increase Possible	
Department Type	# Dept	Yes	No	Yes	No
US CS Public	106	96.2%	3.8%	70.2%	29.8%
US CS Private	40	92.5%	7.5%	68.4%	31.6%
US CE	10	90.0%	10.0%	77.8%	22.2%
US I	12	100.0%	0.0%	50.0%	50.0%
Canadian	14	100.0%	0.0%	64.3%	35.7%
Grand Total	182	95.6%	4.4%	68.4%	31.6%

Table Prof3. Types of Load Reductions Possible in Departments Offering Reductions

Department Type	# Dept	Special Package for New Faculty	Administrative Duties	Type of Size of Class Taught	Buy-out Policy	Strong Research Involvement	Other
US CS Public	102	78.4%	87.3%	20.6%	75.5%	58.8%	12.7%
US CS Private	37	75.7%	78.4%	10.8%	54.1%	40.5%	16.2%
US CE	9	77.8%	77.8%	22.2%	100.0%	44.4%	22.2%
US I	12	83.3%	91.7%	16.7%	66.7%	25.0%	8.3%
Canadian	14	64.3%	92.9%	7.1%	35.7%	78.6%	14.3%
Grand Total	174	77.1%	85.7%	17.1%	68.6%	53.1%	13.7%

down, suggesting that departments are making more limited and strategic choices. Overall, a smaller percentage of departments now allow reduction as part of a new faculty package (77% compared to 83%) or as a buy-out (68.6% vs. 72.5%). However, a larger percentage now allow a reduction for strong research involvement (53.1% vs. 49.7%). Across types of departments, the US CS public schools are noticeably more likely to allow reductions in teaching load for any of the reasons offered. This suggests that faculty at public schools may have a variety of options to bring their actual teaching load in line with that at the private schools.

Somewhat fewer schools allow an increase in teaching load because of shifting primary responsibilities to teaching (76% now vs. 81% three years ago), but more allow an increase in teaching load for other reasons (24% vs. 18.7%). The most common other reasons for an increase are overloads, low research productivity, and personal preference or special circumstances.

Table Prof4. Reasons for Increase in Teaching Load in Departments Where Increase is Possible

Department Type	# Dept	Shifting Primary Resopnsibilities to Teaching	Other
US CS Public	104	82.2%	17.8%
US CS Private	38	80.8%	19.2%
US CE	9	57.1%	42.9%
US I	12	50.0%	50.0%
Canadian	14	44.4%	55.6%
Grand Total	177	76.0%	24.0%

Sources of External Funding
(Tables R2 and R3)

Table R2 shows a breakdown of the sources of funding among all U.S. CS departments, and a comparison of this breakdown with the previous three profiles reports. In comparison with three years ago, the fraction of funding from DOE and other defense (outside of DARPA) increased, while the fraction of funding from NSF, state agencies and industrial sources declined. However, NSF still is the dominant funder of U.S. CS departments, with 42.2% of the external funding. Defense department agencies other than DARPA, and industrial funding again comprise the two next largest fractions of external funding. Overall, the average external funding per department rose 27.5% over the level three years ago.

Table R2. Comparison of US CS External Funding 2003-2012.

	2003 (126 departments)		2006 (123 departments)		2009 (117 departments)		2012 (123 departments)	
	Total	% Fund	Total	% Fund	Total	% Fund	Total	% Fund
NSF	$354,451,309	40.7%	$255,089,816	43.0%	$281,076,341	43.1%	$368,922,448	42.2%
DARPA	$85,401,891	9.8%	$64,191,150	10.8%	$38,393,018	5.9%	$52,526,824	6.0%
NIH	$15,864,767	1.8%	$24,880,112	4.2%	$33,128,578	5.1%	$46,533,387	5.3%
DOE	$20,471,676	2.4%	$24,391,329	4.1%	$17,225,839	2.6%	$30,149,692	3.4%
State agencies	$24,438,483	2.8%	$16,875,578	2.8%	$17,861,292	2.7%	$17,725,647	2.0%
Industrial sources	$70,813,388	8.1%	$50,333,039	8.5%	$76,464,763	11.7%	$89,149,734	10.2%
Other defense	$177,357,598	20.4%	$97,512,961	16.4%	$109,510,806	16.8%	$173,606,289	19.8%
Other federal	$50,555,980	5.8%	$32,388,664	5.5%	$27,695,790	4.2%	$37,088,925	4.2%
Private foundation	$32,977,093	3.8%	$10,826,656	1.8%	$18,297,020	2.8%	$23,600,989	2.7%
IMLS							$288,059	0.0%
Other	$37,995,002	4.4%	$16,996,108	2.9%	$32,763,366	5.0%	$35,190,510	4.0%
Total	**$870,327,187**		**$593,485,413**		**$652,416,813**		**$874,782,504**	
Average/ Dept	**$6,907,359**		**$4,825,085**		**$5,576,212**		**$7,112,053**	

Table R3a. External Funding Breakdown of 91 US CS Public Departments							
Funding Source	**Sum**	**% of Fund**	**Percentile of Department Funding From Source**				
			10th	**25th**	**50th**	**75th**	**90th**
NSF	$254,144,699	46.3%	$234,249	$772,364	$1,775,059	$3,829,346	$6,966,194
DARPA	$21,225,737	3.9%	$0	$0	$71,678	$313,690	$1,104,523
NIH	$23,148,555	4.2%	0	37078	$142,563	$379,957	$1,009,803
DOE	$24,506,068	4.5%	$0	$18,572	$147,366	$571,115	$1,799,374
State agencies	$16,762,121	3.1%	$0	$12,001	$100,209	$212,674	$820,592
Industry	$52,146,047	9.5%	$17,207	$53,919	$209,804	$669,088	$2,283,890
Other defense	$87,744,480	16.0%	$21,082	$150,054	$451,382	$1,382,084	$3,199,465
Other federal	$25,547,055	4.6%	$0	$58,176	$256,466	$550,288	$1,016,933
Pvt foundation	$17,112,859	3.1%	$0	$2,472	$44,883	$177,172	$1,342,423
IMLS	$134,782	0.0%	$0	$0	$0	$0	$10,928
Other	$27,013,860	4.9%	$0	$12,616	$110,009	$359,622	$1,160,478
Total	$549,486,263						

Table R3b. External Funding Breakdown of 32 US CS Private Departments							
Funding Source	**Sum**	**% of Fund**	**Percentile of Department Funding From Source**				
			10th	**25th**	**50th**	**75th**	**90th**
NSF	$114,777,749	35.3%	$479,523	$1,447,547	$2,215,961	$3,950,642	$6,638,718
DARPA	$31,301,087	9.6%	$0	$79,437	$567,685	$1,730,178	$5,590,980
NIH	$23,384,833	7.2%	$0	$92,481	$395,896	$1,005,087	$2,297,804
DOE	$5,643,624	1.7%	$0	$31,154	$102,701	$508,579	$1,432,249
State agencies	$963,526	0.3%	$0	$0	$0	$20,276	$285,179
Industry	$37,003,687	11.4%	$0	$75,171	$244,948	$770,620	$3,670,828
Other defense	$85,861,809	26.4%	$132,653	$299,433	$846,104	$1,909,934	$5,847,091
Other federal	$11,541,870	3.5%	$0	$0	$77,751	$357,441	$4,068,550
Pvt foundation	$6,488,130	2.0%	$0	$8,384	$83,671	$193,622	$659,074
IMLS	$153,277	0.0%	$0	$0	$0	$0	$122,622
Other	$8,176,650	2.5%	$0	$6,203	$123,620	$406,100	$1,149,343
Total	$325,296,242						

Table R3c. External Funding Breakdown of 6 US CE Departments							
Funding Source	Sum	% of Fund	Percentile of Department Funding From Source				
			10th	25th	50th	75th	90th
NSF	$7,568,022	42.9%			$1,381,321		
DARPA	$176,955	1.0%			$63,655		
NIH	$3,630,805	20.6%			$623,863		
DOE	$315,410	1.8%			$52,911		
State agencies							
Industry	$2,866,990	16.3%			$478,859		
Other defense	$2,238,916	12.7%			$305,548		
Other federal							
Pvt foundation							
IMLS							
Other	$845,314	4.8%			$334,398		
Total	$17,642,412						

Table R3d. External Funding Breakdown of 12 US Information Departments							
Funding Source	Sum	% of Fund	Percentile of Department Funding From Source				
			10th	25th	50th	75th	90th
NSF	$14,329,273	25.2%	$235,022	$386,244	$960,439	$1,750,847	$2,712,239
DARPA							
NIH	$15,463,167	27.2%			$75,450		
DOE	$241,356	0.4%			$31,767		
State agencies	$3,102,915	5.4%			$44,467		
Industry	$3,707,265	6.5%	$3,562	$47,668	$103,973	$467,036	$1,905,923
Other defense	$4,985,479	8.8%			$308,010		
Other federal	$2,340,848	4.1%			$129,104		
Pvt foundation	$3,138,754	5.5%	$3,523	$45,890	$161,374	$586,030	$959,895
IMLS	$5,098,380	9.0%			$525,345		
Other	$4,534,342	8.0%	$15,347	$72,931	$254,561	$836,069	$1,296,609
Total	$56,941,779						

Tables R3a-R3e show the data for different departmental strata. Among U.S. CS departments, public universities get a larger fraction of their funding than do private universities from NSF, DOE and state agencies, while private universities get a larger fraction of funding than do public universities from DARPA, NIH and other defense agencies. NSF and NIH are the two dominant funders among CE and I departments, and both categories of departments also have significant funding from defense agencies other than DARPA. CE departments also get significant funding from industry, while I departments get significant funding from IMLS. Canadian departments get the largest share of their funding from NSERC.

Other Graduate Student Data
(Tables Prof5–Prof7)

Tables Prof5 – Prof7 contain information on the factors that affect a graduate student's stipend and on recruitment tactics used by departments.

Graduate student stipends are most likely to be affected by advancing to the next stage of the program (especially in the US CS public and Canadian schools) and by differences in stipend sources. Stipends are more likely than three years ago to be affected by years of service (24.6% vs. 19.9%) and less likely to be affected by differences in stipend sources (37.7% vs. 41.4%).

Departments continue to use a variety of recruitment tactics, with guaranteed multi-year support the most common (reported by 57.6% of the departments) and up-front signing bonuses the least used at 5.8% of reporting departments. Most recruitment strategies are little changed from three years ago, but guaranteed summer support has decreased (now 22.5%, formerly 29%). In the departments that offer them, the dollar value of most recruitment incentives is about the same as three

Table R3e. External Funding Breakdown of 11 Canadian Departments (in Canadian dollars)

Funding Source	Sum	% of Fund	Percentile of Department Funding From Source				
			10th	25th	50th	75th	90th
NSF	$33,957,429	51.1%	$174,644	$335,791	$1,806,827	$2,595,473	$14,664,781
DARPA							
NIH	$109,987	0.2%			$25,240		
DOE							
State agencies	$2,665,994	4.0%			$166,309		
Industry	$8,463,914	12.7%			$324,881		
Other defense	$233,066	0.4%			$55,000		
Other federal	$5,790,101	8.7%			$627,206		
Pvt foundation	$1,188,831	1.8%			$594,416		
IMLS							
Other	$14,051,860	21.1%			$169,140		
Total	$66,461,182						

Table Prof5. Factors Affecting the Amount of a Graduate Student's Stipend

Department Type	# Dept	Advance to Next Stage of Program	Years of Service	GPA	Recruitment Enhancements	Different Stipend Sources	Other
US CS Public	110	60.0%	25.5%	12.7%	22.7%	35.5%	13.6%
US CS Private	41	41.5%	19.5%	12.2%	26.8%	34.1%	22.0%
US CE	11	36.4%	9.1%	0.0%	9.1%	36.4%	18.2%
US I	13	38.5%	46.2%	15.4%	38.5%	38.5%	15.4%
Canadian	14	50.0%	21.4%	28.6%	21.4%	64.3%	28.6%
Grand Total	189	52.4%	24.6%	13.1%	23.6%	37.7%	16.8%

years ago, except that the median stipend enhancement has decreased from $5000 to $4000 and the median number of years for which support is guaranteed has increased from 3 to 4.

Space (Tables Prof8–Prof15)

Table Prof8 shows statistics on space for all US departments (CS, CE, and I). The median of total department space increased 6%, or about 1600 square feet, in the past three years. This reflects small increases in each type of space.

Tables Prof9 – Prof13 show the distribution of space for each department type.

Table Prof14 shows the percent of departments expecting to gain or lose space. Three years ago, 26% of departments expected to gain space and 66% expected no change; this year, less change is expected with 17.6% having plans for an increase and 77% expecting to remain unchanged. Table Prof15 shows the sources of funding for those departments with plans to add space. The most notable change from three years ago is that none of the US programs are now using federal funds and fewer are using industry funds.

Table Prof6. Departments Using Selected Graduate Student Recruitment Incentives

Department Type	# Dept	Upfront One-Time Signing Bonus	Stipend Enhance-ments	Guaranteed Multi-Year Support	Guaranteed Summer Support	Paid Visits to Campus	Other
US CS Public	110	5.5%	23.6%	56.4%	23.6%	38.2%	11.8%
US CS Private	41	7.3%	29.3%	58.5%	26.8%	56.1%	12.2%
US CE	11	0.0%	9.1%	36.4%	18.2%	45.5%	9.1%
US I	13	7.7%	30.8%	84.6%	15.4%	61.5%	15.4%
Canadian	14	7.1%	28.6%	64.3%	14.3%	21.4%	14.3%
Grand Total	189	5.8%	24.6%	57.6%	22.5%	42.4%	12.0%

Table Prof7. Median Amounts and Years of Selected Graduate Student Recruitment Incentives

Department Type	# Dept	Upfront One-Time Signing Bonus	Stipend Enhance-ments	Guaranteed Years of Support	Guaranteed Summer Support	Paid Visits to Campus
US CS Public	50	$3,250	$5,000	3.5	$5,450	$500
US CS Private	20	$1,600	$3,950	4.5	$6,750	$500
US CE	2			2.0		
US I	9	$2,000		4.0		$500
Canadian	5	$5,000	$5,000	4.0		$700
Grand Total	86	$3,000	$4,000	4.0	$5,672	$500

Table Prof8. Department Space, net square feet, 135 US institutions

Percentiles	Total Space	Faculty, Staff, and Student Offices	Conference and Seminar Rooms	Research Labs	Instructional Labs
10	10,580	3,920	392	424	0
25	16,456	6,450	802	2,168	1,601
50	27,646	11,018	1,609	6,236	3,404
75	46,500	17,828	3,041	10,352	6,725
90	80,133	32,784	6,000	19,246	12,550

Table Prof9. Department Space, net square feet, 86 US CS Public					
Percentiles	Total Space	Faculty, Staff, and Student Offices	Conference and Seminar Rooms	Research Labs	Instructional Labs
10	9,733	3,924	444	1,136	663
25	16,078	6,347	744	2,890	2,054
50	27,823	10,389	1,544	6,719	3,497
75	45,317	17,962	3,025	11,460	6,932
90	73,515	33,219	5,866	16,253	13,517

Table Prof10. Department Space, net square feet, 31 US CS Private					
Percentiles	Total Space	Faculty, Staff, and Student Offices	Conference and Seminar Rooms	Research Labs	Instructional Labs
10	11,990	4,124	0	58	0
25	19,443	9,221	721	2,881	1,377
50	27,885	13,114	2,000	6,224	2,063
75	56,156	21,000	4,975	9,060	5,500
90	86,757	35,028	8,812	22,353	19,335

Table Prof11. Department Space, net square feet, 6 US CE Departments					
Percentiles	Total Space	Faculty, Staff, and Student Offices	Conference and Seminar Rooms	Research Labs	Instructional Labs
10					
25					
50	21,125	6,668	1,140	6,676	4,631
75					
90					

Table Prof12. Department Space, net square feet, 12 US Information Departments					
Percentiles	Total Space	Faculty, Staff, and Student Offices	Conference and Seminar Rooms	Research Labs	Instructional Labs
10	9,156	4,168	817	0	0
25	17,418	8,428	1,063	305	819
50	33,665	12,636	2,156	1,620	3,133
75	37,504	17,472	2,797	6,370	7,755
90	89,383	19,836	5,753	18,447	11,666

Departmental Support Staff
(Tables Prof16 – Prof21)

Table Prof16 shows the distribution of support staff across all departments. Since these questions were last asked three years ago, the median total administrative staff (both internal and external support) fell by one person, from 6 to 5. Median computer support also fell by one person, from 2 to 1.

Tables Prof17 – Prof21 show the distribution of support staff by department type. Among the US CS programs, those in private schools have a higher median of administrative staff (6) than do those in public schools (4). Administrative staff is significantly higher in the information programs, with a median of 13.3. This is two persons higher than the median for the I programs three years ago, but because of the small number of I-programs that respond to Taulbee, this may reflect a difference in participating departments.

Concluding Observations

The popularity of computing as a major at both the undergraduate and graduate levels seems to be growing at a solid clip. Industry positions for doctoral graduates have been able to keep up with increased supply, even as the academic job market did not show any growth. The several-year increase in undergraduate computing enrollments may provide pressure on both doctoral granting programs and non-doctoral granting programs to increase the

Table Prof13. Department Space, net square meters, 13 Canadian Departments

Percentiles	Total Space	Faculty, Staff, and Student Offices	Conference and Seminar Rooms	Research Labs	Instructional Labs
10	1,818	220	21	63	0
25	3,021	849	94	900	115
50	5,530	1,130	279	1,718	650
75	6,487	2,043	479	2,120	1,110
90	7,425	3,247	803	4,308	1,363

Table Prof14. Definite Plans to Gain or Lose Space

Department Type	# Dept	Gain Space	No Change	Lose Space	No Answer
US CS Public	86	9.3%	82.6%	4.7%	3.5%
US CS Private	31	25.8%	74.2%	0.0%	0.0%
US CE	6	33.3%	66.7%	0.0%	0.0%
US I	12	58.3%	41.7%	0.0%	0.0%
Canadian	13	7.7%	84.6%	7.7%	0.0%
Grand Total	148	17.6%	77.0%	3.4%	2.0%

Table Prof15. Sources of Funding for Additional Space for Departments with Plans to Add

Department Type	# Dept	Percent of Departments Using Funds from Source				
		Institutional	Federal	State / Provincial	Industry	Private
US CS Public	10	60.0%	0.0%	30.0%	10.0%	60.0%
US CS Private	11	100.0%	0.0%	0.0%	0.0%	18.2%
US CE	3	0.0%	0.0%	66.7%	0.0%	33.3%
US I	7	85.7%	0.0%	14.3%	0.0%	28.6%
Canadian	2	50.0%	50.0%	0.0%	50.0%	0.0%
Grand Total	193	72.7%	3.0%	18.2%	6.1%	33.3%

Table Prof16. Full Time Staff by Type of Support – All Institutions

	Secretarial / Administrative			Computer Support			Research		
	Institutional	External Support	Total	Institutional	External Support	Total	Institutional	External Support	Total
10	1.5	.0	2.0	.0	.0	.0	.0	.0	.0
25	3.0	.0	3.0	1.0	.0	1.0	.0	.0	.0
50	5.0	.0	5.0	2.0	.0	2.0	.0	.0	.0
75	9.0	.2	9.6	4.0	.0	5.0	.0	1.0	2.0
90	15.9	3.0	17.2	9.0	1.0	10.1	1.0	5.1	6.1

Table Prof17. Full Time Staff by Type of Support – 103 US CS Public

	Secretarial / Administrative			Computer Support			Research		
	Institutional	External Support	Total	Institutional	External Support	Total	Institutional	External Support	Total
10	1.0	.0	1.0	.0	.0	.0	.0	.0	.0
25	2.0	.0	2.5	1.0	.0	1.0	.0	.0	.0
50	4.0	.0	4.0	2.0	.0	2.0	.0	.0	.0
75	8.0	.0	8.0	4.0	.0	4.0	.0	1.6	2.0
90	13.6	2.5	14.8	8.0	1.0	9.0	.0	6.0	6.0

Table Prof18. Full Time Staff by Type of Support – 40 US CS Private

	Secretarial / Administrative			Computer Support			Research		
	Institutional	External Support	Total	Institutional	External Support	Total	Institutional	External Support	Total
10	2.0	.0	2.0	.0	.0	.0	.0	.0	.0
25	3.0	.0	4.0	.6	.0	1.0	.0	.0	.0
50	6.0	.0	6.0	2.0	.0	2.0	.0	.0	.0
75	10.8	.2	12.0	4.0	.0	4.8	.0	1.0	2.0
90	35.4	3.0	35.7	12.4	1.9	12.9	1.9	6.8	7.9

Table Prof19. Full Time Staff by Type of Support – 9 US CE Departments

	Secretarial / Administrative			Computer Support			Research		
	Institutional	External Support	Total	Institutional	External Support	Total	Institutional	External Support	Total
10									
25									
50	4.0	0.0	4.0	1.0	0.0	1.0	0.0	0.0	0.0
75									
90									

Table Prof20. Full Time Staff by Type of Support – 11 US Information Departments									
	Secretarial / Administrative			Computer Support			Research		
	Institutional	External Support	Total	Institutional	External Support	Total	Institutional	External Support	Total
10	2.4	.0	2.4	.7	.0	1.2	.0	.0	.0
25	4.2	.0	10.2	2.0	.0	2.0	.0	.0	.0
50	12.8	1.0	13.3	4.0	.0	4.5	.0	.0	1.5
75	34.7	1.8	34.7	7.0	.5	7.7	1.0	2.5	2.5
90	35.1	6.2	38.6	9.5	27.4	30.6	3.5	7.6	10.8

Table Prof21. Full Time Staff by Type of Support – 14 Canadian Departments									
	Secretarial / Administrative			Computer Support			Research		
	Institutional	External Support	Total	Institutional	External Support	Total	Institutional	External Support	Total
10	1.8	.0	1.8	1.5	.0	1.5	.0	.0	.0
25	3.9	.0	3.9	3.8	.0	3.8	.0	.0	.0
50	6.8	.0	7.0	6.0	.0	6.0	.0	.0	.0
75	8.1	1.0	10.5	10.6	.0	11.4	.0	.3	1.5
90	15.5	4.0	16.0	15.0	3.5	17.0	17.5	7.5	23.5

number of faculty beyond the very small predicted increases. It will be interesting to see if there is a narrowing of the now very wide gap in the fraction of new doctoral grads going to industry vs. those going to academia.

Participating Departments

US CS Public (109): *Arizona State, Auburn, City University of New York Graduate Center, Clemson University, College of William & Mary, Colorado School of Mines, Colorado State, Florida International, Florida State, George Mason, Georgia State, Georgia Tech, Indiana, Iowa State, Kansas State, Kent State, Louisiana State, Michigan State, Michigan Technological, Mississippi State, Montana State, Naval Postgraduate School, New Jersey Institute of Technology, New Mexico State, North Carolina State, North Dakota State, Ohio State, Ohio, Old Dominion, Oregon State, Penn State, Portland State, Purdue, Rutgers, Southern Illinois, Stony Brook SUNY, Temple, Texas A&M, Texas Tech University, Universities at Albany and Buffalo (SUNY), Universities of Alabama (Birmingham, Huntsville, and Tuscaloosa), Arizona, Arkansas, Arkansas at Little Rock, California (Berkeley, Davis, Irvine, Los Angeles, Riverside, San Diego, Santa Barbara, and Santa Cruz), Central Florida, Cincinnati, Colorado (Boulder), Connecticut, Delaware, Florida, Georgia, Hawaii, Houston, Idaho, Illinois (Chicago and Urbana-Champaign), Iowa, Kansas, Kentucky, Maryland (College Park and Baltimore County), Massachusetts (Amherst, Boston, and Lowell), Michigan, Minnesota, Mississippi, Missouri (Columbia), Nebraska (Lincoln), Nevada (Las Vegas and Reno), New Hampshire, New Mexico, North Carolina (Chapel Hill and Charlotte), North Texas, Oklahoma, Oregon, Pittsburgh, Rhode Island, South Carolina, South Florida, Tennessee (Knoxville), Texas (Austin and El Paso), Utah, Virginia, Washington, Wisconsin (Madison and Milwaukee), and Wyoming, Virginia Commonwealth, Virginia Tech, Washington State, Wayne State, Western Michigan, and Wright State.*

US CS Private (42): *Boston University, Brandeis, Brown, Carnegie Mellon, Case Western Reserve, Columbia, Cornell, Dartmouth, DePaul, Drexel, Duke, Emory, Florida Institute of Technology, Georgetown, Harvard, Illinois Institute of Technology, Johns Hopkins, Lehigh, Massachusetts Institute of Technology, New York University, Northeastern, Northwestern, Nova Southeastern, Pace, Princeton, Rensselaer Polytechnic Institute, Rice, Rochester Institute of Technology, Stanford, Stevens Institute of Technology, Toyota Technological Institute at Chicago, Tufts, Universities of Chicago, Notre Dame, Pennsylvania, Rochester, Southern California, and Tulsa, Vanderbilt, Washington University in St. Louis, Worcester Polytechnic Institute, and Yale.*

US CE (11): *Florida Institute of Technology, North Carolina State,*

Northeastern, Santa Clara, Universities of California (Santa Cruz), Illinois (Urbana-Champaign), Iowa, New Mexico, Rhode Island, and Southern California, and Virginia Tech.

US Information (16): *Cornell, Drexel, Indiana, Penn State, Purdue, Syracuse, University at Albany, Universities of California (Berkeley, Los Angeles, and Santa Cruz), Maryland (Baltimore County), Michigan, North Carolina (Chapel Hill), Pittsburgh, Texas (Austin), and Washington.*

Canadian (14): *Concordia, Dalhousie, McGill, Memorial University of Newfoundland, Simon Fraser, Universities of British Columbia, Calgary, Manitoba, New Brunswick, Ottawa, Toronto, Victoria, and Waterloo, and York University.*

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[1]The title of the survey honors the late Orrin E. Taulbee of the University of Pittsburgh, who conducted these surveys for the Computer Science Board until 1984, with retrospective annual data going back to 1970.

[2]Information (I) programs included here are Information Science, Information Systems, Information Technology, Informatics, and related disciplines with a strong computing component. Surveys were sent to CRA members, the CRA Deans group members, and participants in the iSchools Caucus (www.ischools.org) who met the criteria of granting Ph.D.s and being located in North America. Other I-programs who meet these criteria and would like to participate in the survey in future years are invited to contact survey@cra.org for inclusion.

[3]Classification of the population of an institution's locale is in accordance with the Carnegie Classification database. Large cities are those with population >= 250,000. Mid-size cities have population between 100,000 and 250,000. Town/rural populations are less than 100,000.

[4]All ethnicity tables: Ethnic breakdowns are drawn from guidelines set forth by the U.S. Department of Education.

[5]All faculty tables: The survey makes no distinction between faculty specializing in CS vs. CE programs. Every effort is made to minimize the inclusion of faculty in electrical engineering who are not computer engineers.