# 2014 Taulbee Survey

## Relentless Growth in Undergraduate CS Enrollment; Doctoral Degree Production Remains Strong, But No New Record

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This article and the accompanying figures and tables present the results from the 44th annual CRA Taulbee Survey[1]. The survey, conducted annually by the Computing Research Association, documents 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.

CRA gathers survey data during the fall. Responses received by January 26, 2015 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 (2013-14). Data for new students in all categories refer to the current academic year (2014-15). Projected student production and information on faculty salaries are also for the current academic year; salaries are those effective January 1, 2015.

We surveyed a total of 268 Ph.D.-granting departments; 181 completed the online survey form, for a response rate of 68 percent. This is similar to last year's 67 percent. The response rate from the U.S. CS departments was 76 percent this year, similar to the 77 percent rate of last year. We had an improved response rate from I departments, to 68 percent from 50 percent last year. The response rates from CE and Canadian departments continue to be rather low. Figure 1 shows the

**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%) |
| 2013 | 144/188 (77%) | 10/30 (33%) | 14/26 (54%) | 11/22 (50%) | 179/266 (67%) |
| 2014 | 143/188 (76%) | 13/31 (42%) | 12/26 (46%) | 13/19 (68%) | 181/268 (68%) |

history of response 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 is 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 2014; 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 for the U.S CS departments 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] These stratifications allow our readers to see multiple views of important data, and hopefully gain new insights from them. 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.

This year marks our first use of the new hosting platform for the survey using software by Peerfocus. The new environment affords increased security and data validation capabilities, and will soon provide the ability for CRA member respondents to select obtain certain survey information for a self-selected peer group.

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-D10; Figures D1-D6)

After two straight years of record Ph.D. production, the number of doctoral degrees produced by the reporting departments declined 2.6 percent, from 1,991 to 1,940. Among all departments reporting both this year and last year, the number of total doctoral degrees declined by 4.1 percent, and among U.S. CS departments reporting both years, the decline was 3.7 percent. An examination of the data by area of computing shows that the entire aggregate decline in degrees produced is in the computer engineering area. The number of CS doctoral degrees produced was steady (1,651 by departments reporting this year vs. 1,653 by departments reporting last year), and the number of I degrees increased (154 vs. 120). The CE and I numbers are strongly influenced by the specific departments responding in

**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 | 96 | 1,228 | 12.3 | 1,298 | 13.5 | 1,290 | 14.2 | 1,027 | 80 | 11.8 |
| US CS Private | 34 | 378 | 11.1 | 487 | 14.3 | 414 | 12.9 | 214 | 24 | 8.8 |
| US CS Total | 130 | 1,606 | 12.0 | 1,785 | 13.7 | 1,704 | 13.9 | 1,241 | 104 | 11.1 |
| US CE | 10 | 90 | 9.0 | 117 | 11.7 | 215 | 19.5 | 136 | 7 | 28.9 |
| US Info | 13 | 98 | 8.2 | 89 | 6.8 | 103 | 7.9 | 65 | 10 | 8.0 |
| Canadian | 12 | 146 | 13.3 | 168 | 14.0 | 107 | 10.7 | 91 | 9 | 12.8 |
| Grand Total | 165 | 1,940 | 11.6 | 2,159 | 13.1 | 2,129 | 13.6 | 1,533 | 130 | 12.0 |

a given year, since we receive data from only a small number of these departments.

Women comprised 17.6 percent of CS doctoral graduates and 18.9 percent of all doctoral computing graduates, both values being slightly higher than those reported last year. The fraction of CS doctoral degrees that went to Non-resident Aliens was 60.1 percent, up from 58.7 percent, while the fraction that went to resident Asians dropped a corresponding amount. Among I doctoral degrees, the fraction going to Non-resident Aliens and Whites both declined (each was 34.7 percent in 2013-14), while the fraction going to resident Asians, Blacks and Hispanics increased. However, the raw number of I degrees to Blacks and Hispanics is still in the single digits. Within CE, women comprised 11.9 percent of the 2013-14 graduates, up from 11.2 percent in 2012-13, and Non-resident Aliens comprised 77.9 percent of the graduates.

The fraction of doctoral graduates who were American Indian or Alaska Native, Black or African American, Native Hawaiian/ Pacific Islander, Hispanic, or Multiracial Non-Hispanic dropped to 2.6 percent from 3.4 percent in CS, and was 3.4 percent in aggregate across CS, CE and I (vs 3.3 percent in 2012-13). Within CS, Non-resident Aliens and Resident Asians comprised a higher percentage of the female doctoral graduates than they did male graduates, while Whites comprised a lower percentage of the female graduates as compared with male graduates (Table D9).

Among currently enrolled CS doctoral students whose ethnicity is known, we see the same direction of difference among Non-resident Aliens, Asians and Whites; Non-resident Aliens and Resident Asians comprise a higher percent of the enrolled women than they do the enrolled men, and Whites comprise a lower percentage of enrolled women. This is similar to the observations last year.

Among those pursuing I degrees, 56.5 percent of the men but only 49.1 percent of the women are Non-resident Aliens or Resident Asians. This is different from last year, when there

**Table D2. PhDs Awarded by Gender**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Male | 1,357 | 82.4% | 119 | 88.1% | 94 | 61.0% | 1,570 | 81.1% |
| Female | 290 | 17.6% | 16 | 11.9% | 60 | 39.0% | 366 | 18.9% |
| Total Known Gender | 1,647 | | 135 | | 154 | | 1,936 | |
| Gender Unknown | 4 | | 0 | | 0 | | 4 | |
| Grand Total | 1,651 | | 135 | | 154 | | 1,940 | |

**Table D3. PhDs Awarded by Ethnicity**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Nonresident Alien | 910 | 60.1% | 102 | 77.9% | 50 | 34.7% | 1,062 | 59.4% |
| Amer Indian or Alaska Native | 2 | 0.1% | 0 | 0.0% | 1 | 0.7% | 3 | 0.2% |
| Asian | 123 | 8.1% | 8 | 6.1% | 29 | 20.1% | 160 | 8.9% |
| Black or African-American | 17 | 1.1% | 2 | 1.5% | 8 | 5.6% | 27 | 1.5% |
| Native Hawaiian/Pac Islander | 3 | 0.2% | 1 | 0.8% | 0 | 0.0% | 4 | 0.2% |
| White | 441 | 29.1% | 16 | 12.2% | 50 | 34.7% | 507 | 28.3% |
| Multiracial, not Hispanic | 5 | 0.3% | 0 | 0.0% | 2 | 1.4% | 7 | 0.4% |
| Hispanic, any Race | 13 | 0.9% | 2 | 1.5% | 4 | 2.8% | 19 | 1.1% |
| Total Residency & Ethnicity Known | 1,514 | | 131 | | 144 | | 1,789 | |
| Resident, Ethnicity Unknown | 85 | | 1 | | 4 | | 90 | |
| Residency Unknown | 52 | | 3 | | 6 | | 61 | |
| Grand Total | 1,651 | | 135 | | 154 | | 1,940 | |

## 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: Biomedical/ 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 | 10 | 0 | 10 | 7 | 4 | 4 | 4 | 2 | 4 | 10 | 4 | 11 | 3 | 5 | 5 | 1 | 4 | 11 | 2 | 18 | 119 | 7.6% |
| Researcher | 8 | 0 | 2 | 1 | 3 | 0 | 2 | 2 | 2 | 0 | 0 | 3 | 7 | 1 | 2 | 0 | 0 | 3 | 3 | 3 | 42 | 2.7% |
| Postdoc | 17 | 1 | 7 | 12 | 9 | 6 | 4 | 18 | 5 | 4 | 4 | 10 | 2 | 13 | 11 | 2 | 2 | 12 | 17 | 25 | 181 | 11.6% |
| Teaching Faculty | 4 | 0 | 2 | 0 | 1 | 0 | 0 | 3 | 3 | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 5 | 3 | 4 | 11 | 42 | 2.7% |
| **North American, Other Academic** | | | | | | | | | | | | | | | | | | | | | | |
| Other CS/CE/I Dept. | 4 | 0 | 3 | 1 | 2 | 1 | 2 | 0 | 1 | 3 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 29 | 1.9% |
| Non-CS/CE/I Dept | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 12 | 0.8% |
| **North American, Non-Academic** | | | | | | | | | | | | | | | | | | | | | | |
| Industry | 85 | 0 | 78 | 57 | 47 | 23 | 27 | 30 | 32 | 7 | 24 | 93 | 41 | 34 | 43 | 9 | 13 | 93 | 36 | 124 | 896 | 57.5% |
| Government | 8 | 0 | 2 | 2 | 0 | 1 | 2 | 0 | 5 | 3 | 0 | 2 | 1 | 0 | 3 | 2 | 0 | 3 | 1 | 11 | 46 | 3.0% |
| Self-Employed | 2 | 1 | 1 | 3 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 19 | 1.2% |
| Unemployed | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 1 | 11 | 0.7% |
| Other | 1 | 0 | 2 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 14 | 0.9% |
| **Total Inside North America** | | | | | | | | | | | | | | | | | | | | | | |
| | 139 | 2 | 108 | 83 | 71 | 35 | 43 | 57 | 55 | 36 | 36 | 124 | 55 | 56 | 69 | 14 | 24 | 130 | 63 | 211 | 1,411 | 90.6% |
| **Outside North America** | | | | | | | | | | | | | | | | | | | | | | |
| Ten-Track in PhD | 4 | 0 | 2 | 3 | 2 | 0 | 2 | 1 | 3 | 3 | 2 | 5 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 6 | 38 | 2.4% |
| Researcher in PhD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0.1% |
| Postdoc in PhD | 3 | 0 | 4 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 8 | 5 | 29 | 1.9% |
| Teaching in PhD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0.1% |
| Other Academic | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 6 | 0.4% |
| Industry | 2 | 0 | 7 | 2 | 2 | 1 | 0 | 2 | 4 | 0 | 3 | 8 | 5 | 1 | 3 | 0 | 1 | 2 | 5 | 6 | 54 | 3.5% |
| Government | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 6 | 0.4% |
| Self-Employed | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0.2% |
| Unemployed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0.1% |
| Other | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.3% |
| **Total Outside NA** | 10 | 0 | 15 | 7 | 4 | 4 | 3 | 8 | 7 | 5 | 5 | 17 | 6 | 2 | 5 | 1 | 3 | 6 | 15 | 24 | 147 | 9.4% |
| **Total with Employment Data, Inside North America plus Outside North America** | | | | | | | | | | | | | | | | | | | | | | |
| | 149 | 2 | 123 | 90 | 75 | 39 | 46 | 65 | 62 | 41 | 41 | 141 | 61 | 58 | 74 | 15 | 27 | 136 | 78 | 235 | 1,558 | |
| **Employment Type & Location Unknown** | | | | | | | | | | | | | | | | | | | | | | |
| | 29 | 1 | 17 | 12 | 18 | 4 | 9 | 14 | 21 | 1 | 9 | 42 | 6 | 13 | 5 | 5 | 3 | 15 | 20 | 138 | 382 | |
| **Grand Total** | **178** | **3** | **140** | **102** | **93** | **43** | **55** | **79** | **83** | **42** | **50** | **183** | **67** | **71** | **79** | **20** | **30** | **151** | **98** | **373** | **1,940** | |

## Table D4a. Detail of Industry Employment

| | Artificial Intelligence | Computer-Supported Cooperative Work | Databases/ Information Retrieval | Graphics/Visualization | Hardware/Architecture | Human-Computer Interaction | High-Performance Computing | Informatics: Biomedical/ 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 | Unknown | Other | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Inside North America** | | | | | | | | | | | | | | | | | | | | | | | |
| Research | 52 | 0 | 39 | 28 | 29 | 13 | 13 | 11 | 14 | 4 | 5 | 42 | 18 | 15 | 22 | 4 | 4 | 31 | 13 | 23 | 39 | 419 | 46.8% |
| Non-Research | 24 | 0 | 25 | 23 | 13 | 6 | 7 | 15 | 12 | 2 | 16 | 46 | 18 | 13 | 12 | 3 | 9 | 46 | 16 | 18 | 11 | 335 | 37.4% |
| Postdoctorate | 3 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 2 | 7 | 0 | 28 | 3.1% |
| Type Not Specified | 6 | 0 | 13 | 4 | 4 | 4 | 6 | 2 | 6 | 1 | 1 | 4 | 5 | 4 | 5 | 2 | 0 | 16 | 5 | 17 | 9 | 114 | 12.7% |
| **Total Inside NA** | 85 | 0 | 78 | 57 | 47 | 23 | 27 | 30 | 32 | 7 | 24 | 93 | 41 | 34 | 43 | 9 | 13 | 93 | 36 | 65 | 59 | 896 | |
| **Outside North America** | | | | | | | | | | | | | | | | | | | | | | | |
| Research | 3 | 0 | 3 | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 5 | 0 | 33 | 61.1% |
| Non-Research | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 11 | 20.4% |
| Postdoctorate | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 5 | 9.3% |
| Type Not Specified | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 9.3% |
| **Total Outside NA** | 6 | 0 | 4 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 1 | 4 | 3 | 5 | 1 | 54 | |

## 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 | 1,448 | 204 | 1,652 | 17.0 | 84 | 16 | 100 | 7.7 | 67 | 7 | 74 | 7.4 | 1,826 | 18.4 |
| US CS Private | 581 | 17 | 598 | 17.1 | 4 | 0 | 4 | 2.0 | 17 | 0 | 17 | 5.7 | 619 | 17.7 |
| US CS Total | 2,029 | 221 | 2,250 | 17.0 | 88 | 16 | 104 | 6.9 | 84 | 7 | 91 | 7.0 | 2,445 | 18.2 |
| US CE | 0 | 0 | 0 | 0.0 | 85 | 11 | 96 | 8.7 | 5 | 0 | 5 | 5.0 | 101 | 9.2 |
| US Information | 2 | 0 | 2 | 2.0 | 0 | 0 | 0 | 0.0 | 113 | 9 | 122 | 9.4 | 124 | 9.5 |
| Canadian | 125 | 25 | 150 | 12.5 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 150 | 12.5 |
| Grand Total | 2,156 | 246 | 2,402 | 16.6 | 173 | 27 | 200 | 7.7 | 202 | 16 | 218 | 8.1 | 2,820 | 16.6 |

## 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 | 1,103 | 70 | 29 | 1,202 | 1,826 | 65.8% |
| US CS Private | 347 | 5 | 1 | 353 | 619 | 57.0% |
| Total US CS | 1,450 | 75 | 30 | 1,555 | 2,445 | 63.6% |
| US CE | 0 | 67 | 1 | 68 | 101 | 67.3% |
| US Info | 0 | 0 | 56 | 56 | 124 | 45.2% |
| Canadian | 87 | 0 | 0 | 87 | 150 | 58.0% |
| Grand Total | 1,537 | 142 | 87 | 1,766 | 2,820 | 62.6% |

**Table D6. PhD Enrollment by Department Type**

| Department Type | # Depts | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| US CS Public | 100 | 8,697 | 66.2% | 368 | 66.2% | 405 | 66.2% | 9,470 | 66.2% |
| US CS Private | 35 | 2,923 | 24.2% | 60 | 24.2% | 180 | 24.2% | 3,163 | 24.2% |
| Total US CS | 135 | 11,620 | 90.3% | 428 | 90.3% | 585 | 90.3% | 12,633 | 90.3% |
| US CE | 11 | 0 | 0.1% | 809 | 0.1% | 12 | 0.1% | 821 | 0.1% |
| US Info | 13 | 28 | 0.2% | 0 | 0.2% | 651 | 0.2% | 679 | 0.2% |
| Canadian | 10 | 793 | 9.3% | 0 | 9.3% | 140 | 9.3% | 933 | 9.3% |
| Grand Total | 169 | 12,441 | | 1,237 | | 1,388 | | 15,066 | |

**Table D7. PhD Enrollment by Gender**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Male | 9,952 | 81.3% | 1,049 | 84.8% | 871 | 62.8% | 11,872 | 79.9% |
| Female | 2,284 | 18.7% | 188 | 15.2% | 517 | 37.2% | 2,989 | 20.1% |
| Total Known Gender | 12,236 | | 1,237 | | 1,388 | | 14,861 | |
| Gender Unknown | 205 | | 0 | | 0 | | 205 | |
| Grand Total | 12,441 | | 1,237 | | 1,388 | | 15,066 | |

**Table D8. PhD Enrollment by Ethnicity**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Nonresident Alien | 7,223 | 63.0% | 814 | 66.6% | 520 | 44.1% | 8,557 | 61.7% |
| Amer Indian or Alaska Native | 18 | 0.2% | 1 | 0.1% | 1 | 0.1% | 20 | 0.1% |
| Asian | 596 | 5.2% | 109 | 8.9% | 113 | 9.6% | 818 | 5.9% |
| Black or African-American | 152 | 1.3% | 14 | 1.1% | 81 | 6.9% | 247 | 1.8% |
| Native Hawaiian/Pac Islander | 8 | 0.1% | 6 | 0.5% | 6 | 0.5% | 20 | 0.1% |
| White | 3,209 | 28.0% | 225 | 18.4% | 408 | 34.6% | 3,842 | 27.7% |
| Multiracial, not Hispanic | 64 | 0.6% | 24 | 2.0% | 18 | 1.5% | 106 | 0.8% |
| Hispanic, any Race | 200 | 1.7% | 30 | 2.5% | 32 | 2.7% | 262 | 1.9% |
| Total Known | 11,470 | | 1,223 | | 1,179 | | 13,872 | |
| Resident, Ethnicity Unknown | 494 | | 12 | | 184 | | 690 | |
| Residency Unknown | 477 | | 2 | | 25 | | 504 | |
| Grand Total | 12,441 | | 1,237 | | 1,388 | | 15,066 | |

were no appreciable differences in the percentages with respect to gender. Similar to last year, there is no appreciable difference in the percentage of men vs the percentage of women among Whites pursuing I degrees. Among those pursuing CE doctoral degrees, 19.5 percent of the men but only 12.0 percent of the women are White, while 79.8 percent of the women but only 74.7 percent of the men are either Non-resident Aliens or Resident Asians.

The average number of students per department who passed qualifier exams during 2013-14 in U.S. CS departments is similar to that reported last year among both public and private departments. The average number per department who passed thesis candidacy exams (most, but not all, departments have such exams) also was similar to last year among both public and private departments (Table D1).

The number of new Ph.D. students at departments reporting this year increased slightly compared with the total from last year's reporting departments. This reflects increases in CS and I departments and a small decrease in CE departments.

Among all departments that reported both years, the number of new Ph.D. students increased 3.6 percent. If only U.S. CS departments that reported both years are considered, the increase was 4.7 percent. The proportion of new doctoral students from outside North America continues to increase. This year's proportion is 62.6 percent while last year's was 60.2 percent. U.S. CS departments (both public and private) and Canadian departments had increases, while U.S. CE and U.S. I departments had declines.

Among programs that reported both years, total doctoral enrollment increased 4.4 percent. If only U.S. computer science departments are considered, the increase was 3.9 percent. Total doctoral enrollment by gender is in about the same proportion reported last year (Table D7). The fraction of doctoral students who are not either Non-resident Aliens, Asian or White remains at below 5 percent (Table D8).

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

**Table D9. PhDs Awarded by Gender and Ethnicity, From 175 Departments**

| | CS | | | | | CE | | | | | I | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 739 | 169 | 2 | 59 | 65 | 89 | 13 | 0 | 77 | 87 | 29 | 21 | 0 | 34 | 36 | 1,062 | 59.4 |
| Amer Indian or Alaska Native | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 3 | 0.2 |
| Asian | 95 | 28 | 0 | 8 | 11 | 7 | 1 | 0 | 6 | 7 | 18 | 11 | 0 | 21 | 19 | 160 | 8.9 |
| Black or African-American | 15 | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 0 | 6 | 2 | 0 | 7 | 3 | 27 | 1.5 |
| Native Hawaiian/ Pac Islander | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0.2 |
| White | 384 | 57 | 0 | 31 | 22 | 15 | 1 | 0 | 13 | 7 | 27 | 23 | 0 | 32 | 39 | 507 | 28.3 |
| Multiracial, not Hispanic | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 7 | 0.4 |
| Hispanic, any Race | 9 | 4 | 0 | 1 | 2 | 2 | 0 | 0 | 2 | 0 | 3 | 1 | 0 | 4 | 2 | 19 | 1.1 |
| Total Res & Ethnicity Known | 1,250 | 262 | 2 | 0 | 0 | 116 | 15 | 0 | | | 85 | 59 | 0 | | | 1,789 | |
| Resident, Ethnicity Unknown | 67 | 18 | 0 | | | 1 | 0 | 0 | | | 3 | 1 | 0 | | | 90 | |
| Not Reported (N/R) | 40 | 10 | 2 | | | 2 | 1 | 0 | | | 6 | 0 | 0 | | | 61 | |
| Gender Totals | 1,357 | 290 | 4 | | | 119 | 16 | 0 | | | 94 | 60 | 0 | | | 1,940 | |
| % | 82.4% | 17.6% | | | | 88.1% | 11.9% | | | | 61.0% | 39.0% | | | | | |

* % of M and % of F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

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 graph suggests that doctoral production will remain fairly steady during the next few years, though the departments are forecasting an increase in production during 2014-15.

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. The fraction of new Ph.D.s who took positions in North American industry rose to an historic record of 57.5 percent in 2013-14, eclipsing the previous high of 56.6 percent set in 2007-08. Among those doctoral graduates who went to North American industry and for whom the type of industry position was known, about 56 percent took research positions. This is down from the 64 percent reported last year. This year, definitive data was provided for 87 percent of the graduates who went to industry, up from the 80 percent provided last year.

Only 27.3 percent of 2013-14 graduates took North American academic jobs, an all-time low since we began tracking this in 1989-90. In 2012-13 this figure was 30.6 percent. The fraction taking tenure-track positions in North American doctoral granting computing departments held fairly steady at 7.6 percent for 2013-14 graduates. The fraction taking positions in North American non-Ph.D.-granting computing departments dropped from 2.1 percent to 1.9 percent. The fraction taking North American academic postdoctoral positions dropped from 14.9 percent to 11.6 percent.

The proportion of Ph.D. graduates who were reported taking positions outside of North America, among those whose employment is known, rose to 9.4 percent from 8.2 percent for 2012-13 graduates. About 37 percent of those employed outside of North America went to industry (slightly higher than reported last year), about 26 percent went to tenure-track academic positions (about the same as reported last year) and almost 20 percent went to academic postdoctoral positions

**Table D10. PhD Enrollment by Gender and Ethnicity, From 153 Departments Providing Breakdown Data**

| | CS | | | | | CE | | | | | I | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 5,553 | 1,332 | 338 | 63 | 66 | 691 | 123 | 0 | 66 | 67 | 330 | 174 | 16 | 48 | 39 | 8,557 | 61.7% |
| Amer Indian or Alaska Native | 15 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 20 | 0.1% |
| Asian | 427 | 143 | 26 | 5 | 7 | 86 | 23 | 0 | 8 | 13 | 61 | 48 | 4 | 9 | 11 | 818 | 5.9% |
| Black or African-American | 93 | 50 | 9 | 1 | 3 | 9 | 5 | 0 | 1 | 3 | 40 | 40 | 1 | 6 | 9 | 247 | 1.8% |
| Native Hawaiian/ Pac Islander | 8 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 3 | 3 | 0 | 0 | 1 | 20 | 0.1% |
| White | 2,569 | 462 | 178 | 29 | 23 | 203 | 22 | 0 | 20 | 12 | 238 | 157 | 13 | 34 | 35 | 3,842 | 27.7% |
| Multiracial, not Hispanic | 53 | 8 | 3 | 1 | 0 | 16 | 8 | 0 | 2 | 4 | 6 | 11 | 1 | 1 | 2 | 106 | 0.8% |
| Hispanic, any Race | 166 | 30 | 4 | 2 | 2 | 28 | 2 | 0 | 3 | 1 | 14 | 18 | 0 | 2 | 4 | 262 | 1.9% |
| Total Res & Ethnicity Known | 8,884 | 2,028 | 558 | | | 1,040 | 183 | | | | 692 | 452 | 35 | | | 13,872 | |
| Resident, Ethnicity Unknown | 373 | 98 | 23 | | | 8 | 4 | | | | 131 | 48 | 5 | | | 690 | |
| Not Reported (N/R) | 695 | 158 | 0 | | | 1 | 1 | | | | 48 | 17 | 0 | | | 504 | |
| Gender Totals | 9,952 | 2,284 | 205 | | | 1,049 | 188 | | | | 871 | 517 | 0 | | | 15,066 | |
| % | 81.3% | 18.7% | | | | 84.8% | 15.2% | | | | 62.8% | 37.2% | | | | | |

* % of M and % of F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

**Figure D1. PhD Production**

**CRA Taulbee Survey 2014**

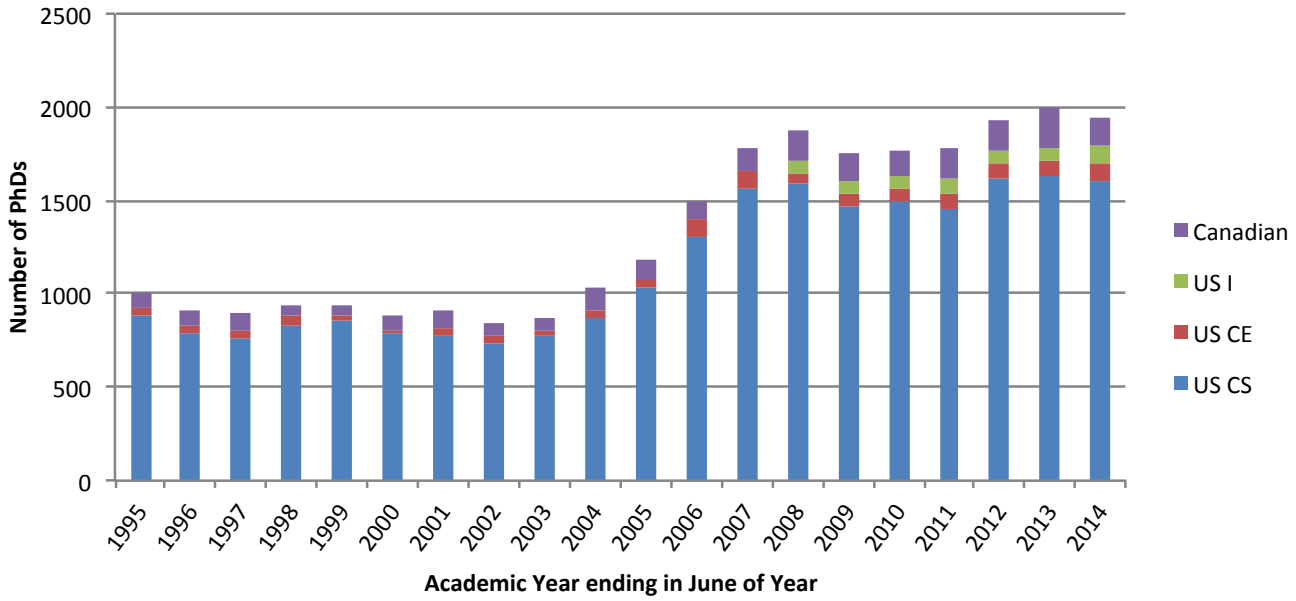



**Figure D2. Nonresident Aliens as Fraction of PhD Enrollments**

**CRA Taulbee Survey 2014**

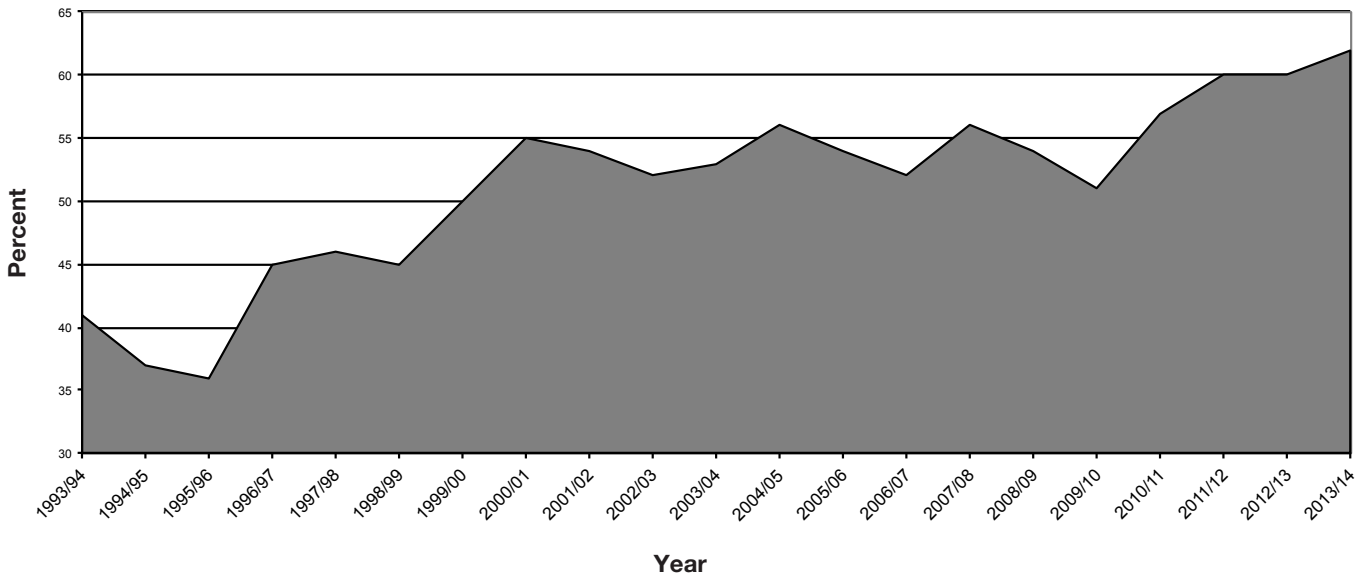


**Figure D3. PhD Degrees Granted by Tenure-Track Size**

**CRA Taulbee Survey 2014**

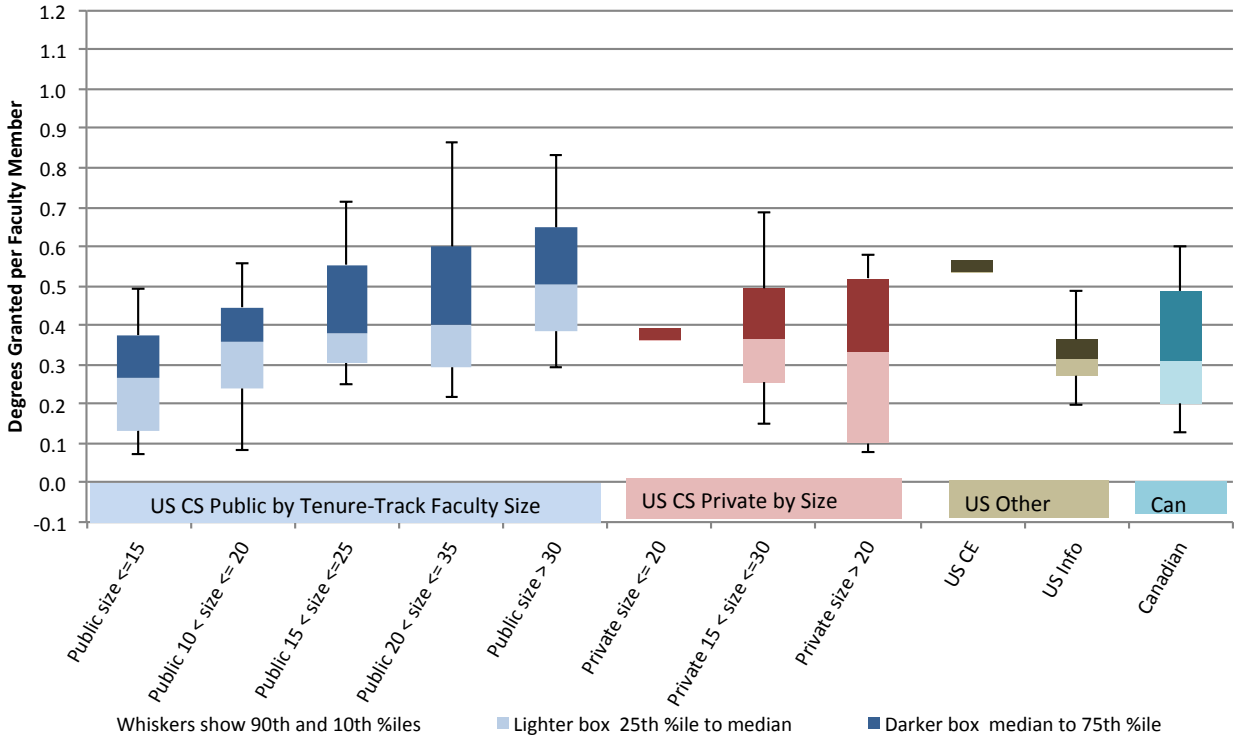
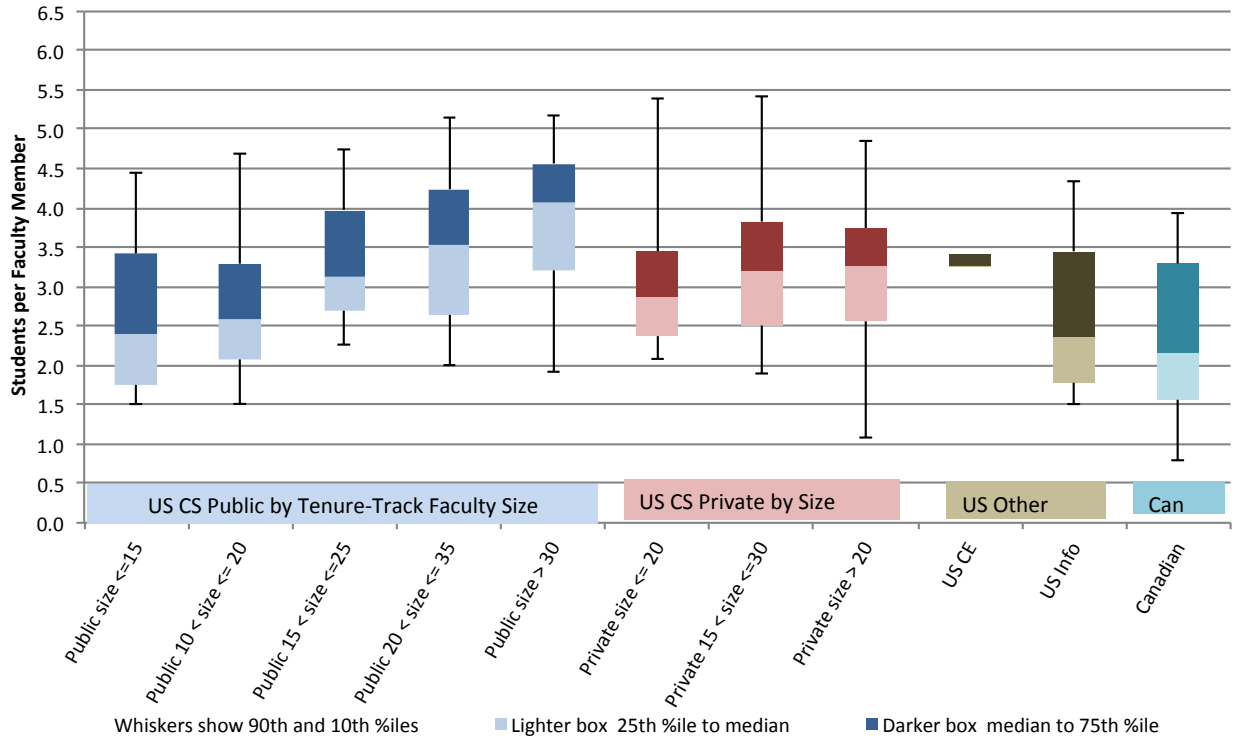



**Figure D4. PhD Enrollment Normalized by Tenure-Track Size**

**CRA Taulbee Survey 2014**



(a higher rate than reported last year). Of the doctoral graduates who went to non-North American industry positions, the positions were research by a three-to-one margin over those that were not research, the same ratio reported last year. Definitive data was provided for 91 percent of these graduates.

Employment in industry postdoctoral positions is included in the overall industry numbers. When academic and industry postdocs are combined, the result is that 15.6 percent of 2013-14 doctoral graduates took some type of postdoctoral position, down from 18.1 percent last year. Approximately 14 percent of these were industry postdocs, a slightly higher fraction than was reported last year.

The unemployment rate for new Ph.D.s again this year was below one percent. The fraction of new Ph.D.s whose employment status was unknown was 19.7 percent in 2013-14; in 2012-13 it was 20.8 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, networking, software engineering and databases, in that order, continue to be the most popular areas of specialization for doctoral graduates.

**Figure D5. CS Pipeline corrected for year of entry**

**CRA Taulbee Survey 2014**

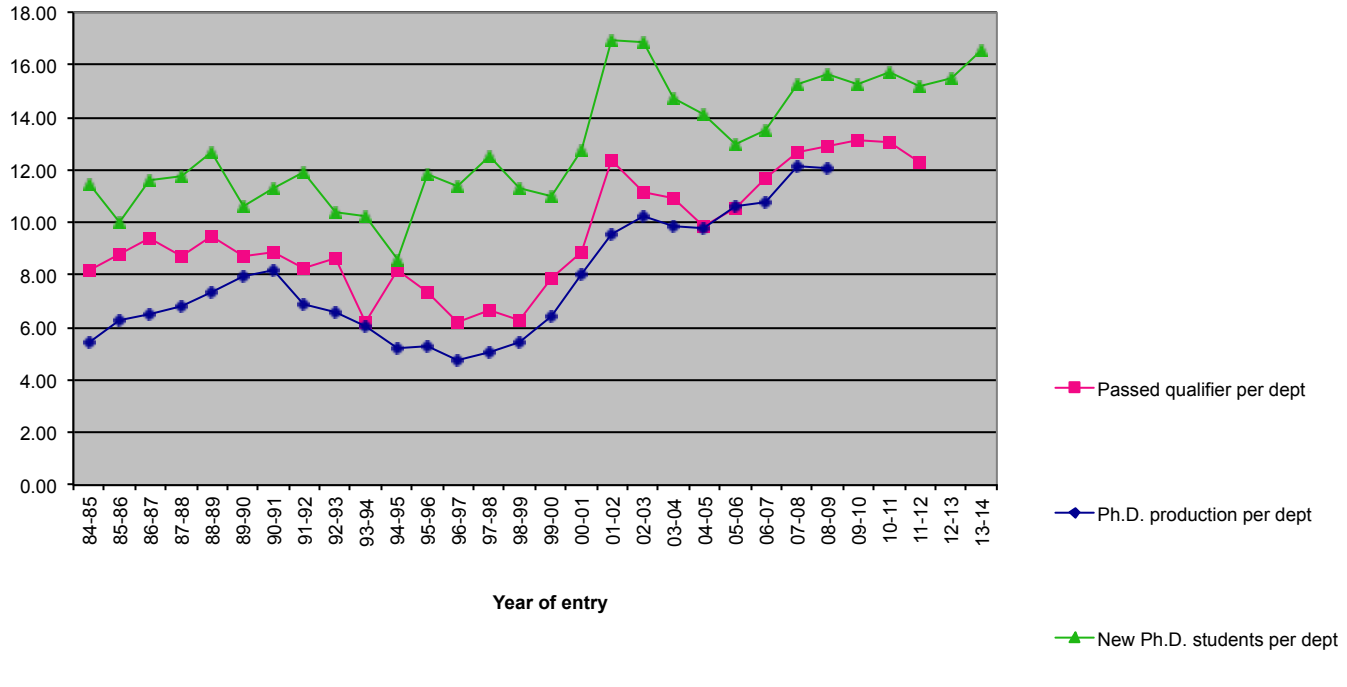
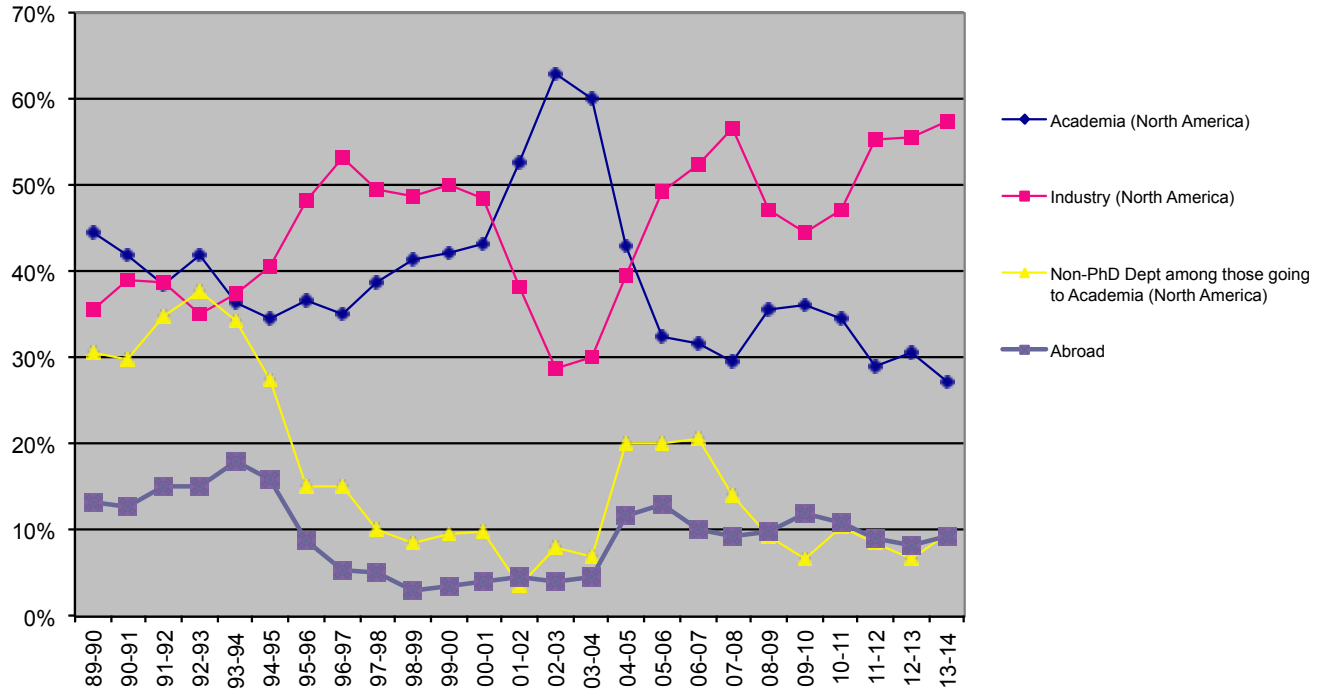


**Figure D6. Employment of New Ph.D.s in U.S. and Canada**

**CRA Taulbee Survey 2014**



## 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-M8; Figures M1-M2)

On a per-department basis, master's degree production in CS remained fairly constant in 2013-14; this is the second year in a row that master's production held steady. However, this year there was increased production among U.S. public departments, while U.S. private departments had a decrease in production; this is the opposite of what took place last year.

Overall production of master's degrees in the information area rose in 2013-14, as it did the previous year. Both U.S. public and U.S. private CS departments reported decreases in the number of information Master's degrees produced, while I departments reported substantially increased production of information master's degrees. This, too, is the opposite of what took place last year, although the increased number of I departments responding this year likely influenced these results.

The proportion of female graduates among master's degree recipients remained fairly constant in all three computing areas (CS, CE and I). The range was from 22.0 percent in CS to 48.4 percent in I. In both CS and I, the fraction of the master's recipients that were Non-resident Aliens increased in 2013-14 as compared with 2012-13. In CS, 67.8 percent of the master's degrees went to Non-resident Aliens, compared with 65 percent in 2012-13. In the information area, the corresponding percentages were 28.1 in 2013-14 and 24.9 in 2012-13. In both CS and I, the fraction of master's degrees going to Whites and resident Asians declined.

Looking more deeply into the gender and ethnicity degree data (Table M7), we find that Non-resident Aliens comprised a much larger proportion of female CS degree recipients (74.7 percent) than male CS degree recipients (65.8 percent), while Whites

**Table M1. Master's Degrees Awarded by Department Type**

| Department Type | # Depts | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| US CS Public | 100 | 4,408 | 58.9% | 184 | 28.4% | 675 | 25.1% | 5,267 | 48.7% |
| US CS Private | 31 | 2,649 | 35.4% | 54 | 8.3% | 382 | 14.2% | 3,085 | 28.5% |
| Total US CS | 131 | 7,057 | 94.2% | 238 | 36.8% | 1,057 | 39.4% | 8,352 | 77.2% |
| US CE | 10 | 0 | 0.0% | 342 | 52.9% | 0 | 0.0% | 342 | 3.2% |
| US Info | 12 | 36 | 0.5% | 0 | 0.0% | 1,567 | 58.3% | 1,603 | 14.8% |
| Canadian | 12 | 395 | 5.3% | 67 | 10.4% | 62 | 2.3% | 524 | 4.8% |
| Grand Total | 165 | 7,488 | | 647 | | 2,686 | | 10,821 | |

**Table M2. Master's Degrees Awarded by Gender**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Male | 5,813 | 78.0% | 491 | 75.9% | 1,386 | 51.6% | 7,690 | 71.3% |
| Female | 1,641 | 22.0% | 156 | 24.1% | 1,299 | 48.4% | 3,096 | 28.7% |
| Total Known Gender | 7,454 | | 647 | | 2,685 | | 10,786 | |
| Gender Unknown | 34 | | 0 | | 1 | | 35 | |
| Grand Total | 7,488 | | 647 | | 2,686 | | 10,821 | |

comprised a larger percentage of male CS degree recipients (23.8 percent) than female CS degree recipients (13.8 percent). With somewhat differing percentages, the same observations held for CE master's graduates. In the I area, Non-resident Aliens comprised a larger percentage of male master's graduates than female master's graduates, and a smaller fraction of White master's graduates. The current enrollment breakdown by gender and ethnicity (Table M8) suggests that these observations will continue to be reflected in future master's recipients.

For the third straight year, there were large increases in the number of new master's students enrolled in U.S. CS public departments. These increases have begun to be reflected in degree production statistics, as noted above.

The fraction of new master's students in U.S. CS departments that is reported to be from outside North America declined from 69.6 percent in 2013-14 to 64.5 percent in 2014-15 (Table M5). The decline reverses last year's reported increase, and was strongest in private institutions, where it dropped from 70.5 percent to 58.0 percent. At U.S. information departments, the fraction of new master's students from outside North America increased by approximately seven percentage points for the second consecutive year. It is now at 43.5 percent.

**Table M3. Master's Degrees Awarded by Ethnicity**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Nonresident Alien | 4,742 | 67.8% | 350 | 63.9% | 707 | 28.1% | 5,799 | 57.7% |
| Amer Indian or Alaska Native | 7 | 0.1% | 1 | 0.2% | 0 | 0.0% | 8 | 0.1% |
| Asian | 500 | 7.1% | 51 | 9.3% | 207 | 8.2% | 758 | 7.5% |
| Black or African-American | 86 | 1.2% | 6 | 1.1% | 153 | 6.1% | 245 | 2.4% |
| Native Hawaiian/Pac Island | 1 | 0.0% | 0 | 0.0% | 2 | 0.1% | 3 | 0.0% |
| White | 1,507 | 21.5% | 123 | 22.4% | 1,296 | 51.6% | 2,926 | 29.1% |
| Multiracial, not Hispanic | 31 | 0.4% | 0 | 0.0% | 41 | 1.6% | 72 | 0.7% |
| Hispanic, any Race | 123 | 1.8% | 17 | 3.1% | 107 | 4.3% | 247 | 2.5% |
| Total Residency & Ethnicity Known | 6,997 | | 548 | | 2,513 | | 10,058 | |
| Resident, Ethnicity Unknown | 272 | | 25 | | 140 | | 437 | |
| Residency unknown | 219 | | 74 | | 33 | | 326 | |
| Grand Total | 7,488 | | 647 | | 2,686 | | 10,821 | |

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

| Department Type | # Depts | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| US CS Public | 93 | 3,971 | 57.2% | 138 | 22.6% | 337 | 14.9% | 4,446 | 45.3% |
| US CS Private | 30 | 2,564 | 37.0% | 79 | 12.9% | 337 | 14.9% | 2,980 | 30.4% |
| Total US CS | 123 | 6,535 | 94.2% | 217 | 35.5% | 674 | 29.8% | 7,426 | 75.7% |
| US CE | 9 | 0 | 0.0% | 308 | 50.4% | 0 | 0.0% | 308 | 3.1% |
| US Info | 12 | 44 | 0.6% | 0 | 0.0% | 1,591 | 70.2% | 1,635 | 16.7% |
| Canadian | 12 | 359 | 5.2% | 86 | 14.1% | 0 | 0.0% | 445 | 4.5% |
| Grand Total | 156 | 6,938 | | 611 | | 2,265 | | 9,814 | |

**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 | 5,217 | 99 | 52.7 | 283 | 19 | 14.9 | 492 | 14 | 35.1 | 5,992 | 99 | 60.5 | 4,067 | 67.9% |
| US CS Private | 2,702 | 31 | 87.2 | 86 | 5 | 17.2 | 339 | 4 | 84.8 | 3,127 | 31 | 100.9 | 1,815 | 58.0% |
| Total US CS | 7,919 | 130 | 60.9 | 369 | 24 | 15.4 | 831 | 18 | 46.2 | 9,119 | 130 | 70.1 | 5,882 | 64.5% |
| US CE | 0 | 0 | 0.0 | 551 | 10 | 55.1 | 0 | 0 | 0.0 | 551 | 10 | 55.1 | 428 | 77.7% |
| US Info | 22 | 1 | 22.0 | 0 | 0 | 0.0 | 1,350 | 12 | 112.5 | 1,372 | 12 | 114.3 | 597 | 43.5% |
| Canadian | 460 | 12 | 38.3 | 77 | 2 | 38.5 | 0 | 0 | 0.0 | 537 | 12 | 44.8 | 363 | 67.6% |
| Grand Total | 8,401 | 143 | 58.7 | 997 | 36 | 27.7 | 2,181 | 30 | 72.7 | 11,579 | 164 | 70.6 | 7,270 | 62.8% |

**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 | 10,671 | 100 | 106.7 | 575 | 20 | 28.8 | 1,508 | 15 | 100.5 | 12,754 | 100 | 127.5 |
| US CS Private | 6,817 | 31 | 219.9 | 107 | 5 | 21.4 | 1,392 | 4 | 348.0 | 8,316 | 31 | 268.3 |
| Total US CS | 17,488 | 131 | 133.5 | 682 | 25 | 27.3 | 2,900 | 19 | 152.6 | 21,070 | 131 | 160.8 |
| US CE | 0 | 0 | 0.0 | 1,198 | 10 | 119.8 | 0 | 0 | 0.0 | 1,198 | 10 | 119.8 |
| US Info | 100 | 1 | 100.0 | 0 | 0 | 0.0 | 3,851 | 12 | 320.9 | 3,951 | 12 | 329.3 |
| Canadian | 1,221 | 12 | 101.8 | 259 | 2 | 129.5 | 149 | 1 | 149.0 | 1,629 | 12 | 135.8 |
| Grand Total | 18,809 | 144 | 130.6 | 2,139 | 37 | 57.8 | 6,900 | 32 | 215.6 | 27,848 | 165 | 168.8 |

**Table M7. Masters Degrees Awarded by Gender and Ethnicity, From 147 Departments Providing Breakdown Data**

| | CS | | | | | CE | | | | | I | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 3,500 | 1,124 | 118 | 66 | 75 | 245 | 105 | 0 | 60 | 76 | 393 | 252 | 62 | 33 | 21 | 5,799 | 57.7 |
| Amer Indian or Alaska Native | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0.1 |
| Asian | 358 | 124 | 18 | 7 | 8 | 38 | 13 | 0 | 9 | 9 | 101 | 90 | 16 | 9 | 7 | 758 | 7.5 |
| Black or African-American | 60 | 25 | 1 | 1 | 2 | 6 | 0 | 0 | 2 | 0 | 77 | 75 | 1 | 7 | 6 | 245 | 2.4 |
| Native Hawaiian/ Pac Islander | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0.0 |
| White | 1,270 | 207 | 30 | 24 | 14 | 107 | 16 | 0 | 26 | 12 | 532 | 732 | 32 | 45 | 60 | 2,926 | 29.1 |
| Multiracial, not Hispanic | 27 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 21 | 0 | 2 | 2 | 72 | 0.7 |
| Hispanic, any Race | 99 | 20 | 4 | 2 | 1 | 13 | 4 | 0 | 3 | 3 | 63 | 41 | 3 | 5 | 3 | 247 | 2.5 |
| Total Res & Ethnicity Known | 5,321 | 1,504 | 172 | | | 410 | 138 | 0 | | | 1,187 | 1,212 | 114 | | | 10,058 | |
| Resident, Ethnicity Unknown | 200 | 69 | 3 | | | 21 | 4 | 0 | | | 83 | 47 | 10 | | | 437 | |
| Not Reported (N/R) | 292 | 68 | 0 | | | 60 | 14 | 0 | | | 116 | 40 | 0 | | | 326 | |
| Gender Totals | 5,813 | 1,641 | 34 | | | 491 | 156 | 0 | | | 1,386 | 1,299 | 1 | | | 10,821 | |
| % | 78.0% | 22.0% | | | | 75.9% | 24.1% | | | | 51.6% | 48.4% | | | | | |

* % of M and % of F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

**Table M8. Masters Enrollment by Gender and Ethnicity, From 139 Departments Providing Breakdown Data**

| | CS | | | | | CE | | | | | I | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 7,949 | 3,076 | 261 | 63 | 77 | 883 | 425 | 0 | 66 | 85 | 1,084 | 811 | 86 | 33 | 27 | 14,575 | 57.3 |
| Amer Indian or Alaska Native | 14 | 4 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 30 | 0.1 |
| Asian | 846 | 298 | 41 | 7 | 8 | 115 | 32 | 0 | 9 | 6 | 248 | 210 | 39 | 8 | 7 | 1,829 | 7.2 |
| Black or African-American | 233 | 75 | 6 | 2 | 2 | 19 | 3 | 0 | 1 | 1 | 242 | 230 | 14 | 8 | 8 | 822 | 3.2 |
| Native Hawaiian/ Pac Islander | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 21 | 0.1 |
| White | 3,282 | 467 | 128 | 26 | 12 | 274 | 32 | 0 | 21 | 6 | 1,421 | 1,573 | 74 | 44 | 52 | 7,251 | 28.5 |
| Multiracial, not Hispanic | 65 | 12 | 2 | 1 | 0 | 5 | 2 | 0 | 0 | 0 | 36 | 38 | 5 | 1 | 1 | 165 | 0.6 |
| Hispanic, any Race | 280 | 45 | 7 | 2 | 1 | 38 | 4 | 0 | 3 | 1 | 201 | 143 | 10 | 6 | 5 | 728 | 2.9 |
| Total Res & Ethnicity Known | 12,682 | 3,977 | 446 | | | 1,336 | 500 | 0 | | | 3,242 | 3,010 | 228 | | | 25,421 | |
| Resident, Ethnicity Unknown | 381 | 107 | 11 | | | 30 | 5 | 0 | | | 201 | 147 | 36 | | | 918 | |
| Not Reported (N/R) | 1,200 | 321 | 6 | | | 208 | 60 | 0 | | | 216 | 83 | 0 | | | 1,509 | |
| Gender Totals | 14,263 | 4,405 | 141 | | | 1,574 | 565 | 0 | | | 3,659 | 3,240 | 1 | | | 27,848 | |
| % | 76.4% | 23.6% | | | | 73.6% | 26.4% | | | | 53.0% | 47.0% | | | | | |

* % of M and % of F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

**Figure M1. Master's Degrees Granted by Tenure-Track Size**

**CRA Taulbee Survey 2014**

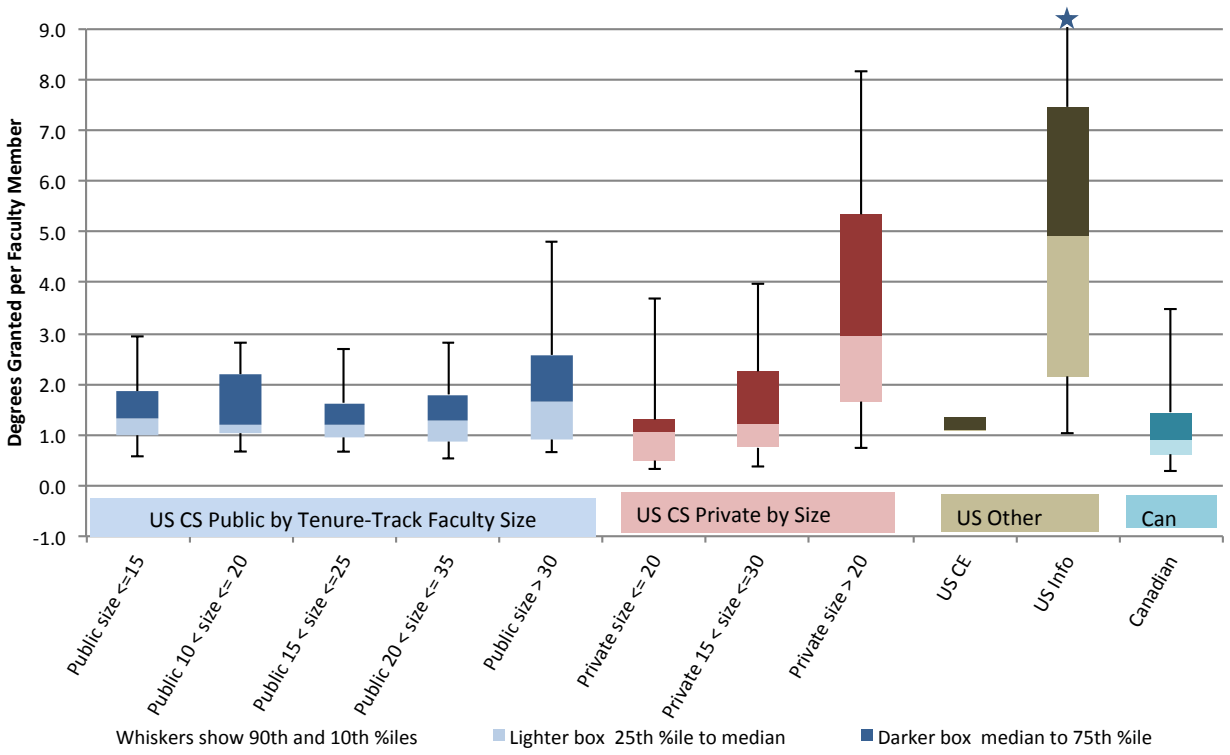
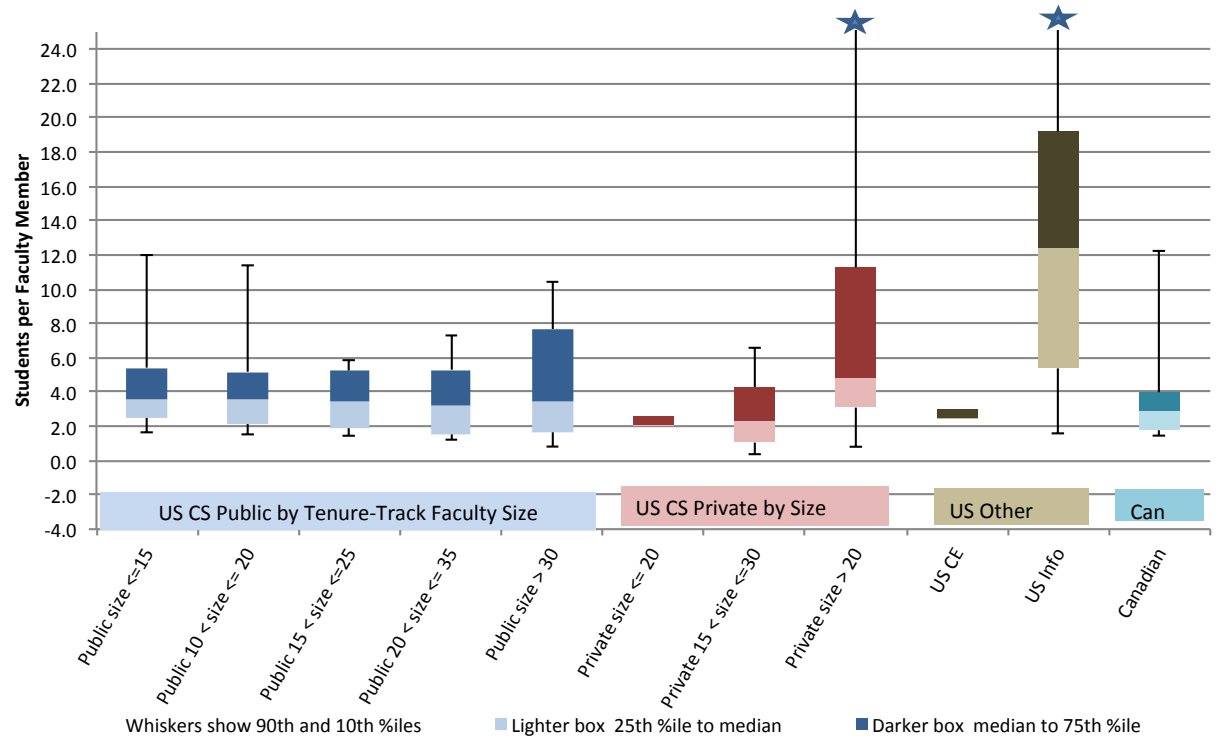



**Figure M2. Master's Enrollment Normalized by Tenure-Track Size**

**CRA Taulbee Survey 2014**



## Bachelor's (Tables 1, B1-B8; Figures B1-B4)

When comparing all departments reporting this year to all departments reporting last year, there was an increase of 14.3 percent in bachelor's degree production. When considering only those departments that reported both years, the increase was 12.0 percent. Among U.S. computer science departments, the increases were 14.2 percent when comparing totals for all reporting departments and 13.6 percent for those departments that reported both years.

These double-digit percentage increases contrast with the small growth in bachelor's degree production reported in last year's survey. But they are consistent with the statement we made last year that the enrollment changes experienced during the past several years were expected to result in much higher growth in degree production.

The number of new undergraduate computing majors rose for the seventh straight year. The increase was 20.2 percent when all respondents are compared, and 18.0 percent among those departments reporting both this year and last year. Among U.S. computer science departments, the increase was 18.3 percent overall and 17.0 percent among departments reporting both this year and last year. Total undergraduate enrollment in computing majors among U.S. CS departments (i.e., the sum of the number of majors in CS, CE and I at these departments) increased 27.3 percent when all respondents are compared, and increased 18.6 percent among departments reporting both this year and last year.

Aggregate total enrollment (which combines CS departments, CE departments, I departments and Canadian departments) increased in all three computing areas (CS, CE, and I). New student enrollment also increased in all three areas. In Canadian departments, total computer science enrollment decreased though the average per department increased, while both the total enrollment and average per department decreased for Canadian I programs. In U.S. CS departments at private institutions, CE and I total enrollments declined but the average per department increased. The changes in Canadian, CE and I enrollments are more volatile due to the small number of departments reporting in each of these areas.

The fraction of women among 2013-14 bachelor's graduates in CS was 14.1 percent, similar to the 14.2 reported for 2012-13. There was a slight drop in the fraction of women receiving CE degrees (from 11.6 percent to 11.2 percent) but there was an increase for I degrees (from 18.7 percent to 20.3 percent). The fraction of CS bachelor's degrees awarded to Whites declined from 61.2 percent in 2012-13 to 57.7 percent in 2013-14, and the percentage awarded to Blacks declined from 3.8 percent to 3.2 percent. Increases in the fraction of CS degrees awarded were present for Non-resident Aliens (8.3 percent to 9.0 percent), Asians (18.4 percent to 21.1 percent), and Hispanics (6.0 percent to 6.8 percent). The direction of change was similar for I degrees with the exception of Blacks, which increased slightly between 2012-13 and 2013-14. In CE, there was an increase in the fraction of Non-resident Aliens and Hispanics

**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 | 2013 | 2014 | % chg | 2013 | 2014 | % chg | 2013 | 2014 | % chg | 2013 | 2014 | % chg |
| # Departments | 135 | 136 | 0.7% | 167 | 172 | 3.0% | 118 | 118 | | 143 | 143 | |
| PhD Awarded | 1,625 | 1,606 | -1.2% | 1,991 | 1,940 | -2.6% | 1,525 | 1,469 | -3.7% | 1,797 | 1,724 | -4.1% |
| PhD Enrollment | 12,067 | 12,633 | 4.7% | 14,466 | 15,066 | 4.1% | 11,269 | 11,711 | 3.9% | 13,094 | 13,671 | 4.4% |
| New PhD Enroll | 2,364 | 2,445 | 3.4% | 2,725 | 2,820 | 3.5% | 2,173 | 2,275 | 4.7% | 2,453 | 2,540 | 3.6% |
| Bachelor's | 2013 | 2014 | % chg | 2013 | 2014 | % chg | 2013 | 2014 | % chg | 2013 | 2014 | % chg |
| # Departments | 131 | 129 | -1.5% | 157 | 158 | 0.6% | 113 | 113 | | 133 | 133 | |
| BS Awarded | 12,503 | 14,283 | 14.2% | 15,087 | 17,237 | 14.3% | 11,144 | 12,664 | 13.6% | 13,349 | 14,957 | 12.0% |
| BS Enrollment | 63,098 | 80,324 | 27.3% | 76,478 | 96,660 | 26.4% | 59,616 | 70,694 | 18.6% | 70,983 | 83,351 | 17.4% |
| New BS Majors | 17,207 | 20,351 | 18.3% | 21,291 | 25,595 | 20.2% | 14,454 | 16,908 | 17.0% | 18,039 | 21,290 | 18.0% |
| BS Enroll/Dept | 481.7 | 622.7 | 29.3% | 487.1 | 611.8 | 25.6% | 527.6 | 625.6 | 18.6% | 533.7 | 626.7 | 17.4% |

receiving degrees, with the percentage of Whites showing the largest decline. In aggregate across the three degree areas, 56.7 percent of the graduates were White, 20.8 percent Asian, 8.3 percent Non-resident Aliens, and 14.2 percent all other ethnicity categories combined. However, in I programs, the other ethnicity categories accounted for over 20 percent of the graduates and account for more than 25 percent of the current enrollment.

In all three computing areas (CS, CE and I), Resident Asians comprise a larger fraction of female degree recipients than male recipients, while Whites comprise a larger fraction of male degree recipients than female recipients (Table B7). Table B8 indicates that the same comparisons hold true for total bachelor's enrollment, so these comparisons are likely to continue holding true for future degree recipients.

**Table B1. Bachelor's Degrees Awarded by Department Type**

| Department Type | # Depts | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| US CS Public | 99 | 8,613 | 70.4% | 1,479 | 63.2% | 1,186 | 44.4% | 11,278 | 65.4% |
| US CS Private | 30 | 2,527 | 20.7% | 179 | 7.7% | 299 | 11.2% | 3,005 | 17.4% |
| Total US CS | 129 | 11,140 | 91.1% | 1,658 | 70.9% | 1,485 | 55.6% | 14,283 | 82.9% |
| US CE | 9 | 0 | 0.0% | 554 | 23.7% | 0 | 0.0% | 554 | 3.2% |
| US Info | 10 | 15 | 0.1% | 0 | 0.0% | 1,158 | 43.4% | 1,173 | 6.8% |
| Canadian | 9 | 1,073 | 8.8% | 127 | 5.4% | 27 | 1.0% | 1,227 | 7.1% |
| Grand Total | 157 | 12,228 | | 2,339 | | 2,670 | | 17,237 | |

**Table B2. Bachelor's Degrees Awarded by Gender**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Male | 10,345 | 85.9% | 2,055 | 88.8% | 2,110 | 79.7% | 14,510 | 85.3% |
| Female | 1,701 | 14.1% | 259 | 11.2% | 537 | 20.3% | 2,497 | 14.7% |
| Total Known Gender | 12,046 | | 2,314 | | 2,647 | | 17,007 | |
| Gender Unknown | 182 | | 25 | | 23 | | 230 | |
| Grand Total | 12,228 | | 2,339 | | 2,670 | | 17,237 | |

**Table B3. Bachelor's Degrees Awarded by Ethnicity**

| | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|
| Nonresident Alien | 884 | 9.0% | 184 | 9.5% | 121 | 4.8% | 1,189 | 8.3% |
| Amer Indian or Alaska Native | 35 | 0.4% | 20 | 1.0% | 8 | 0.3% | 63 | 0.4% |
| Asian | 2,079 | 21.1% | 499 | 25.6% | 404 | 16.0% | 2,982 | 20.8% |
| Black or African-American | 315 | 3.2% | 65 | 3.3% | 206 | 8.2% | 586 | 4.1% |
| Native Hawaiian/Pac Islander | 21 | 0.2% | 7 | 0.4% | 8 | 0.3% | 36 | 0.3% |
| White | 5,687 | 57.7% | 970 | 49.8% | 1,466 | 58.1% | 8,123 | 56.7% |
| Multiracial, not Hispanic | 168 | 1.7% | 39 | 2.0% | 42 | 1.7% | 249 | 1.7% |
| Hispanic, any Race | 672 | 6.8% | 163 | 8.4% | 270 | 10.7% | 1,105 | 7.7% |
| Total Residency & Ethnicity Known | 9,861 | | 1,947 | | 2,525 | | 14,333 | |
| Resident, Ethnicity Unknown | 413 | | 70 | | 93 | | 576 | |
| Residency unknown | 1,954 | | 322 | | 52 | | 2,328 | |
| Grand Total | 12,228 | | 2,339 | | 2,670 | | 17,237 | |

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

| Department Type | # Depts | CS | | CE | | I | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| US CS Public | 94 | 9,786 | 64.1% | 1,499 | 59.3% | 1,118 | 40.8% | 12,403 | 60.4% |
| US CS Private | 28 | 3,174 | 20.8% | 247 | 9.8% | 234 | 8.5% | 3,655 | 17.8% |
| Total US CS | 122 | 12,960 | 84.8% | 1,746 | 69.0% | 1,352 | 49.4% | 16,058 | 78.2% |
| US CE | 8 | 0 | 0.0% | 654 | 25.9% | 0 | 0.0% | 654 | 3.2% |
| US Info | 11 | 75 | 0.5% | 0 | 0.0% | 1,363 | 49.8% | 1,438 | 7.0% |
| Canadian | 12 | 2,241 | 14.7% | 129 | 5.1% | 24 | 0.9% | 2,394 | 11.7% |
| Grand Total | 153 | 15,276 | | 2,529 | | 2,739 | | 20,544 | |

**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 | 13,933 | 6,879 | 88 | 158.3 | 1,750 | 710 | 28 | 62.5 | 946 | 221 | 22 | 43.0 | 16,629 | 189.0 |
| US CS Private | 3,141 | 1,112 | 23 | 136.6 | 314 | 6 | 5 | 62.8 | 267 | 0 | 4 | 66.8 | 3,722 | 161.8 |
| US CS Total | 17,074 | 7,991 | 111 | 153.8 | 2,064 | 716 | 33 | 62.5 | 1,213 | 221 | 26 | 46.7 | 20,351 | 183.3 |
| US CE | 0 | 0 | 0 | 0.0 | 802 | 296 | 9 | 89.1 | 0 | 0 | 0 | 0.0 | 802 | 89.1 |
| US Information | 260 | 0 | 1 | 260.0 | 0 | 0 | 0 | 0.0 | 771 | 157 | 10 | 77.1 | 1,031 | 103.1 |
| Canadian | 3,052 | 677 | 11 | 277.5 | 316 | 0 | 3 | 105.3 | 43 | 0 | 1 | 43.0 | 3,411 | 310.1 |
| Grand Total | 20,386 | 8,668 | 123 | 165.7 | 3,182 | 1,012 | 45 | 70.7 | 2,027 | 378 | 37 | 54.8 | 25,595 | 181.5 |

**Table B6. Total Bachelor's Enrollment 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 | 52,000 | 12,751 | 99 | 525.3 | 8,050 | 1,215 | 33 | 243.9 | 5,790 | 525 | 26 | 222.7 | 65,840 | 665.1 |
| US CS Private | 12,141 | 1,166 | 29 | 418.7 | 905 | 12 | 7 | 129.3 | 1,438 | 47 | 4 | 359.5 | 14,484 | 499.4 |
| US CS Total | 64,141 | 13,917 | 128 | 501.1 | 8,955 | 1,227 | 40 | 223.9 | 7,228 | 572 | 30 | 240.9 | 80,324 | 627.5 |
| US CE | 0 | 0 | 0 | 0.0 | 3,114 | 439 | 9 | 346.0 | 0 | 0 | 0 | 0.0 | 3,114 | 346.0 |
| US Information | 604 | 0 | 1 | 604.0 | 0 | 0 | 0 | 0.0 | 3,997 | 576 | 10 | 399.7 | 4,601 | 460.1 |
| Canadian | 7,702 | 1,075 | 10 | 770.2 | 794 | 0 | 2 | 397.0 | 125 | 0 | 2 | 62.5 | 8,621 | 862.1 |
| Grand Total | 72,447 | 14,992 | 139 | 521.2 | 12,863 | 1,666 | 51 | 252.2 | 11,350 | 1,148 | 42 | 270.2 | 96,660 | 615.7 |

**Table B7. Bachelors Degrees Awarded by Gender and Ethnicity, From 125 Departments Providing Breakdown Data**

| | CS | | | | | CE | | | | | I | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 657 | 168 | 59 | 8 | 13 | 139 | 26 | 19 | 8 | 12 | 87 | 34 | 0 | 4 | 7 | 1,189 | 8.3 |
| Amer Indian or Alaska Native | 31 | 4 | 0 | 0 | 0 | 12 | 7 | 1 | 1 | 3 | 8 | 0 | 0 | 0 | 0 | 63 | 0.4 |
| Asian | 1,598 | 421 | 60 | 20 | 32 | 413 | 76 | 10 | 25 | 34 | 301 | 103 | 0 | 15 | 20 | 2,982 | 20.8 |
| Black or African-American | 245 | 54 | 16 | 3 | 4 | 58 | 7 | 0 | 4 | 3 | 152 | 54 | 0 | 8 | 11 | 586 | 4.1 |
| Native Hawaiian/ Pac Islander | 15 | 6 | 0 | 0 | 1 | 5 | 2 | 0 | 0 | 1 | 7 | 1 | 0 | 0 | 0 | 36 | 0.3 |
| White | 4,923 | 539 | 225 | 60 | 41 | 845 | 83 | 42 | 51 | 37 | 1,200 | 265 | 1 | 60 | 51 | 8,123 | 56.7 |
| Multiracial, not Hispanic | 126 | 28 | 14 | 2 | 2 | 34 | 5 | 0 | 2 | 2 | 30 | 12 | 0 | 2 | 2 | 249 | 1.7 |
| Hispanic, any Race | 580 | 83 | 9 | 7 | 6 | 145 | 16 | 2 | 9 | 7 | 223 | 47 | 0 | 11 | 9 | 1,105 | 7.7 |
| Total Res & Ethnicity Known | 8,175 | 1,303 | 383 | | | 1,651 | 222 | 74 | | | 2,008 | 516 | 1 | | | 14,333 | |
| Resident, Ethnicity Unknown | 349 | 54 | 10 | | | 58 | 8 | 4 | | | 80 | 13 | 0 | | | 576 | |
| Not Reported (N/R) | 1,821 | 344 | 147 | | | 346 | 29 | 25 | | | 22 | 8 | 22 | | | 2,328 | |
| Gender Totals | 10,345 | 1,701 | 182 | | | 2,055 | 259 | 25 | | | 2,110 | 537 | 23 | | | 17,237 | |
| % | 85.9% | 14.1% | | | | 88.8% | 11.2% | | | | 79.7% | 20.3% | | | | | |

* % of M and % of F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

**Table B8. Bachelors Enrollment by Gender and Ethnicity, From 121 Departments Providing Breakdown Data**

| | CS | | | | | CE | | | | | I | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 4,072 | 942 | 215 | 9 | 12 | 1,003 | 173 | 72 | 10 | 13 | 337 | 152 | 1 | 4 | 7 | 6,967 | 8.6 |
| Amer Indian or Alaska Native | 207 | 45 | 2 | 0 | 1 | 17 | 8 | 2 | 0 | 1 | 30 | 19 | 0 | 0 | 1 | 330 | 0.4 |
| Asian | 8,549 | 2,298 | 595 | 18 | 28 | 2,281 | 412 | 196 | 24 | 32 | 1,217 | 477 | 0 | 15 | 21 | 16,025 | 19.8 |
| Black or African-American | 2,199 | 601 | 139 | 5 | 7 | 469 | 67 | 10 | 5 | 5 | 766 | 274 | 1 | 9 | 12 | 4,526 | 5.6 |
| Native Hawaiian/ Pac Islander | 95 | 15 | 3 | 0 | 0 | 137 | 11 | 1 | 1 | 1 | 19 | 12 | 0 | 0 | 1 | 293 | 0.4 |
| White | 27,366 | 3,351 | 1,140 | 57 | 41 | 4,571 | 443 | 202 | 47 | 34 | 4,650 | 1,034 | 2 | 56 | 46 | 42,759 | 53.0 |
| Multiracial, not Hispanic | 1,181 | 290 | 98 | 3 | 4 | 203 | 45 | 28 | 2 | 3 | 192 | 54 | 0 | 2 | 2 | 2,091 | 2.6 |
| Hispanic, any Race | 4,338 | 665 | 131 | 9 | 8 | 1,005 | 149 | 33 | 10 | 11 | 1,174 | 253 | 0 | 14 | 11 | 7,748 | 9.6 |
| Total Res & Ethnicity Known | 48,007 | 8,207 | 2,323 | | | 9,686 | 1,308 | 544 | | | 8,385 | 2,275 | 4 | | | 80,739 | |
| Resident, Ethnicity Unknown | 2,046 | 339 | 139 | | | 324 | 45 | 17 | | | 384 | 62 | 2 | | | 3,358 | |
| Not Reported (N/R) | 9,113 | 2,177 | 2,540 | | | 889 | 151 | 458 | | | 113 | 14 | 111 | | | 12,563 | |
| Gender Totals | 59,166 | 10,723 | 2,558 | | | 10,899 | 1,504 | 460 | | | 8,882 | 2,351 | 117 | | | 96,660 | |
| % | 84.7% | 15.3% | | | | 87.9% | 12.1% | | | | 79.1% | 20.9% | | | | | |

* % of M and % of F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

**Figure B1. BS Production (CS & CE)**

**CRA Taulbee Survey 2014**

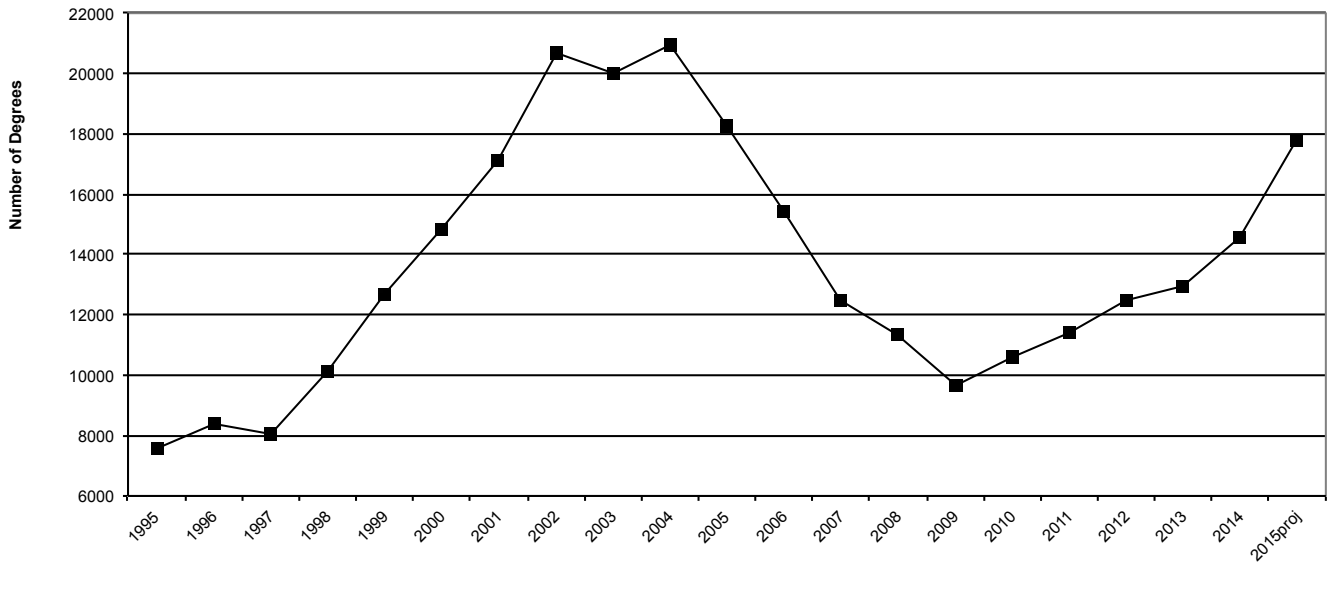


**Figure B2. Newly Declared CS/CE Undergraduate Majors**

**CRA Taulbee Survey 2014**

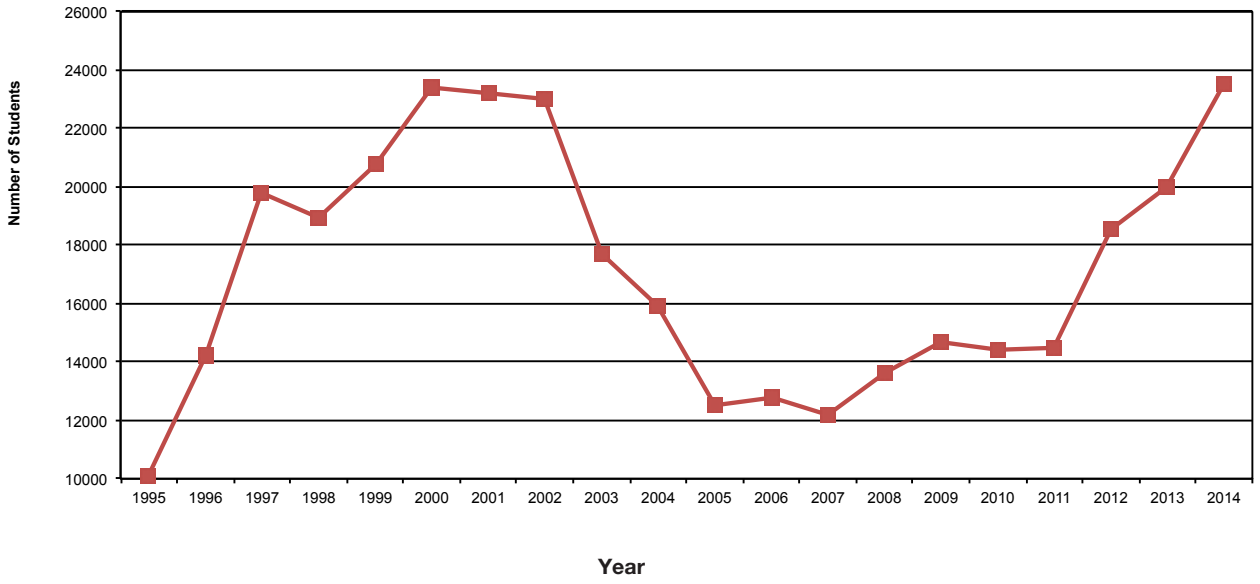



**Figure B3. Bachelor's Degrees Granted by Tenure-Track Size**

**CRA Taulbee Survey 2014**

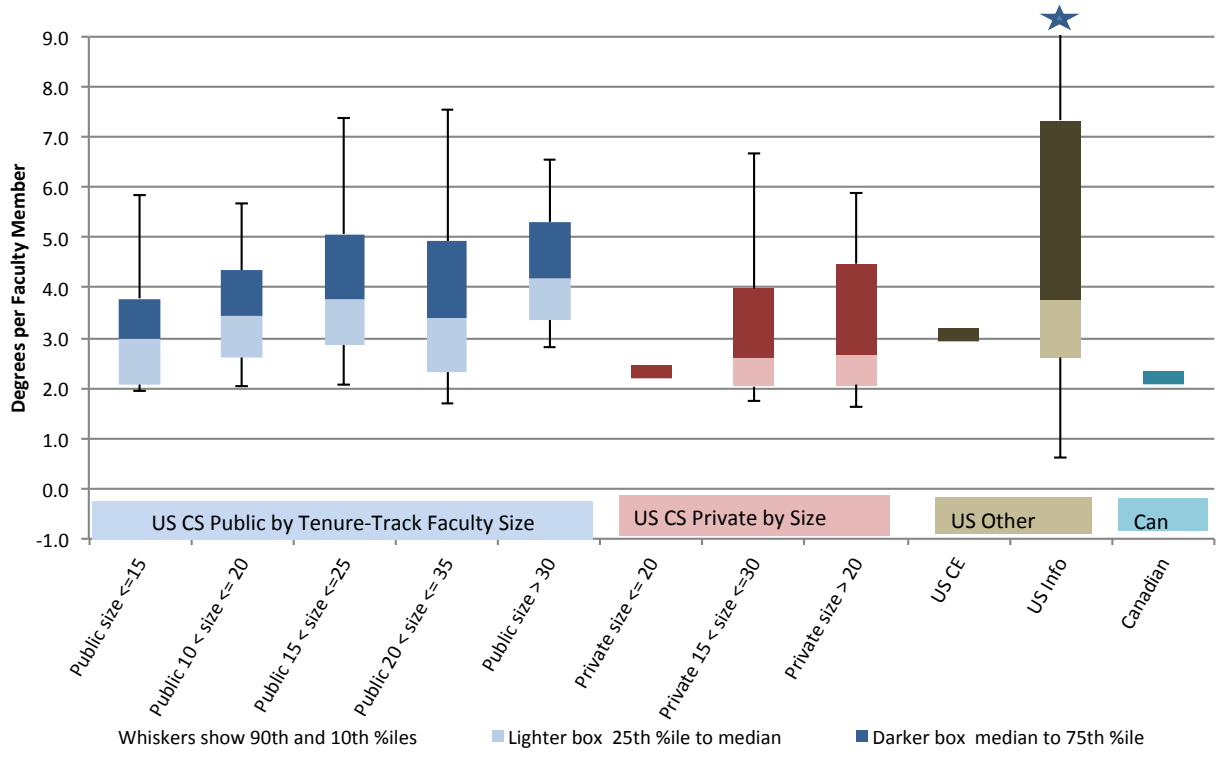
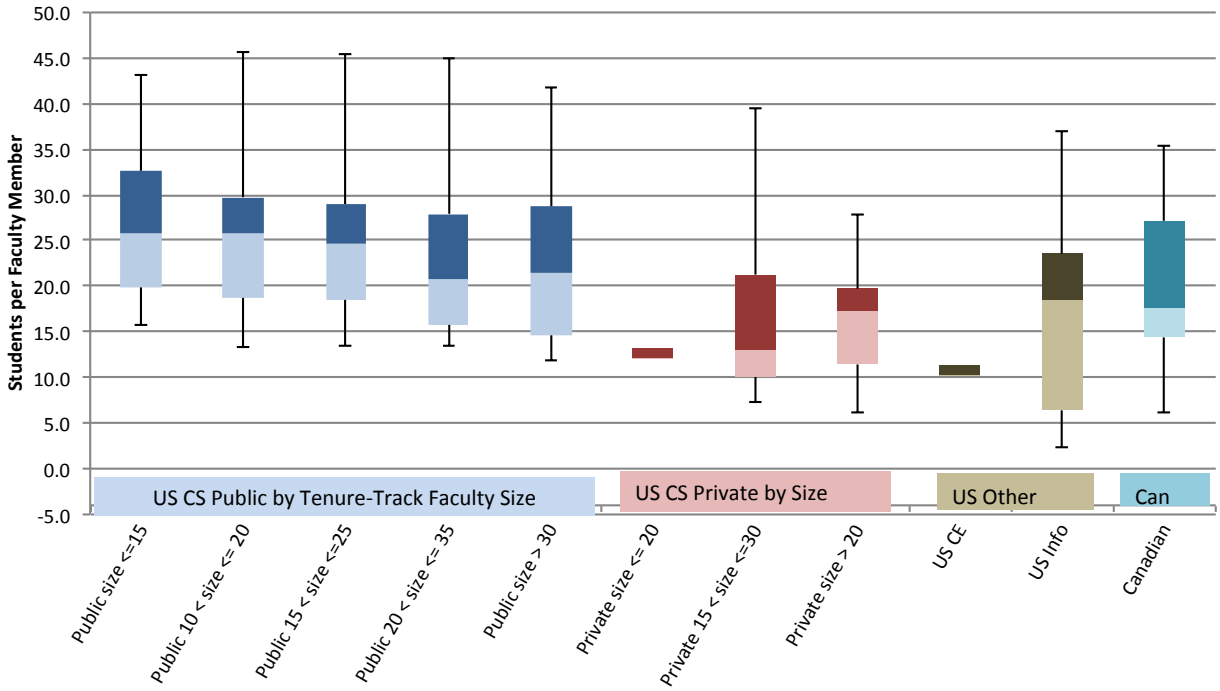


**Figure B4. Bachelor's Enrollment Normalized by Tenure-Track Size**

**CRA Taulbee Survey 2014**



## Faculty Demographics (Tables F1-F9)[4]

Table F1 shows the current and anticipated sizes, in FTE, for tenure-track, teaching and research faculty, and postdocs. The total tenure-track faculty count in U.S. CS departments (3,559) is about the same as last year. However, there was an increase from last year to this year, from 26.2 to 27.4, in the average tenure-track faculty size per U.S. CS department. In these departments, there also were increases in the number of teaching and research faculty per department and the number of postdocs per department. Canadian, CE and I departments have much more volatile data due to the small number of departments reporting in each of those categories.

As we have mentioned in previous Taulbee reports, Canadian universities, on average, have several more tenure-track faculty members per department than do U.S. universities, while on average U.S. I departments and U.S. CE departments are slightly smaller than U.S. CS departments. The observations about U.S. CE and I departments 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.

Among U.S. CS departments, those at private universities tend to have more tenure-track, teaching faculty, research faculty and postdocs than do those at public universities on average. This observation also was made last year.

Table F2 summarizes faculty hiring this past year. There were more tenure-track vacancies per reporting department (2.09) in 2013-14 than in2012-13 (1.98). U.S. CS departments had a slightly greater average in 2013-14 than in 2012-13, due to increases per public department. In aggregate, only 21.2 percent of the total number of vacant tenure-track positions went unfilled; in 2012-13 there were 33.0 percent unfilled. The success rate at U.S. CS departments jumped from 64.0 percent in 2012-13 to 80.2 percent in 2013-14; increased success was enjoyed at both public and private departments. Canadian departments had lower success rates on average than did U.S. CS, U.S. CE and U.S. I departments. In aggregate, there was more hiring in 2013-14 than in 2012-13 in all categories of faculty.

The fraction of women among those hired into all categories of academic positions (tenure-track, teaching faculty, research faculty and postdoc) was 22.1 percent in 2012-13, an increase from 21.0 percent in 2012-13 (Table F3). However, in tenure-track positions, the fraction was similar to the previous year (21.8 percent vs. 22.5 percent in 2012-13). There were increases in the fraction of research faculty positions and postdoc positions going to women as compared with those reported last year, while the fraction of teaching positions going to women decreased. The fraction of new female tenure-track and overall faculty hires continues to exceed the fraction of new female Ph.D.s produced this past year (18.9 percent).

Among new tenure-track faculty, the fraction who are white rose from 47.4 percent to 49.5 percent, while the fraction who are Non-resident Alien or Asian new hires dropped from 44.0 percent to 41.8 percent. Once again, whites dominated the newly hired teaching faculty, with Asians and Non-resident Aliens accounting for most of the remainder. Among research faculty, whites comprised 42.9 percent of new hires, while Non-resident Aliens or resident Asians in aggregate comprised 47.6 percent of new hires. Among postdoc new hires, whites comprised 37.6 percent, with Non-resident Aliens and resident Asians collectively comprising 51.1 percent (Table F4).

There were more faculty losses reported this year as compared with last year (Table F5); this is the second consecutive year we observed this. Once again, the larger fraction of losses is due to movement to another (academic or non-academic) position.

This year, the fraction of women at the full professor rank was about the same as last year, while the fraction at the associate professor level rose (from 19.6 percent last year to 20.5 percent this year) and the fraction at the assistant professor level fell (from 26.2 percent to 24.6 percent) (Table F6). There also were increases in the fraction of women among research faculty and postdocs, while there was a decrease in the fraction of women among teaching faculty. Whites, Asians and Non-resident Aliens again account for about 90 percent of each category of faculty members (Table F7).

Ninety-five percent of departments provided gender by ethnicity breakdowns for their current faculty members. (Table F8 And F9). Whites comprised a greater percentage of female full professors than they do male full professors, while the reverse is true at the associate professor level. Asians comprise a greater percentage of male full professors than they do female full professors, while the reverse is true at the associate professor level.

For next year, U.S. CS departments forecast a modest 2.1 percent growth in tenure-track faculty, and a 5.6 percent growth in teaching faculty. However, they forecast an 11.8 percent growth in postdocs.

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

| | Actual | | Projected | | | | Expected 2-Yr Growth | |
|---|---|---|---|---|---|---|---|---|
| | 2014-2015 | | 2015-2016 | | 2016-2017 | | | |
| **US CS Public** | **Total** | **Average** | **Total** | **Average** | **Total** | **Average** | **#** | **%** |
| TenureTrack | 2,605 | 26.3 | 2,683 | 28.0 | 2,719 | 28.9 | 114 | 4.4% |
| Teaching | 463 | 5.1 | 478 | 5.5 | 519 | 6.1 | 56 | 12.1% |
| Research | 283 | 5.1 | 295 | 5.5 | 298 | 5.5 | 15 | 5.3% |
| Postdoc | 312 | 5.0 | 351 | 5.5 | 372 | 6.0 | 60 | 19.2% |
| Total | 3,653 | 36.9 | 3,798 | 39.6 | 3,900 | 41.1 | 247 | 6.8% |
| US CS Private | | | | | | | | |
| TenureTrack | 954 | 30.8 | 951 | 31.7 | 984 | 32.8 | 30 | 3.1% |
| Teaching | 216 | 7.2 | 239 | 8.0 | 252 | 8.4 | 36 | 16.7% |
| Research | 172 | 9.1 | 287 | 15.1 | 191 | 10.1 | 19 | 11.0% |
| Postdoc | 197 | 8.6 | 218 | 9.5 | 231 | 10.1 | 34 | 17.3% |
| Total | 1,535 | 49.5 | 1,693 | 56.4 | 1,657 | 55.2 | 122 | 7.9% |
| All US CS | | | | | | | | |
| TenureTrack | 3,559 | 27.4 | 3,634 | 28.8 | 3,703 | 29.9 | 144 | 4.0% |
| Teaching | 679 | 5.7 | 717 | 6.1 | 771 | 6.7 | 92 | 13.5% |
| Research | 455 | 6.1 | 582 | 8.0 | 489 | 6.7 | 34 | 7.5% |
| Postdoc | 509 | 6.0 | 569 | 6.5 | 603 | 7.1 | 94 | 18.5% |
| Total | 5,188 | 39.9 | 5,491 | 43.6 | 5,557 | 44.5 | 369 | 7.1% |
| US CE | | | | | | | | |
| TenureTrack | 249 | 24.9 | 256 | 25.6 | 265 | 26.5 | 16 | 6.4% |
| Teaching | 26 | 3.2 | 29 | 3.6 | 30 | 3.8 | 4 | 15.4% |
| Research | 14 | 2.3 | 16 | 2.6 | 17 | 2.8 | 3 | 21.4% |
| Postdoc | 58 | 8.4 | 65 | 9.2 | 69 | 9.9 | 11 | 19.0% |
| Total | 345 | 34.5 | 362 | 36.2 | 379 | 37.9 | 34 | 9.9% |
| US I | | | | | | | | |
| TenureTrack | 292 | 22.4 | 314 | 24.1 | 329 | 25.3 | 37 | 12.7% |
| Teaching | 96 | 8.7 | 106 | 9.6 | 109 | 9.9 | 13 | 13.5% |
| Research | 42 | 6.0 | 44 | 6.2 | 42 | 7.0 | 0 | 0.0% |
| Postdoc | 43 | 4.8 | 48 | 5.3 | 49 | 5.4 | 6 | 14.0% |
| Total | 470 | 36.2 | 509 | 39.2 | 527 | 40.5 | 57 | 12.1% |
| Canadian | | | | | | | | |
| TenureTrack | 448 | 37.3 | 461 | 38.4 | 423 | 38.5 | -25 | -5.6% |
| Teaching | 62 | 5.1 | 62 | 5.6 | 62 | 5.6 | 0 | 0.0% |
| Research | 19 | 3.8 | 20 | 4.0 | 20 | 4.0 | 1 | 5.3% |
| Postdoc | 78 | 8.7 | 88 | 9.8 | 78 | 9.8 | 0 | 0.0% |
| Total | 605 | 50.4 | 630 | 52.5 | 582 | 52.9 | -23 | -3.8% |
| Grand Total | | | | | | | | |
| TenureTrack | 4,548 | 27.6 | 4,665 | 29.0 | 4,719 | 29.9 | 171 | 3.8% |
| Teaching | 863 | 5.7 | 914 | 6.2 | 972 | 6.7 | 109 | 12.6% |
| Research | 529 | 5.7 | 661 | 7.3 | 569 | 6.3 | 40 | 7.6% |
| Postdoc | 689 | 6.3 | 769 | 6.9 | 799 | 7.3 | 110 | 16.0% |
| Total | 6,608 | 40.0 | 6,992 | 43.4 | 7,045 | 44.3 | 437 | 6.6% |

| Table F2. Vacant Positions 2013-2014 by Position and Department Type | | |
|---|---|---|
| | Tried to fill | Filled |
| US CS Public | | |
| TenureTrack | 212 | 170 |
| Teaching | 126 | 122 |
| Research | 56 | 51 |
| Postdoc | 102 | 87 |
| Total | 496 | 430 |
| US CS Private | | |
| TenureTrack | 70 | 57 |
| Teaching | 35 | 30 |
| Research | 22 | 22 |
| Postdoc | 40 | 46 |
| Total | 167 | 154 |
| All US CS | | |
| TenureTrack | 282 | 227 |
| Teaching | 161 | 152 |
| Research | 78 | 73 |
| Postdoc | 142 | 133 |
| Total | 663 | 584 |
| US CE | | |
| TenureTrack | 11 | 7 |
| Teaching | 15 | 12 |
| Research | 26 | 26 |
| Postdoc | 15 | 15 |
| Total | 67 | 60 |
| US I | | |
| TenureTrack | 33 | 28 |
| Teaching | 12 | 13 |
| Research | 25 | 25 |
| Postdoc | 21 | 20 |
| Total | 91 | 86 |
| Canadian | | |
| TenureTrack | 27 | 16 |
| Teaching | 4 | 6 |
| Research | 6 | 6 |
| Postdoc | 20 | 20 |
| Total | 57 | 48 |
| Grand Total | | |
| TenureTrack | 353 | 278 |
| Teaching | 192 | 183 |
| Research | 135 | 130 |
| Postdoc | 198 | 188 |
| Total | 878 | 778 |

| Table F2a. Reasons Positions Left Unfilled | | |
|---|---|---|
| **Reason** | **# Reported** | **% of Reasons** |
| Didn't find a good fit | 32 | 26.4% |
| Offers turned down | 43 | 35.5% |
| Technically vacant, not filled for admin reasons | 12 | 9.9% |
| Hiring in progress | 30 | 9.4% |
| Other | 4 | 3.3% |
| Total Reasons Provided | 121 | |

| Table F3. Gender of Newly Hired Faculty | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Tenure-Track | | Teaching | | Research | | Postdoc | | Total | |
| Male | 272 | 78.2% | 106 | 74.6% | 58 | 78.4% | 145 | 79.7% | 581 | 77.9% |
| Female | 76 | 21.8% | 36 | 25.4% | 16 | 21.6% | 37 | 20.3% | 165 | 22.1% |
| Unknown | 0 | | 2 | | 0 | | 1 | | 3 | |
| Total | 348 | | 144 | | 74 | | 183 | | 749 | |

| Table F4. Ethnicity of Newly Hired Faculty | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Tenure-Track | | Teaching | | Research | | Postdoc | | Total | |
| Nonresident Alien | 36 | 12.0% | 11 | 9.3% | 24 | 38.1% | 49 | 27.5% | 120 | 18.2% |
| American Indian/ Alaska Native | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 7 | 3.9% | 7 | 1.1% |
| Asian | 89 | 29.8% | 18 | 15.3% | 6 | 9.5% | 42 | 23.6% | 155 | 23.6% |
| Black or African-American | 8 | 2.7% | 4 | 3.4% | 1 | 1.6% | 1 | 0.6% | 14 | 2.1% |
| Native Hawaiian/ Pacific Islander | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| White | 148 | 49.5% | 81 | 68.6% | 27 | 42.9% | 67 | 37.6% | 323 | 49.1% |
| Multiracial, not Hispanic | 3 | 1.0% | 1 | 0.8% | 0 | 0.0% | 1 | 0.6% | 5 | 0.8% |
| Hispanic, any Race | 6 | 2.0% | 0 | 0.0% | 4 | 6.3% | 4 | 2.2% | 14 | 2.1% |
| Resident, Race/ Ethnic Unknown | 9 | 3.0% | 3 | 2.5% | 1 | 1.6% | 7 | 3.9% | 20 | 3.0% |
| Total Known Residency | 299 | | 118 | | 63 | | 178 | | 658 | |
| Residency Unknown | 49 | | 26 | | 11 | | 5 | | 91 | |
| Total | 348 | | 144 | | 74 | | 183 | | 749 | |

| Table F5. Faculty Losses | |
|---|---|
| Died | 10 |
| Retired | 65 |
| Took Academic Position Elsewhere | 86 |
| Took Nonacademic Position | 44 |
| Remained, but Changed to Part Time | 15 |
| Other | 20 |
| Unknown | 6 |
| Total | 246 |

| Table F6. Gender of Current Faculty | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Full | | Associate | | Assistant | | Teaching | | Research | | Postdoc | | Total | |
| Male | 1,930 | 86.7% | 1,216 | 79.5% | 628 | 75.4% | 674 | 71.5% | 436 | 80.3% | 634 | 81.1% | 5,518 | 80.5% |
| Female | 296 | 13.3% | 314 | 20.5% | 205 | 24.6% | 269 | 28.5% | 107 | 19.7% | 148 | 18.9% | 1,339 | 19.5% |
| Unknown | 2 | | 0 | | 0 | | 0 | | 0 | | 29 | | 31 | |
| Total | 2,228 | | 1,530 | | 833 | | 943 | | 543 | | 811 | | 6,888 | |

**Table F7. Ethnicity of Current Faculty**

| | Full | | Associate | | Assistant | | Teaching | | Research | | Postdoc | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nonresident Alien | 18 | 0.9% | 12 | 0.9% | 88 | 11.2% | 26 | 2.9% | 72 | 14.0% | 247 | 35.7% | 463 | 7.3% |
| American Indian / Alaska Native | 16 | 0.8% | 35 | 2.5% | 5 | 0.6% | 5 | 0.6% | 0 | 0.0% | 3 | 0.4% | 64 | 1.0% |
| Asian | 499 | 24.2% | 427 | 30.5% | 243 | 30.8% | 102 | 11.5% | 77 | 15.0% | 141 | 20.4% | 1,489 | 23.5% |
| Black or African-American | 17 | 0.8% | 22 | 1.6% | 25 | 3.2% | 29 | 3.3% | 7 | 1.4% | 9 | 1.3% | 109 | 1.7% |
| Native Hawaiian/ Pacific Islander | 2 | 0.1% | 3 | 0.2% | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 6 | 0.1% |
| White | 1,403 | 67.9% | 811 | 58.0% | 386 | 49.0% | 672 | 75.8% | 312 | 60.6% | 224 | 32.4% | 3,808 | 60.0% |
| Multiracial, not Hispanic | 12 | 0.6% | 20 | 1.4% | 7 | 0.9% | 5 | 0.6% | 4 | 0.8% | 2 | 0.3% | 50 | 0.8% |
| Hispanic, any Race | 37 | 1.8% | 39 | 2.8% | 16 | 2.0% | 18 | 2.0% | 29 | 5.6% | 14 | 2.0% | 153 | 2.4% |
| Resident, Race/ Ethnic Unknown | 62 | 3.0% | 30 | 2.1% | 17 | 2.2% | 30 | 3.4% | 14 | 2.7% | 51 | 7.4% | 204 | 3.2% |
| Total Known Residency | 2,066 | | 1,399 | | 788 | | 887 | | 515 | | 691 | | 6,346 | |
| Residency Unknown | 162 | | 131 | | 45 | | 56 | | 28 | | 120 | | 542 | |
| Total | 2,228 | | 1,530 | | 833 | | 943 | | 543 | | 811 | | 6,888 | |

**Table F8. Current Tenured and Tenure-Track Faculty by Gender and Ethnicity, From 166 Departments**

| | Full Professor | | | | | Associate Professor | | | | | Assistant Professor | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 15 | 3 | 0 | 1 | 1 | 8 | 4 | 0 | 1 | 1 | 70 | 18 | 0 | 12 | 9 | 118 | 2.8 |
| Amer Indian or Alaska Native | 13 | 3 | 0 | 1 | 1 | 28 | 7 | 0 | 3 | 3 | 5 | 0 | 0 | 1 | 0 | 56 | 1.4 |
| Asian | 448 | 49 | 2 | 26 | 18 | 334 | 93 | 0 | 31 | 33 | 182 | 61 | 0 | 31 | 32 | 1,169 | 28.2 |
| Black or African-American | 14 | 3 | 0 | 1 | 1 | 13 | 9 | 0 | 1 | 3 | 15 | 10 | 0 | 3 | 5 | 64 | 1.5 |
| Native Hawaiian/ Pac Islander | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0.1 |
| White | 1,199 | 204 | 0 | 69 | 75 | 655 | 156 | 0 | 60 | 56 | 285 | 101 | 0 | 49 | 53 | 2,600 | 62.7 |
| Multiracial, not Hispanic | 11 | 1 | 0 | 1 | 0 | 19 | 1 | 0 | 2 | 0 | 7 | 0 | 0 | 1 | 0 | 39 | 0.9 |
| Hispanic, any Race | 29 | 8 | 0 | 2 | 3 | 28 | 11 | 0 | 3 | 4 | 14 | 2 | 0 | 2 | 1 | 92 | 2.2 |
| Total Res & Ethnicity Known | 1,731 | 271 | 2 | | | 1,088 | 281 | 0 | | | 579 | 192 | 0 | | | 4,144 | |
| Resident, Ethnicity Unknown | 55 | 7 | 0 | | | 22 | 8 | 0 | | | 13 | 4 | 0 | | | 109 | |
| Not Reported (N/R) | 144 | 18 | 0 | | | 106 | 25 | 0 | | | 36 | 9 | 0 | | | 338 | |
| Gender Totals | 1,930 | 296 | 2 | | | 1,216 | 314 | 0 | | | 628 | 205 | 0 | | | 4,591 | |
| % | 86.7% | 13.3% | | | | 79.5% | 20.5% | | | | 75.4% | 24.6% | | | | | |

* %M and %F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

**Table F9. Current Non-Tenure-Track Faculty and Postdoctorates by Gender and Ethnicity, From 165 Departments**

| | Non-Tenure-Track Teaching | | | | | Non-Tenure-Track Research | | | | | Postdoctorates | | | | | Ethnicity Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Male | Fem | N/R | % of M* | % of F* | Total | % |
| Nonresident Alien | 19 | 7 | 0 | 3 | 3 | 63 | 9 | 0 | 16 | 10 | 205 | 42 | 0 | 40 | 34 | 345 | 17 |
| Amer Indian or Alaska Native | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 8 | 0 |
| Asian | 64 | 38 | 0 | 11 | 15 | 57 | 20 | 0 | 14 | 21 | 111 | 29 | 1 | 22 | 23 | 320 | 16 |
| Black or African-American | 19 | 10 | 0 | 3 | 4 | 4 | 3 | 0 | 1 | 3 | 4 | 5 | 0 | 1 | 4 | 45 | 2 |
| Native Hawaiian/ Pac Islander | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| White | 488 | 184 | 0 | 80 | 75 | 253 | 59 | 0 | 62 | 63 | 184 | 40 | 0 | 36 | 32 | 1,208 | 61 |
| Multiracial, not Hispanic | 3 | 2 | 0 | 1 | 1 | 4 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 11 | 1 |
| Hispanic, any Race | 14 | 4 | 0 | 2 | 2 | 26 | 3 | 0 | 6 | 3 | 5 | 8 | 1 | 1 | 6 | 61 | 3 |
| Total Res & Ethnicity Known | 610 | 247 | 0 | | | 407 | 94 | 0 | | | 513 | 125 | 2 | | | 1,998 | |
| Resident, Ethnicity Unknown | 22 | 8 | 0 | | | 10 | 4 | 0 | | | 27 | 7 | 17 | | | 95 | |
| Not Reported (N/R) | 42 | 14 | 0 | | | 19 | 9 | 0 | | | 94 | 16 | 10 | | | 204 | |
| Gender Totals | 674 | 269 | 0 | | | 436 | 107 | 0 | | | 634 | 148 | 29 | | | 2,297 | |
| % | 71.5% | 28.5% | | | | 80.3% | 19.7% | | | | 81.1% | 18.9% | | | | | |

* %M and %F columns are the percent of that gender who are of the specified ethnicity, of those whose ethnicity is known

## 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.

Overall median research expenditures for 2013-14 at U.S. CS public departments rose 5.5 percent in comparison with 2012-13. At U.S. CS departments in private institutions, median expenditures rose 2.7 percent. However, the median research expenditure at U.S. CS departments in private institutions is more than 25 percent higher than that at public institutions. Median expenditures also rose at U.S. CE departments, but fell at U.S. I departments and Canadian departments in comparison with 2012-13. The CE, I and Canadian departments are based on much smaller samples, which makes these comparisons subject to more volatility.

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. Both of these observations are consistent with what we reported in previous years.

**Table R1. Total Expenditure from External Sources for Computing Research**

| Department Type | # Depts | Percentile of Department Averages | | | | |
|---|---|---|---|---|---|---|
| | | 10th | 25th | 50th | 75th | 90th |
| US CS Public | 97 | $536,264 | $1,334,831 | $3,951,097 | $7,631,364 | $14,714,568 |
| US CS Private | 30 | $1,289,034 | $2,232,799 | $5,002,006 | $8,220,360 | $25,000,000 |
| US CE | 8 | | $2,792,305 | $5,207,907 | $14,272,561 | |
| US Information | 13 | $1,137,486 | $1,711,729 | $3,262,156 | $5,222,987 | $11,815,066 |
| Canadian | 10 | $1,089,275 | $1,851,374 | $3,488,194 | $4,872,762 | $5,562,742 |

**Figure R1. Research Expenditures Normalized by Tenure-Track Size**

**CRA Taulbee Survey 2014**

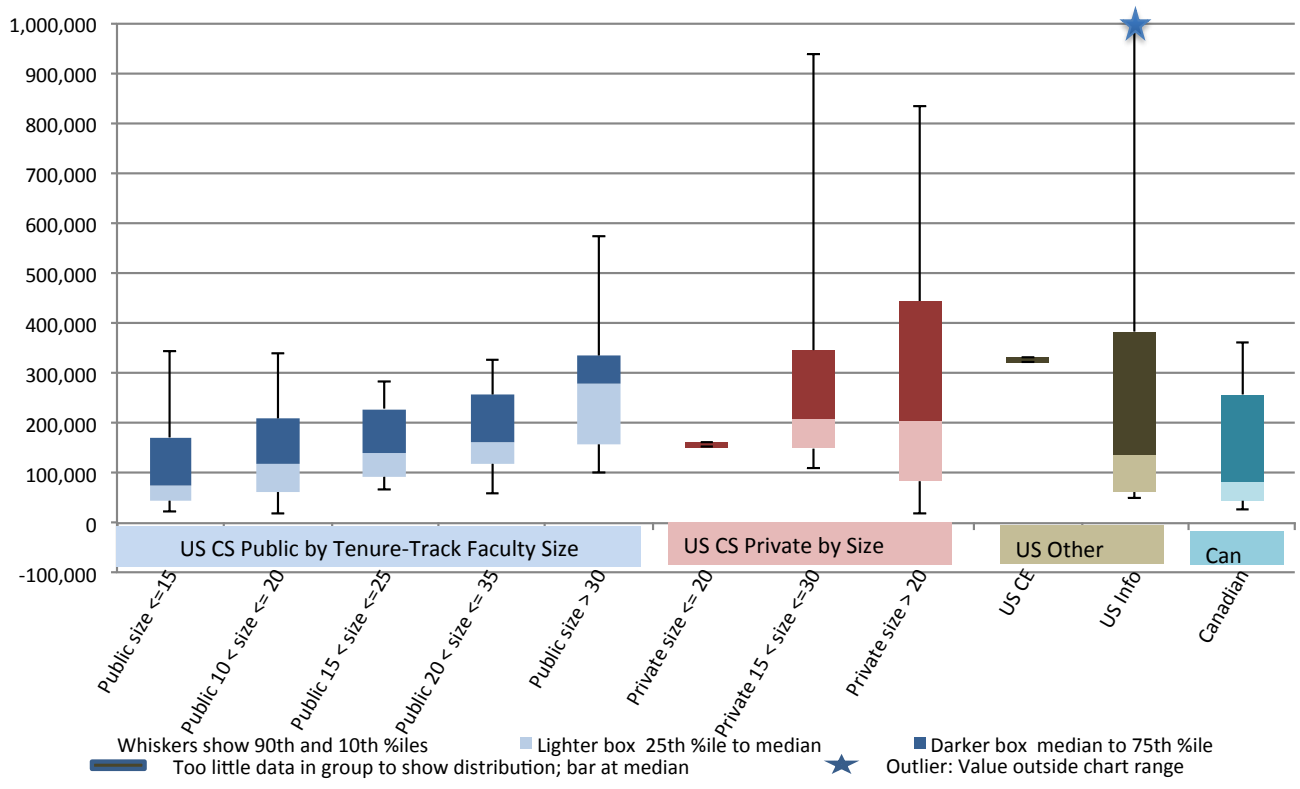
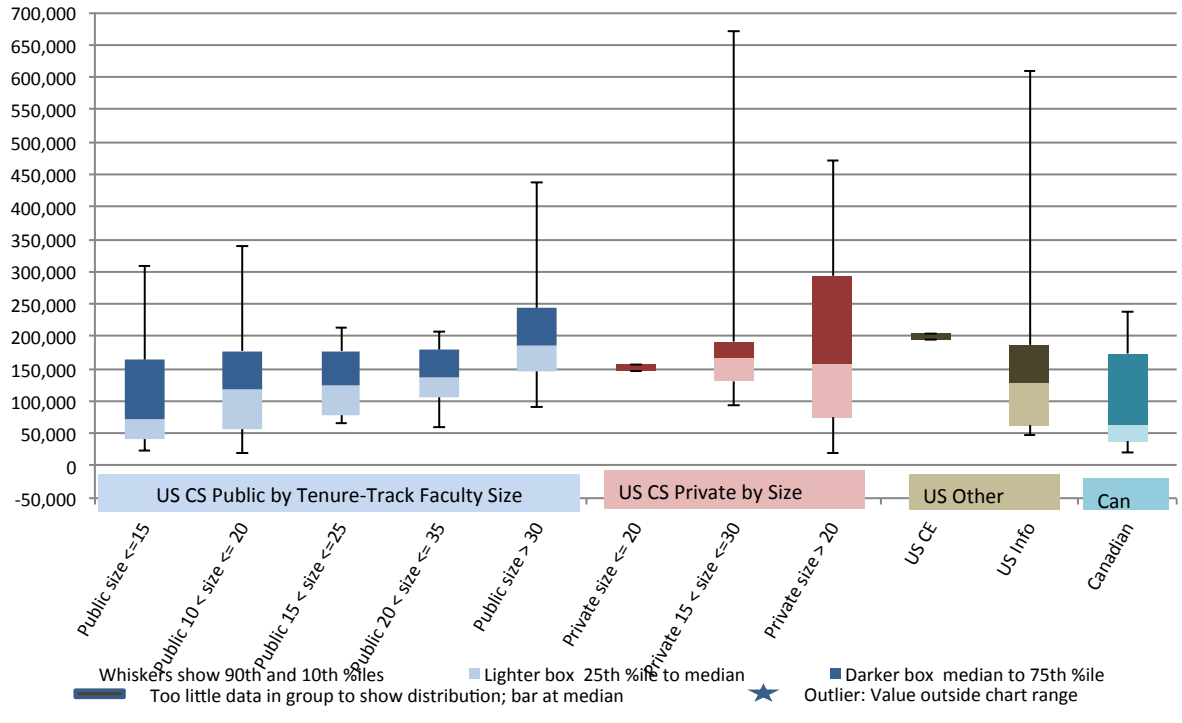



**Figure R2. Research Expenditures Normalized by Tenure-Track + Research Faculty + Postdoctorates**

**CRA Taulbee Survey 2014**



## 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 2014, further categorized as teaching assistants (TAs), research assistants (RAs), and full-support fellows. The table also shows the split between those on institutional vs. external funds. The total number of TAs on institutional funds in U.S. CS departments increased 14.6 percent this year. Public universities reported a 21.3 percent increase, while private universities reported a 14.2 percent decrease (though there were somewhat fewer private universities reporting this year). In last year's report, private universities reported over a 25 percent increase. It is possible that there were some inconsistencies between years in departmental reporting.

There was an overall decrease of 36 percent in the number of RAs that were supported on institutional funds at U.S. CS departments. Significant decline existed at both public and private universities. The number of RAs on external funding increased by 18.6 percent in U.S. CS departments at public universities, but decreased by 11.5 percent in departments at private universities. In this case, we see both public and private institutions experiencing just the reverse of what was experienced in last year's report. However, there were fewer private universities reporting this year, which likely is the most significant reason why the raw numbers declined.

The number of full-support fellows on external funds declined in U.S. CS departments at public universities, but rose slightly at private universities. However, the number of full-support fellows supported on institutional funds rose over 40 percent in both public and private universities.

There are many substantial differences between this year and last year in the data from U.S. CE and I departments, and from Canadian departments. The fairly small number of departments in each of these categories makes such large changes more probable.

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 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.

The median TA salaries at U.S. CS departments rose 5.6 percent at public universities and 4.1 percent at private universities. Median salaries of RAs rose, respectively, 6.0 and 6.9 percent at public and private universities. For full support fellows, median salaries rose 2.8 percent at U.S. public universities and 19.7 percent at U.S. private universities.

Larger departments at U.S. public universities tend to offer higher stipends to both TAs and RAs than do smaller departments, and private universities tend to offer higher stipends to all categories of grad students than do public universities. As was the case last year, departments located in larger population centers also tend to pay higher stipends to TAs and RAs; the data for full-support fellows exhibits no clear trend relative to locale at public universities.

**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 | 98 | 2,969.7 | 36.7% | 476.1 | 5.9% | 402.9 | 5.0% | 13.0 | 0.2% | 3,963.4 | 48.9% | 273.1 | 3.4% | 8,098.2 |
| US CS Private | 30 | 490.0 | 19.3% | 366.3 | 14.4% | 263.0 | 10.3% | 3.0 | 0.1% | 1,223.8 | 48.1% | 198.0 | 7.8% | 2,544.0 |
| US CS Total | 128 | 3,459.7 | 32.5% | 842.4 | 7.9% | 665.9 | 6.3% | 16.0 | 0.2% | 5,187.1 | 48.7% | 471.1 | 4.4% | 10,642.2 |
| US CE | 8 | 347.0 | 31.7% | 46.0 | 4.2% | 29.0 | 2.6% | 0.0 | 0.0% | 670.1 | 61.1% | 4.0 | 0.4% | 1,096.1 |
| US I | 10 | 170.5 | 34.1% | 41.7 | 8.3% | 40.0 | 8.0% | 1.0 | 0.2% | 233.7 | 46.7% | 13.0 | 2.6% | 499.9 |
| Canadian | 10 | 218.0 | 27.6% | 192.0 | 24.3% | 91.0 | 11.5% | 36.0 | 4.6% | 211.0 | 26.7% | 41.0 | 5.2% | 789.0 |
| Grand Total | 156 | 4,195.2 | 32.2% | 1,122.1 | 8.6% | 825.9 | 6.3% | 53.0 | 0.4% | 6,301.9 | 48.4% | 529.1 | 4.1% | 13,027.2 |

**Table G2. Fall 2014 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 | 97 | $13,448 | $15,000 | $17,470 | $18,765 | $21,422 |
| US CS Private | 23 | $15,000 | $18,700 | $22,365 | $23,842 | $28,068 |
| US CE | 8 | | $18,484 | $19,190 | $21,222 | |
| US Information | 11 | $17,000 | $17,978 | $18,971 | $21,257 | $24,104 |
| Canadian | 8 | | $10,250 | $12,570 | $14,489 | |

**Research Assistantships**

| | | Percentiles of Department Averages | | | | |
|---|---|---|---|---|---|---|
| Department Type | # Depts | 10th | 25th | 50th | 75th | 90th |
| US CS Public | 96 | $13,572 | $15,638 | $18,000 | $20,000 | $22,829 |
| US CS Private | 29 | $18,000 | $20,447 | $22,950 | $26,000 | $28,842 |
| US CE | 8 | | $18,062 | $19,350 | $21,133 | |
| US Information | 11 | $17,955 | $19,508 | $20,588 | $21,539 | $24,104 |
| Canadian | 8 | | $10,550 | $13,021 | $14,125 | |

**Full-Support Fellows**

| | | Percentiles of Department Averages | | | | |
|---|---|---|---|---|---|---|
| Department Type | # Depts | 10th | 25th | 50th | 75th | 90th |
| US CS Public | 60 | $15,540 | $17,100 | $21,126 | $25,000 | $30,200 |
| US CS Private | 22 | $21,622 | $22,525 | $28,702 | $30,000 | $30,742 |
| US CE | 6 | | | $24,825 | | |
| US Information | 8 | | $20,533 | $22,475 | $25,425 | |
| Canadian | 3 | | | | | |

**Figure G1. Teaching Assistantship Stipends**

**CRA Taulbee Survey 2014**

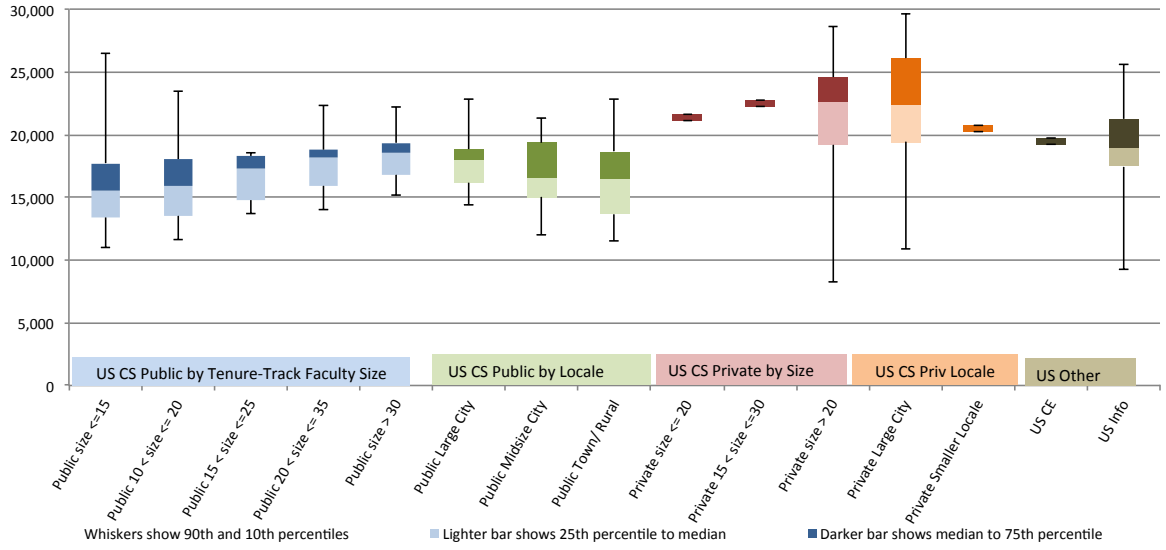


**Figure G2. Research Assistantship Stipends**

**CRA Taulbee Survey 2014**

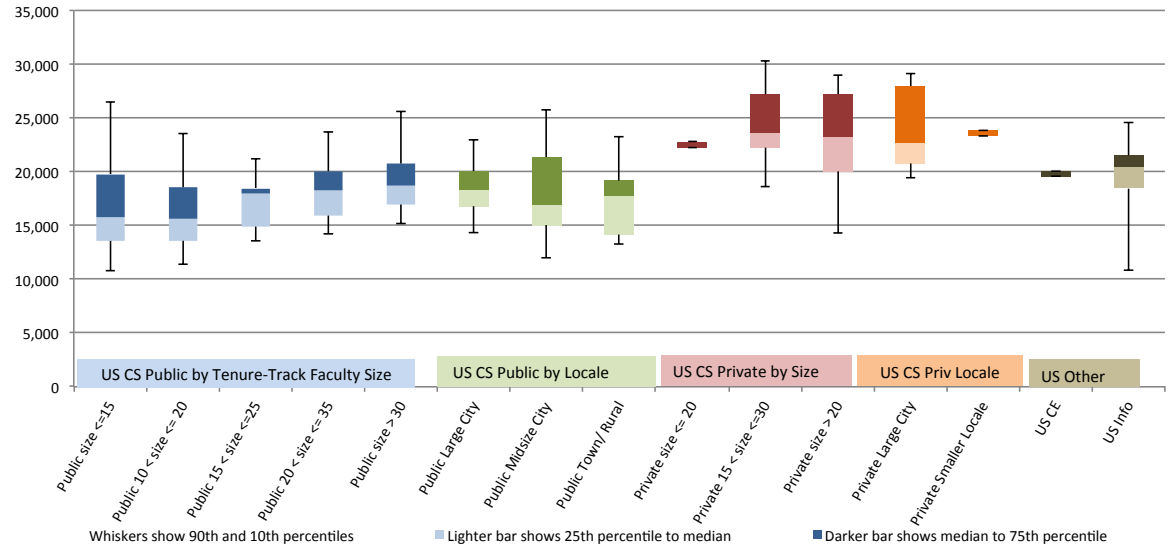
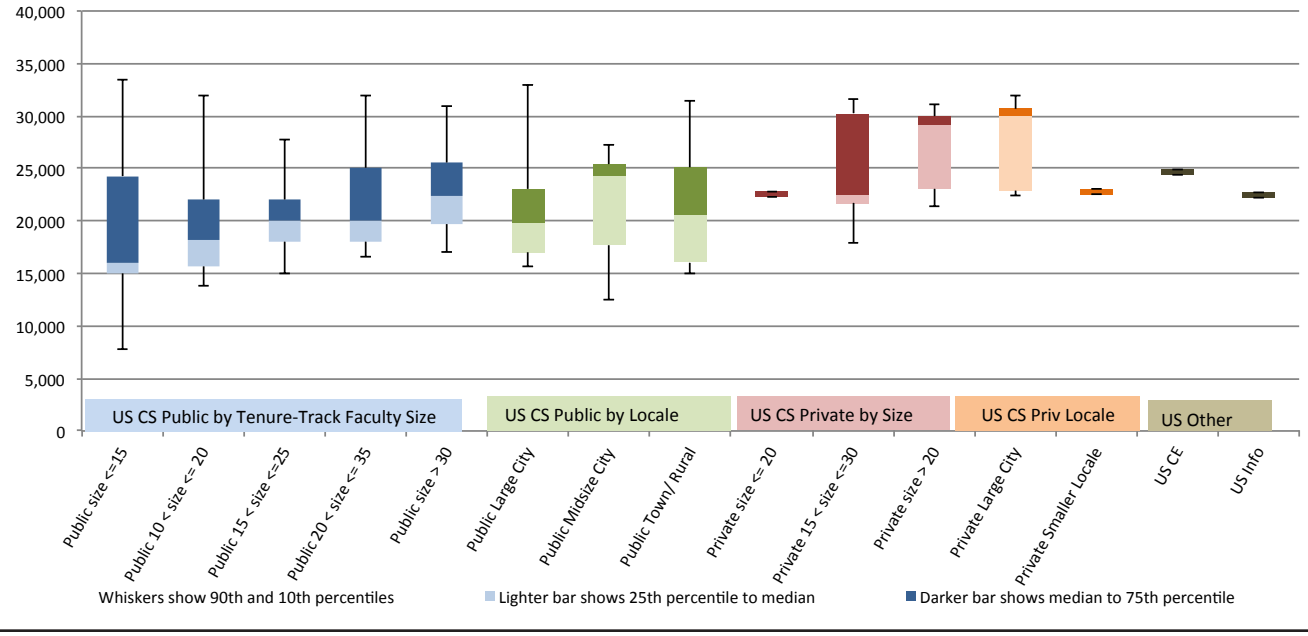



**Figure G3. Full Support Fellows Stipends**

**CRA Taulbee Survey 2014**



## 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 mean salary for each rank (full, associate, and assistant professors and non-tenure-track teaching faculty, research faculty, and post-doctorates) and the number of persons at each rank. The salaries are those in effect on January 1, 2015. 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 2014. Those departments that provided individual salaries were additionally provided more comprehensive distributional information based on these individual salaries. This year, about 75 percent of those reporting salary data provided salaries at the individual level.

The remainder of this section updates the basic report provided in December to all departments that provided salary data. It reflects salary data received since the deadline for that report.

Similar to past years, the data show that 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, full professor salaries are somewhat higher in smaller locales, while associate professor salaries are somewhat lower in smaller locales. Public university salaries appear to be generally lower in smaller locales for non-tenure-track faculty and for tenure-track associate and assistant professors.

To provide a more meaningful comparison of this year's salaries with those from last year's Taulbee report, we use only those departments that reported both years. 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 each column). The table indicates that the median of the average salaries has increased by 2-3 percent from 2013-14 to 2014-15 in most categories of faculty.

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 2.5 percent vs. last year. Canadian departments did not report any salaries this year for new Ph.D.s in tenure-track, teaching, or non-tenure-track research positions.

**Table S1. Nine-month Salaries, 129 Responses of 186 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 101 | 106 | 109 | 124 | 94 | 110 | 121 | 120 | 89 | 46 | 51 |
| Indiv | 542 | 543 | 562 | 1741 | 413 | 615 | 1087 | 664 | 535 | 277 | 368 |
| 10 | $122,365 | $120,900 | $117,826 | $123,512 | $95,162 | $98,341 | $99,635 | $87,639 | $56,037 | $58,914 | $41,546 |
| 25 | $137,398 | $134,195 | $124,608 | $135,415 | $100,745 | $105,289 | $103,351 | $91,691 | $65,231 | $70,393 | $45,313 |
| 50 | $156,787 | $150,693 | $142,017 | $149,036 | $105,957 | $111,100 | $109,633 | $96,055 | $71,839 | $87,848 | $52,877 |
| 75 | $176,102 | $169,862 | $155,000 | $164,589 | $117,996 | $118,705 | $118,419 | $103,110 | $81,038 | $104,909 | $59,402 |
| 90 | $195,950 | $191,795 | $168,591 | $186,329 | $124,500 | $130,494 | $129,444 | $107,969 | $95,074 | $134,096 | $65,423 |

**Table S2. Nine-month Salaries, 97 Responses of 134 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 77 | 81 | 82 | 94 | 76 | 84 | 93 | 91 | 70 | 34 | 37 |
| Indiv | 378 | 402 | 394 | 1266 | 316 | 476 | 845 | 483 | 383 | 172 | 219 |
| 10 | $120,129 | $118,309 | $113,505 | $122,852 | $95,994 | $97,671 | $99,157 | $87,410 | $56,029 | $62,116 | $41,818 |
| 25 | $137,398 | $130,075 | $120,127 | $135,065 | $100,606 | $102,959 | $102,381 | $91,138 | $65,058 | $70,014 | $45,625 |
| 50 | $153,025 | $145,833 | $139,476 | $145,267 | $105,747 | $109,407 | $108,929 | $95,199 | $69,585 | $85,302 | $52,364 |
| 75 | $168,517 | $161,243 | $151,772 | $157,220 | $115,273 | $115,755 | $114,416 | $99,709 | $77,157 | $97,129 | $56,200 |
| 90 | $179,454 | $177,000 | $163,214 | $166,647 | $122,959 | $125,155 | $124,904 | $104,200 | $91,922 | $111,794 | $60,229 |

**Table S3. Nine-month Salaries, 32 Responses of 52 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 24 | 25 | 27 | 30 | 18 | 26 | 28 | 29 | 19 | 12 | 14 |
| Indiv | 164 | 141 | 168 | 475 | 97 | 139 | 242 | 181 | 152 | 105 | 149 |
| 10 | $123,966 | $138,565 | $121,997 | $125,987 | $91,999 | $106,120 | $104,168 | $92,729 | $61,668 | $56,180 | $41,770 |
| 25 | $140,908 | $147,616 | $131,116 | $149,030 | $101,507 | $111,390 | $107,823 | $97,211 | $73,666 | $75,806 | $45,019 |
| 50 | $178,987 | $182,742 | $153,572 | $170,963 | $113,917 | $118,686 | $117,563 | $105,060 | $81,038 | $100,491 | $58,255 |
| 75 | $201,227 | $192,188 | $165,708 | $192,072 | $125,825 | $129,120 | $128,203 | $109,200 | $90,919 | $129,492 | $65,067 |
| 90 | $215,118 | $213,976 | $194,645 | $200,344 | $133,482 | $141,412 | $139,587 | $115,020 | $100,551 | $141,861 | $67,563 |

**Table S4. Nine-month Salaries, 25 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 14 | 14 | 17 | 23 | 17 | 17 | 22 | 20 | 16 | 2 | 3 |
| Indiv | 42 | 30 | 38 | 116 | 49 | 57 | 115 | 55 | 56 | | |
| 10 | $110,023 | $107,572 | $107,260 | $112,375 | $98,315 | $95,628 | $96,230 | $85,987 | $54,759 | | |
| 25 | $124,445 | $118,484 | $117,856 | $123,215 | $100,243 | $97,020 | $99,344 | $87,263 | $57,611 | | |
| 50 | $139,866 | $125,378 | $126,963 | $135,522 | $103,351 | $102,987 | $103,793 | $90,762 | $67,631 | | |
| 75 | $146,681 | $144,438 | $135,848 | $145,647 | $108,929 | $112,168 | $111,825 | $96,443 | $74,635 | | |
| 90 | $152,684 | $160,422 | $151,486 | $147,895 | $122,276 | $116,298 | $118,764 | $99,180 | $82,827 | | |

**Table S5. Nine-month Salaries, 30 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 20 | 23 | 24 | 29 | 24 | 26 | 29 | 27 | 22 | 5 | 6 |
| Indiv | 64 | 67 | 59 | 205 | 71 | 97 | 179 | 77 | 80 | 15 | 11 |
| 10 | $123,525 | $114,891 | $110,757 | $121,787 | $94,533 | $95,560 | $95,075 | $86,252 | $53,631 | | |
| 25 | $134,472 | $117,650 | $116,536 | $124,861 | $98,863 | $97,140 | $99,141 | $88,845 | $56,437 | | |
| 50 | $143,398 | $128,250 | $123,482 | $135,848 | $101,522 | $103,083 | $103,351 | $91,710 | $67,036 | $75,000 | $49,980 |
| 75 | $150,361 | $147,936 | $138,345 | $145,007 | $105,783 | $109,162 | $106,926 | $96,380 | $74,214 | | |
| 90 | $157,247 | $163,577 | $152,225 | $153,304 | $115,840 | $114,434 | $117,365 | $101,081 | $85,367 | | |

**Table S6. Nine-month Salaries, 28 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 22 | 25 | 25 | 27 | 23 | 26 | 27 | 27 | 22 | 10 | 11 |
| Indiv | 73 | 101 | 89 | 280 | 65 | 118 | 196 | 91 | 88 | 31 | 33 |
| 10 | $118,565 | $116,624 | $110,639 | $119,228 | $94,485 | $97,546 | $97,609 | $86,444 | $55,905 | $71,266 | $40,000 |
| 25 | $134,816 | $128,250 | $117,701 | $129,720 | $97,189 | $101,475 | $101,615 | $90,013 | $62,404 | $77,525 | $44,725 |
| 50 | $146,589 | $134,500 | $124,608 | $143,584 | $101,316 | $106,991 | $104,219 | $93,842 | $66,829 | $92,220 | $48,000 |
| 75 | $163,252 | $149,885 | $143,289 | $151,306 | $106,584 | $110,206 | $108,924 | $99,489 | $72,953 | $104,909 | $55,503 |
| 90 | $168,606 | $161,241 | $155,648 | $160,052 | $117,329 | $114,698 | $117,113 | $103,612 | $78,080 | $118,374 | $62,112 |

**Table S7. Nine-month Salaries, 32 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 30 | 30 | 29 | 32 | 27 | 31 | 32 | 32 | 24 | 13 | 14 |
| Indiv | 118 | 144 | 115 | 402 | 116 | 143 | 275 | 152 | 123 | 34 | 70 |
| 10 | $120,364 | $125,895 | $118,786 | $131,773 | $98,513 | $98,947 | $101,503 | $87,768 | $59,357 | $56,142 | $44,615 |
| 25 | $132,077 | $134,707 | $124,608 | $138,194 | $100,964 | $106,052 | $102,832 | $91,861 | $65,315 | $70,000 | $46,219 |
| 50 | $157,630 | $144,832 | $141,223 | $146,143 | $107,632 | $109,400 | $109,317 | $95,471 | $66,954 | $88,100 | $51,705 |
| 75 | $168,215 | $158,157 | $152,475 | $158,597 | $117,246 | $115,366 | $112,699 | $100,119 | $76,872 | $97,539 | $56,444 |
| 90 | $175,052 | $162,979 | $168,736 | $169,875 | $122,753 | $124,191 | $122,591 | $104,188 | $81,108 | $105,019 | $60,704 |

**Table S8. Nine-month Salaries, 33 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 30 | 31 | 31 | 32 | 25 | 30 | 32 | 32 | 22 | 15 | 18 |
| Indiv | 223 | 218 | 238 | 737 | 137 | 246 | 403 | 251 | 185 | 119 | 133 |
| 10 | $141,479 | $135,329 | $128,002 | $142,409 | $97,735 | $105,665 | $105,324 | $93,007 | $58,947 | $62,681 | $41,864 |
| 25 | $154,887 | $143,686 | $136,491 | $148,461 | $103,520 | $109,993 | $109,280 | $95,005 | $67,441 | $68,662 | $45,970 |
| 50 | $163,249 | $157,270 | $146,519 | $155,063 | $109,096 | $114,659 | $112,877 | $97,448 | $74,773 | $83,009 | $52,839 |
| 75 | $174,540 | $175,721 | $156,512 | $165,268 | $116,309 | $123,280 | $119,042 | $100,691 | $85,011 | $94,193 | $55,188 |
| 90 | $189,841 | $188,500 | $166,116 | $176,992 | $123,377 | $130,494 | $129,216 | $105,730 | $92,438 | $104,628 | $59,288 |

**Table S9. Nine-month Salaries, 12 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 6 | 7 | 9 | 11 | 5 | 8 | 9 | 10 | 5 | 1 | 3 |
| Indiv | 27 | 24 | 34 | 87 | 11 | 26 | 42 | 33 | 14 | | |
| 10 | | | | $123,787 | | | | $98,409 | | | |
| 25 | | $176,200 | $125,774 | $137,601 | | $111,705 | $105,345 | $100,156 | | | |
| 50 | $148,604 | $206,033 | $140,322 | $154,258 | $102,774 | $120,825 | $118,050 | $106,220 | $78,600 | | |
| 75 | | $214,272 | $156,696 | $185,801 | | $126,545 | $126,781 | $110,338 | | | |
| 90 | | | | $203,969 | | | | $115,916 | | | |

**Table S10. Nine-month Salaries, 13 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 8 | 11 | 11 | 13 | 6 | 8 | 10 | 12 | 5 | 4 | 6 |
| Indiv | 34 | 50 | 46 | 139 | 19 | 29 | 59 | 55 | 20 | 10 | 39 |
| 10 | | $144,506 | $126,892 | $149,024 | | | $105,106 | $95,111 | | | |
| 25 | $176,488 | $157,077 | $134,040 | $154,258 | | $110,352 | $106,174 | $96,936 | | | |
| 50 | $183,560 | $182,400 | $152,200 | $172,870 | $109,347 | $115,477 | $112,344 | $104,609 | $85,360 | $90,280 | $46,667 |
| 75 | $198,569 | $200,097 | $162,648 | $191,723 | | $124,317 | $123,664 | $109,579 | | | |
| 90 | | $206,441 | $187,250 | $198,495 | | | $127,093 | $113,408 | | | |

**Table S11. Nine-month Salaries, 20 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 19 | 19 | 19 | 20 | 14 | 19 | 20 | 20 | 15 | 12 | 12 |
| Indiv | 138 | 121 | 148 | 407 | 90 | 122 | 213 | 162 | 162 | 111 | 144 |
| 10 | $136,328 | $136,310 | $125,625 | $132,899 | $98,982 | $108,293 | $106,911 | $92,927 | $63,645 | $56,180 | $41,323 |
| 25 | $171,723 | $146,161 | $133,660 | $153,750 | $103,981 | $112,380 | $108,673 | $95,430 | $73,666 | $75,806 | $43,353 |
| 50 | $187,113 | $180,321 | $155,000 | $171,961 | $113,917 | $117,075 | $116,726 | $104,281 | $87,112 | $107,912 | $54,834 |
| 75 | $205,923 | $191,475 | $165,708 | $192,696 | $123,040 | $134,049 | $129,368 | $108,048 | $94,685 | $129,492 | $61,538 |
| 90 | $217,282 | $192,582 | $193,511 | $197,892 | $132,694 | $143,180 | $143,527 | $115,010 | $105,625 | $141,861 | $66,049 |

**Table S12. Nine-month Salaries, 36 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 29 | 29 | 32 | 36 | 28 | 31 | 36 | 36 | 29 | 17 | 15 |
| Indiv | 161 | 147 | 149 | 523 | 142 | 181 | 358 | 212 | 184 | 103 | 91 |
| 10 | $129,890 | $124,592 | $118,217 | $132,773 | $99,225 | $103,803 | $102,307 | $91,217 | $60,726 | $57,472 | $44,747 |
| 25 | $142,333 | $134,130 | $124,994 | $136,524 | $103,270 | $107,995 | $104,890 | $93,018 | $66,197 | $72,725 | $48,000 |
| 50 | $150,707 | $143,021 | $133,789 | $145,921 | $108,819 | $110,724 | $109,751 | $96,388 | $70,618 | $93,382 | $53,314 |
| 75 | $167,845 | $157,270 | $143,845 | $154,356 | $119,002 | $117,286 | $114,714 | $101,018 | $78,031 | $103,260 | $55,698 |
| 90 | $182,792 | $174,953 | $163,069 | $165,236 | $123,352 | $125,568 | $121,940 | $104,385 | $88,598 | $117,779 | $57,104 |

**Table S13. Nine-month Salaries, 23 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 20 | 19 | 20 | 23 | 20 | 22 | 23 | 22 | 14 | 6 | 8 |
| Indiv | 109 | 111 | 125 | 358 | 63 | 125 | 197 | 118 | 77 | 26 | 54 |
| 10 | $115,970 | $121,977 | $112,785 | $118,404 | $95,543 | $97,005 | $100,084 | $87,790 | $58,162 | | |
| 25 | $140,411 | $140,630 | $120,020 | $137,148 | $98,630 | $102,694 | $102,178 | $92,342 | $65,926 | | $41,125 |
| 50 | $154,782 | $150,902 | $143,181 | $150,590 | $104,333 | $109,177 | $109,300 | $96,330 | $70,315 | $88,720 | $57,142 |
| 75 | $171,145 | $163,437 | $154,171 | $162,121 | $106,994 | $114,979 | $113,846 | $100,346 | $79,433 | | $59,909 |
| 90 | $187,532 | $176,928 | $156,125 | $166,765 | $117,650 | $131,565 | $140,474 | $111,427 | $100,490 | | |

**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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 28 | 33 | 30 | 35 | 28 | 31 | 34 | 33 | 27 | 11 | 14 |
| Indiv | 108 | 144 | 120 | 385 | 111 | 170 | 290 | 153 | 122 | 43 | 74 |
| 10 | $113,487 | $115,798 | $112,739 | $121,096 | $94,299 | $96,142 | $95,473 | $86,087 | $55,788 | $66,075 | $43,154 |
| 25 | $129,704 | $126,001 | $119,077 | $131,291 | $100,093 | $100,795 | $101,437 | $87,843 | $58,351 | $68,143 | $46,327 |
| 50 | $150,154 | $139,792 | $144,662 | $141,487 | $102,705 | $106,100 | $106,771 | $94,039 | $68,100 | $70,057 | $51,705 |
| 75 | $168,254 | $161,243 | $152,238 | $156,706 | $116,894 | $114,101 | $116,040 | $95,990 | $76,960 | $73,349 | $53,776 |
| 90 | $175,356 | $176,594 | $166,250 | $172,369 | $123,515 | $124,165 | $122,472 | $99,732 | $87,990 | $97,539 | $58,762 |

**Table S15. Nine-month Salaries, 22 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 17 | 17 | 20 | 22 | 14 | 19 | 20 | 21 | 17 | 10 | 11 |
| Indiv | 110 | 97 | 144 | 353 | 81 | 112 | 198 | 156 | 164 | 106 | 117 |
| 10 | $130,802 | $135,358 | $120,533 | $124,266 | $96,348 | $104,160 | $101,407 | $93,125 | $63,923 | $76,459 | $43,333 |
| 25 | $142,382 | $144,506 | $128,588 | $135,248 | $103,981 | $109,165 | $108,673 | $96,109 | $78,409 | $85,930 | $46,680 |
| 50 | $177,938 | $180,321 | $142,490 | $159,821 | $114,566 | $119,321 | $119,991 | $104,405 | $85,360 | $107,912 | $56,667 |
| 75 | $193,519 | $191,917 | $163,601 | $190,016 | $125,825 | $133,276 | $131,063 | $108,750 | $93,341 | $124,977 | $65,059 |
| 90 | $205,509 | $211,465 | $198,639 | $202,285 | $132,341 | $140,638 | $138,662 | $115,000 | $103,088 | $139,854 | $68,182 |

**Table S16. Nine-month Salaries, 10 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 8 | 9 | 8 | 9 | 5 | 8 | 9 | 9 | 3 | 3 | 4 |
| Indiv | 55 | 48 | 38 | 141 | 20 | 36 | 57 | 39 | | | 34 |
| 10 | | | | | | | | | | | |
| 25 | $164,644 | $172,756 | $153,948 | $171,053 | | $114,976 | $107,025 | $104,100 | | | |
| 50 | $182,540 | $183,500 | $155,974 | $189,094 | $101,085 | $117,563 | $117,075 | $105,060 | | | $55,122 |
| 75 | $213,435 | $194,160 | $164,270 | $192,188 | | $124,244 | $126,453 | $110,717 | | | |
| 90 | | | | | | | | | | | |

**Table S17. Nine-month Salaries, 9 Responses of 31 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 6 | 7 | 6 | 8 | 6 | 7 | 8 | 7 | 4 | 2 | 1 |
| Indiv | 19 | 21 | 27 | 78 | 18 | 48 | 72 | 15 | 16 | | |
| 10 | | | | | | | | | | | |
| 25 | | $115,892 | | $120,760 | | $98,815 | $99,529 | $88,001 | | | |
| 50 | $153,221 | $129,451 | $116,378 | $142,388 | $109,187 | $99,450 | $107,667 | $93,769 | $79,840 | | |
| 75 | | $151,443 | | $167,679 | | $103,320 | $113,540 | $96,653 | | | |
| 90 | | | | | | | | | | | |

**Table S18. Nine-month Salaries, 14 Responses of 21 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 9 | 11 | 11 | 13 | 9 | 13 | 13 | 13 | 9 | 7 | 3 |
| Indiv | 22 | 40 | 58 | 121 | 47 | 92 | 143 | 92 | 78 | 40 | |
| 10 | | $117,647 | $137,823 | $128,655 | | $101,927 | $104,670 | $84,146 | | | |
| 25 | $126,172 | $129,034 | $139,982 | $133,318 | $107,684 | $104,262 | $107,671 | $91,636 | $76,188 | $67,976 | |
| 50 | $147,255 | $132,776 | $143,835 | $147,800 | $110,468 | $110,687 | $111,055 | $95,500 | $80,123 | $76,045 | |
| 75 | $165,646 | $157,496 | $162,303 | $160,581 | $115,359 | $114,143 | $113,052 | $99,804 | $91,223 | $91,610 | |
| 90 | | $165,500 | $171,538 | $161,848 | | $115,912 | $117,847 | $103,478 | | | |

**Table S19. Twelve-month Salaries, 8 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 | All years in rank | In rank 8+ years | In rank 0-7 years | All years in rank | | Teach | Research | Postdoc |
| Depts | 7 | 7 | 6 | 8 | 7 | 6 | 8 | 7 | 8 | 3 | 5 |
| Indiv | 42 | 51 | 45 | 157 | 63 | 42 | 113 | 32 | 55 | | 56 |
| 10 | | | | | | | | | | | |
| 25 | $176,783 | $160,379 | | $165,303 | $138,497 | | $132,824 | $104,201 | $82,394 | | |
| 50 | $192,124 | $187,842 | $165,301 | $177,650 | $141,415 | $142,619 | $140,556 | $117,132 | $104,555 | | $47,600 |
| 75 | $208,661 | $192,810 | | $184,204 | $157,431 | | $149,959 | $121,139 | $113,808 | | |
| 90 | | | | | | | | | | | |

**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 | 64 | 22 | 5 | 25 | 0 | 0 | 0 | 1 |
| Indiv | 128 | 33 | 9 | 79 | 0 | 0 | 0 | 2 |
| 10 | $85,472 | $45,900 | | $37,834 | | | | |
| 25 | $91,586 | $56,950 | | $42,619 | | | | |
| 50 | $95,476 | $72,500 | $51,488 | $52,288 | | | | |
| 75 | $101,584 | $91,951 | | $60,875 | | | | |
| 90 | $107,146 | $112,520 | | $62,130 | | | | |

**Table S21. Change in Salary Median for Departments that Reported in Both 2013 and 2014**

| | U.S. CS | U.S. CE | U.S. I | Canadian |
|---|---|---|---|---|
| Departments | 122 | 6 | 11 | 7 |
| Full Profs. | 2.3% | 1.0% | 3.1% | 2.3% |
| Assoc. Profs. | 2.0% | 2.2% | 2.7% | 2.1% |
| Asst. Profs. | 3.0% | 1.2% | 2.7% | 3.0% |
| Non-ten-track teaching faculty | 1.1% | 6.3% | 19.9% | 3.1% |
| Research faculty | -0.4% | | 6.9% | -0.2% |
| Post doctorates | -2.8% | | 8.2% | -2.6% |

**Figure S1. US CS Department Average Salary, Full Professor in Rank 16+ Years**

**CRA Taulbee Survey 2014**

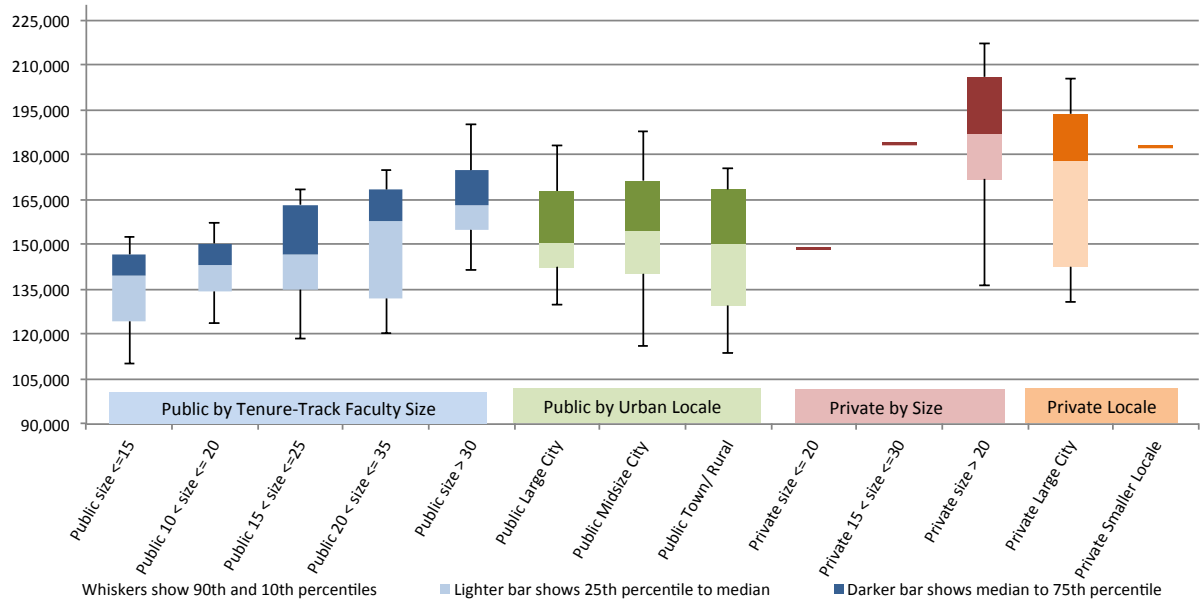



**Figure S2. US CS Department Average Salary, Full Professor in Rank 8-15 Years**

**CRA Taulbee Survey 2014**

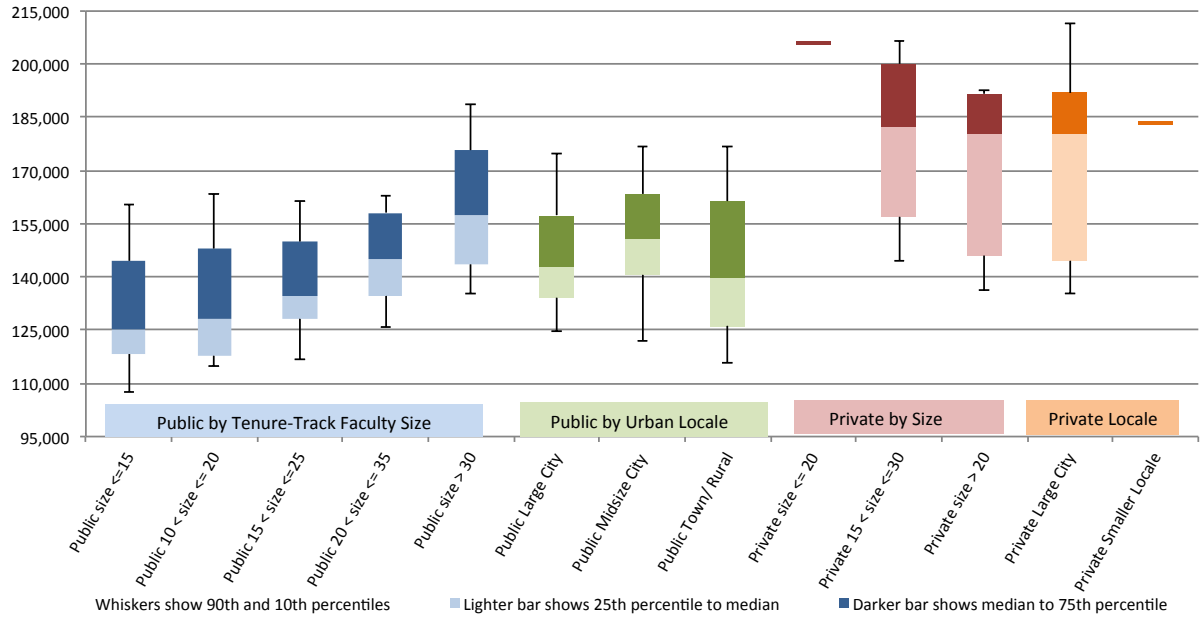


**Figure S3. US CS Department Average Salary, Full Professor in Rank 0-7 Years**

**CRA Taulbee Survey 2014**

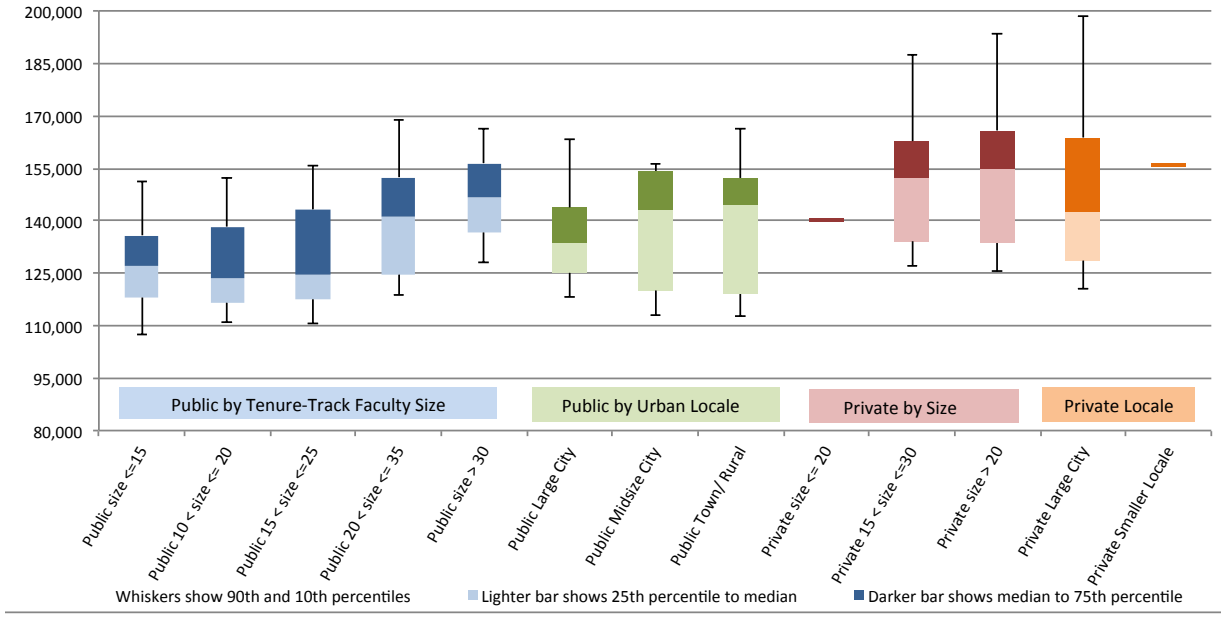



**Figure S4. US CS Department Average Salary, Associate Professor in Rank 8+ Years**

**CRA Taulbee Survey 2014**

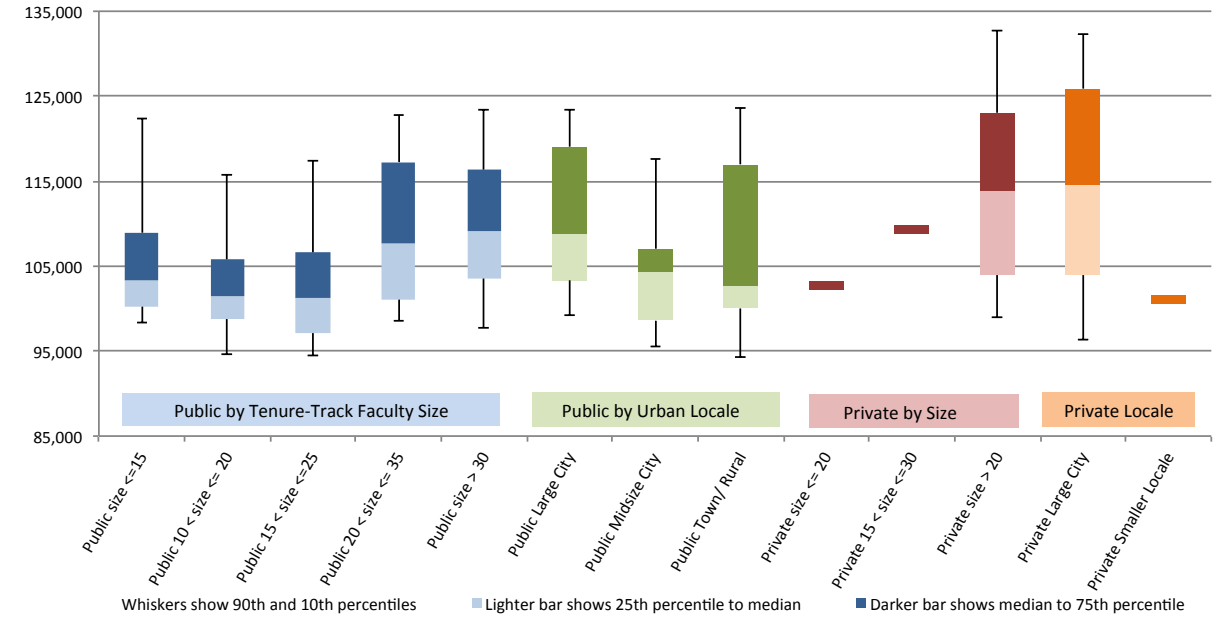


**Figure S5. US CS Department Average Salary, Associate Professor in Rank 0-7 Years**

**CRA Taulbee Survey 2014**

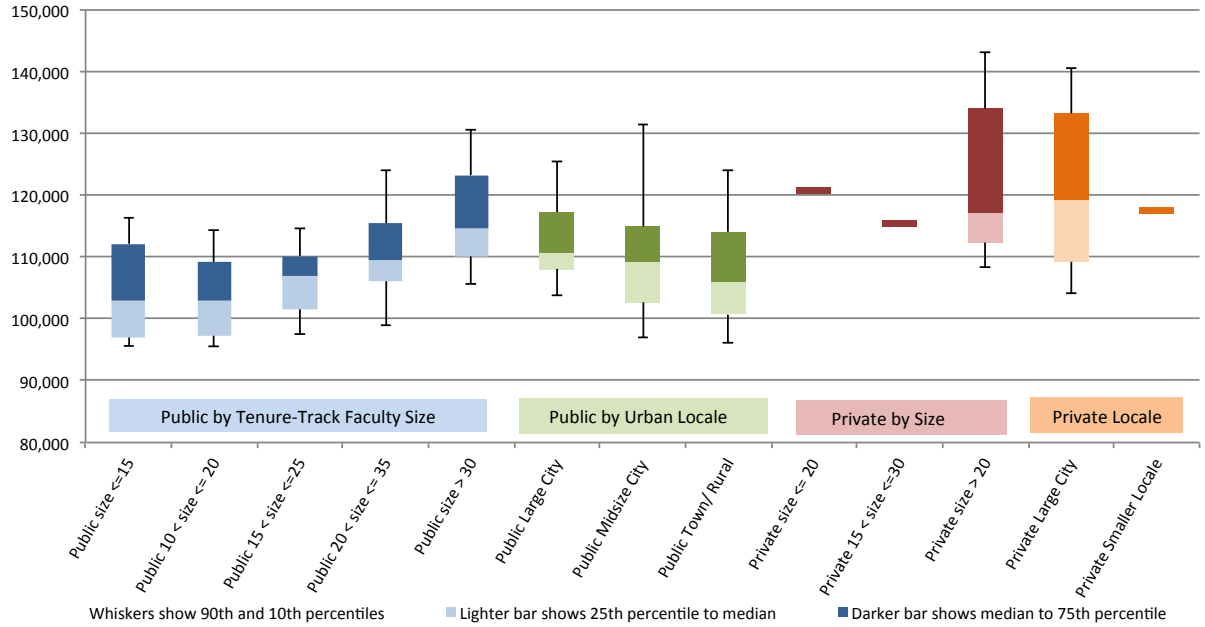



**Figure S6. US CS Department Average Salary, Assistant Professor**

**CRA Taulbee Survey 2014**

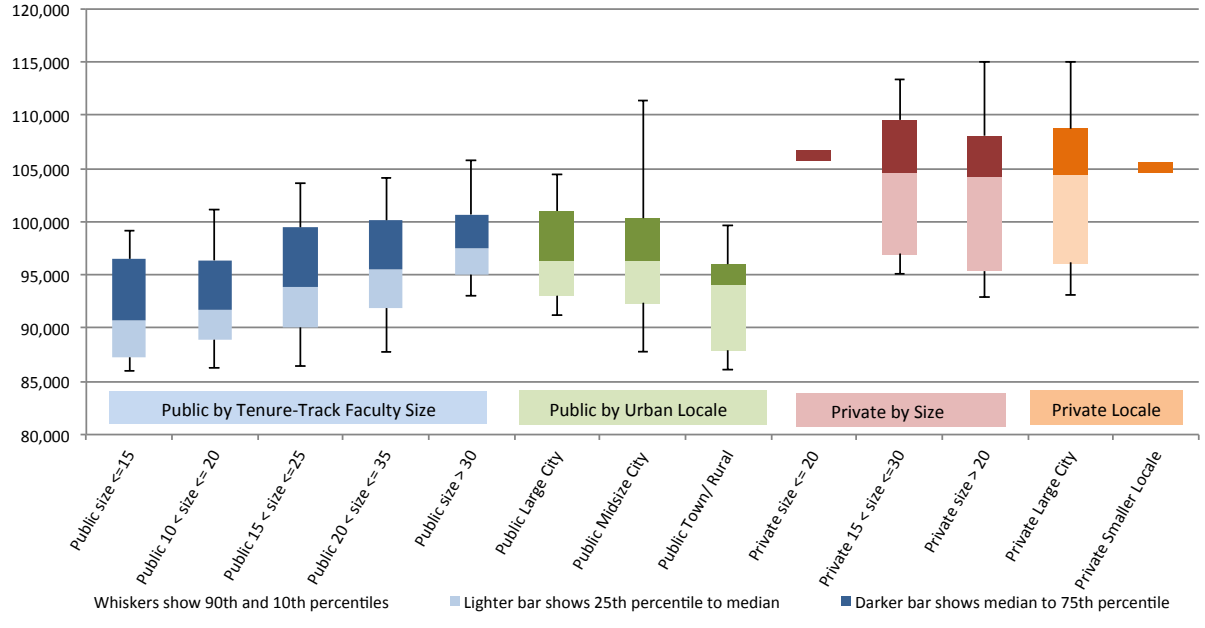


**Figure S7. US CS Department Average Salary, Non-Tenure Track Teaching Faculty**

**CRA Taulbee Survey 2014**

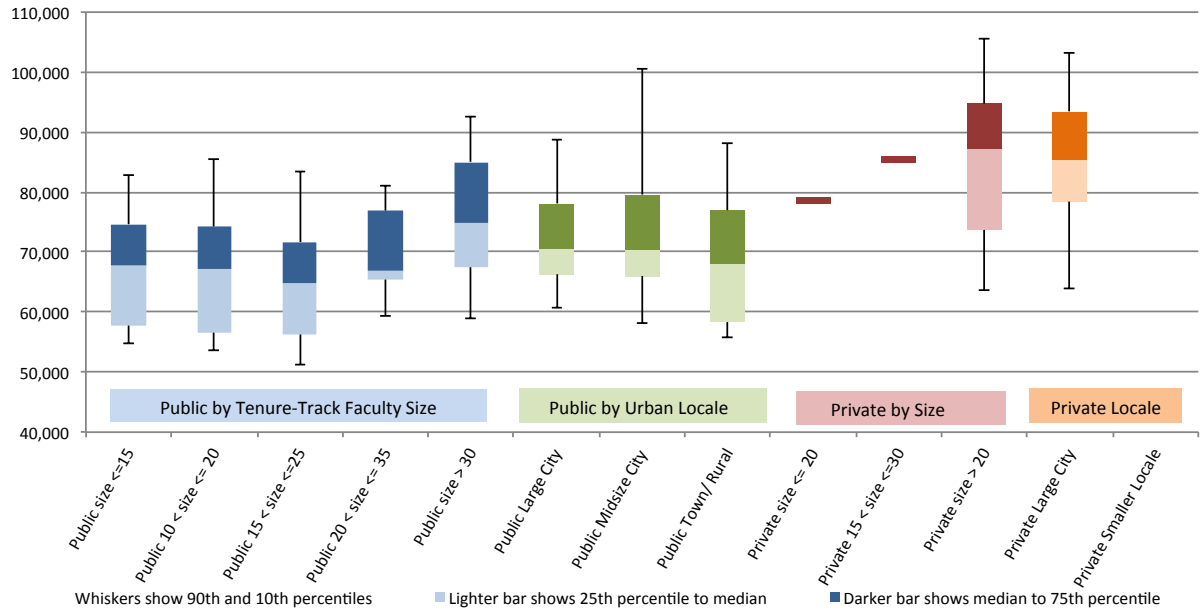



**Figure S8. US CS Department Average Salary, Non-Tenure Track Research Faculty**

**CRA Taulbee Survey 2014**

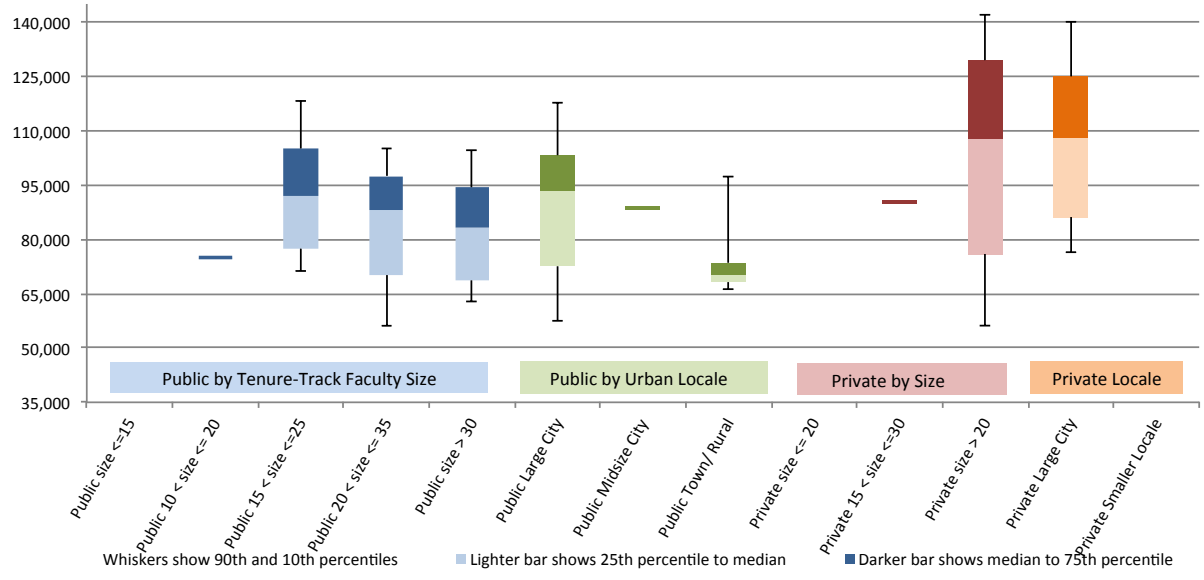
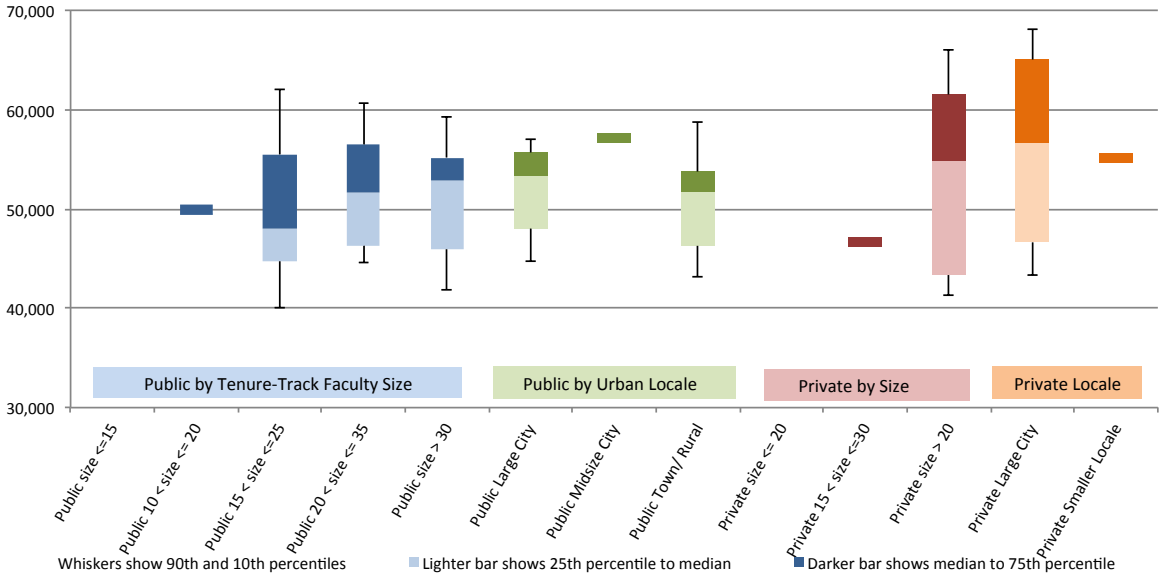


**Figure S9. US CS Department Average Salary, Postdoctorates**

**CRA Taulbee Survey 2014**



## Concluding Observations

There is seemingly relentless teaching pressure on academic computing departments from the undergraduate demand. Yet, for the fourth time in five years, the fraction of doctoral graduates who took tenure-track positions at doctoral-granting departments declined. Industry continues to employ majority of doctoral graduates, with most of those going to industry taking research positions where the nature of their industry position is known. The struggles that academic departments face in coping with the increased demand remind us of the high growth eras in the 80s and 90s.

## Participating Departments

**US CS Public (103):** Arizona State, Auburn, Clemson, College of William & Mary, Colorado School of Mines, Colorado State, Florida International, Florida State, George Mason, Georgia Tech, Georgia State, Indiana, Iowa State, Kansas State, Kent State, Louisiana State, Michigan State, Michigan Technological University, Mississippi State, Missouri Science & Technology, Montana State, Naval Postgraduate School, New Jersey Institute of Technology, New Mexico State, North Carolina State, North Dakota State, Ohio State, Ohio, Oklahoma State, Old Dominion, Oregon State, Pennsylvania State, Portland State, Purdue, Rutgers, Stony Brook (SUNY), Temple, Texas A&M, University at Albany, Universities of: Alabama (Birmingham and Tuscaloosa), Arizona, Arkansas, Arkansas at Little Rock, California (Berkeley, Davis, Irvine, Los Angeles, Riverside, San Diego, Santa Barbara, and Santa Cruz), Central Florida, Colorado (Boulder), Connecticut, Delaware, Florida, Georgia, Hawaii, Houston, Idaho, Illinois (Chicago and Urbana Champaign), Iowa, Kansas, Kentucky, Louisiana at Lafayette, Maryland (College Park and Baltimore County), Massachusetts (Amherst and Boston), Michigan, Minnesota, Mississippi, Missouri (Columbia), Nebraska (Omaha and Lincoln), Nevada (Reno), New Hampshire, North Carolina (Chapel Hill and Charlotte), North Dakota, North Texas, Oklahoma, Oregon, Pittsburgh, Rhode Island, South Carolina, South Florida, Tennessee (Knoxville), Texas (Austin, Dallas, and El Paso), Utah, Vermont, Virginia, Washington, Wisconsin (Madison), Wyoming, Virginia Tech, Washington State, Western Michigan, and Wright State.

**US CS Private (34):** Boston University, Brown, Carnegie Mellon, Case Western Reserve, Columbia, Cornell, DePaul, Drexel, Duke, Florida Institute of Technology, Harvard, Illinois Institute of Technology, Johns Hopkins, Lehigh, MIT, New York University, Northeastern, Pace, Princeton, Rensselaer, Rice, Rochester Institute of Technology, Stanford, Stevens Institute of Technology, Toyota Technological Institute at Chicago, Tufts, Universities of: Chicago, Pennsylvania, Rochester, Southern California, and Tulsa, Washington in St. Louis, Worcester Polytechnic Institute, and Yale.

**US CE (10):** Florida Institute of Technology, Iowa State, North Carolina State, Princeton, Purdue, Santa Clara, Universities of: California (Santa Cruz), Illinois (Urbana Champaign), New Mexico, and Southern California, and Virginia Tech.

**US Information (15):** Cornell, Drexel, Florida State, Indiana, Penn State, Syracuse, University at Albany (SUNY), Universities of: California (Berkeley and Santa Cruz), Illinois (Urbana Champaign), Maryland (Baltimore County), Michigan, North Carolina (Chapel Hill), Pittsburgh, and Washington.

**Canadian (11):** Concordia, McGill, Simon Fraser, Universities of: British Columbia, Calgary, Manitoba, New Brunswick, Toronto, Victoria, Waterloo, and Western Ontario.

[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 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.