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**Postsecondary Education Descriptive Analysis Reports**

# **From Bachelor's Degree to Work**

**Major Field of Study and Employment  
Outcomes of 1992–93 Bachelor's Degree  
Recipients Who  
Did Not Enroll in Graduate Education by 1997**

## **Executive Summary**

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Laura J. Horn  
Lisa Zahn  
MPR Associates, Inc.

C. Dennis Carroll  
National Center for Education Statistics

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## Executive Summary

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The analysis described in this report investigates the relationship between undergraduate major and early employment outcomes among 1992–93 college graduates who did not pursue graduate education within four years after earning their bachelor’s degree (i.e., as of 1997). These college graduates represented 70 percent of all graduates, and most entered the labor market immediately after finishing their degree.

The 1992–93 college graduates entered a labor market in the midst of an economic recovery following a two-year recession (Mishel and Bernstein 1994, p. 13). By 1997, the economy was strong and jobs were plentiful. Four years after most earned their bachelor’s degree, nearly all college graduates who had not enrolled in graduate school were working full time. The findings of this study confirm what has been reported consistently in other studies about earnings: college graduates who major in the applied fields of engineering, business, computer science, nursing, and other health fields earn higher than average full-time salaries.

This study also examined other aspects of employment including job stability, job benefits, and job satisfaction. Taking into account all these aspects along with salary, engineering and computer science stood out as the fields with the most consistent favorable employment outcomes for bachelor’s degree recipients. In contrast, education and humanities and arts majors experienced the least favorable outcomes. Graduates of nursing, business, and engineering programs experienced greater than average job stability.

Results were mixed for social science and biological science majors. Those in social sciences reported lower than average salaries in 1994, but not in 1997. The opposite was true for those majoring in biological and interdisciplinary sciences: they reported average salaries in 1994, but in 1997 their salaries were lower than average. The salaries of mathematics and physical science majors did not differ from those of all graduates in either year, nor did the rate at which their full-time salaries increased between 1994 and 1997.

### Field of Study

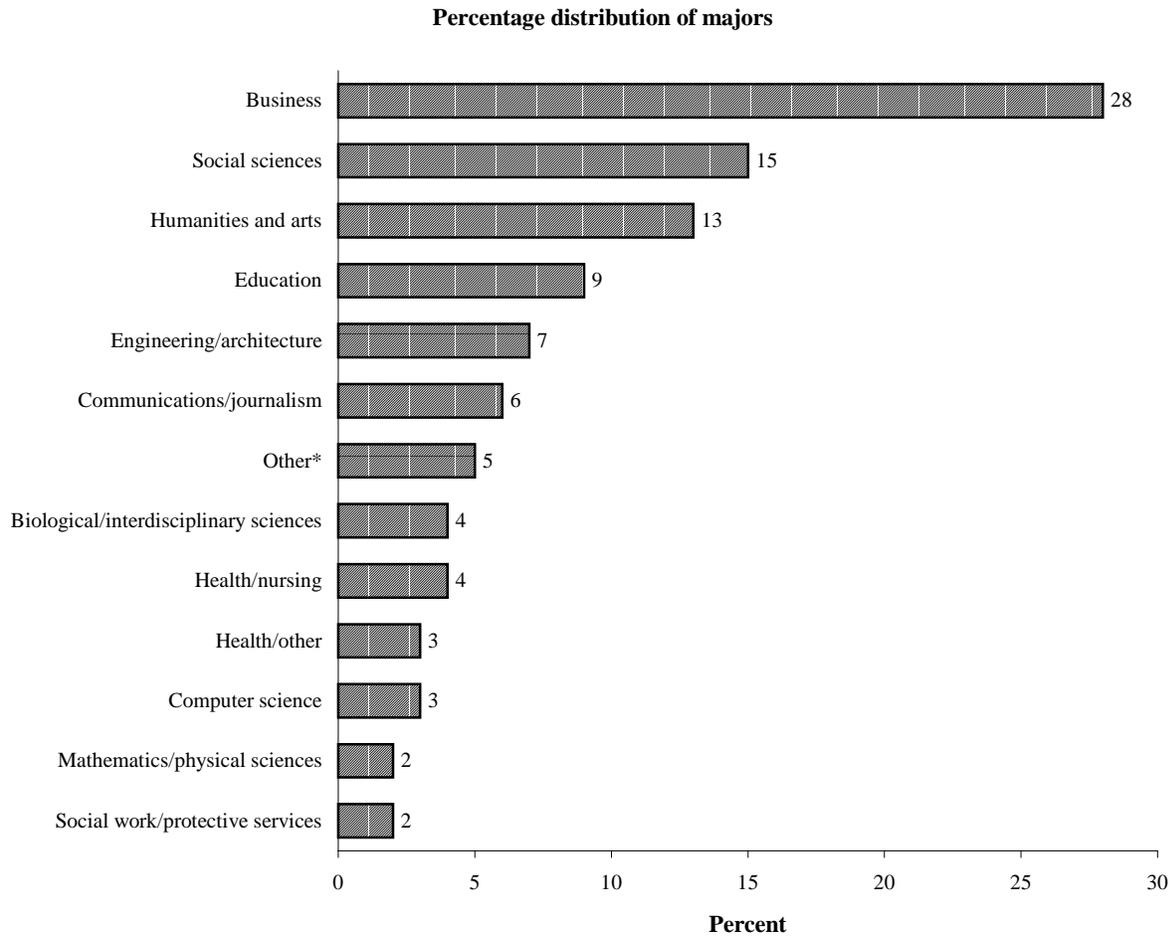
By far, the most popular undergraduate field of study was business. Over one-quarter (28 percent) of 1992–93 college graduates who did not attend graduate school by 1997 had majored in a business-related field. Following business, 15 and 13 percent, respectively, had majored in social sciences or humanities and arts. Nearly 1 in 10 had majored in education (9 percent), while approximately 7 percent had majored in engineering or architecture<sup>1</sup> (figure A).

Consistent with historically gender-dominated fields, men were more likely to major in engineering (13 versus 2 percent), computer science (4 versus 2 percent), and business (32 versus 24 percent), while women were more likely to major in education (13 versus 4 percent), nursing (6 versus 1 percent), and other health fields (4 versus 2 percent).

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<sup>1</sup>Nearly all were engineering majors; less than 1 percent of all graduates majored in architecture. Henceforth, they are referred to as “engineering majors.”

**Figure A—Percentage distribution of major field of study for 1992–93 bachelor’s degree recipients who had not enrolled in graduate education by 1997**



\*Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

Business fields tended to attract older college graduates: more than one-third of graduates age 30 or older when receiving their bachelor’s degree had majored in business (35 percent), compared with just over one-quarter (27 percent) of those 23 or younger. Asian/Pacific Islander college graduates were more likely than black, non-Hispanic graduates to favor engineering as a major. To further illustrate racial/ethnic group differences in

undergraduate major, a report based on the Integrated Postsecondary Education Data System (IPEDS) institutional survey in 1992 also showed that black, non-Hispanic graduates were more likely than others to complete degrees in business management and were less likely to earn degrees in education or health (U.S. Department of Education 1995).

## 1997 Employment Status and Occupation

Unemployment was not a problem for most 1992–93 college graduates who had not pursued graduate education. In 1997, within four years of graduating, just 2 percent were unemployed,<sup>2</sup> while almost all (86 percent) reported working full time. Compared with all graduates, business, engineering and computer science majors were more likely to be employed full time (over 90 percent), while humanities and arts majors were less likely to work full time (79 percent).

Job stability, as measured by the percentage of graduates with any unemployment spells, the number of jobs worked since bachelor's degree attainment, and the average number of months worked in the April 1997 job, was high for graduates who had majored in nursing, engineering, or business. Graduates in all three fields worked in fewer jobs than all graduates and had worked in their April 1997 job longer (table A). Nursing majors also were much less likely to report any spells of unemployment since earning their bachelor's degree. Conversely, those with majors in communications/journalism or humanities and arts fields worked in more jobs since graduation and fewer months in their April 1997 job than all graduates.

College graduates who had majored in applied fields<sup>3</sup> were very likely to be employed in occupations related to their majors (table B). This was

especially true for those majoring in nursing and other health fields, among whom 96 percent and 68 percent, respectively, were employed as medical professionals. In addition, nearly three-quarters of education majors (74 percent) worked as teachers, and 60 percent of engineering majors as engineers.<sup>4</sup> Similarly, 60 percent of social work/protective service majors were working in social service fields. There was an exception to this pattern, however, for communications/journalism majors who were more likely than graduates in any other field to be working in service occupations (33 percent).

For academic fields,<sup>5</sup> roughly one-quarter of college graduates with majors in either biological sciences or mathematics/physical sciences were working as teachers, and roughly the same percentage in both fields worked in occupations related to research, science, or technical work. Social science majors, on the other hand, were likely to be employed in business occupations (32 percent), followed by either service occupations (18 percent) or human and protective services (16 percent).

## Full-Time Salaries

As shown in table C, college graduates with degrees in nursing or other health fields reported higher than average full-time salaries for their April 1994 job, compared with all graduates (\$34,194 and \$35,515, respectively, versus \$26,464).<sup>6</sup> The same applied to those who had

<sup>2</sup>As a point of comparison, the overall unemployment rate was 5 percent in 1997 (U.S. Department of Labor 1999, table 56).

<sup>3</sup>Applied fields in this study are education, business, engineering/architecture, computer science, nursing, other health fields, social work/protective services, and communications/journalism.

<sup>4</sup>The National Science Foundation reports that 57 percent of engineering majors work in a job closely related to their degree 1 to 5 years after bachelor's degree attainment (National Science Board 2000, Appendix table 3–1).

<sup>5</sup>Academic fields include humanities and arts, biological sciences, mathematics and physical sciences, and social sciences.

<sup>6</sup>The 1994 salaries are in 1997 dollars for comparability to 1997 salaries.

**Table A—Among 1992–93 bachelor’s degree recipients who had not enrolled in graduate education by 1997, the average number of jobs worked, the percentage with any unemployment, and the average number of months worked at April 1997 job, by major field of study**

	Average number of jobs begun since graduation	Percentage with any unemployment since graduation	Number of months worked in April 1997 job <sup>1</sup>
Total	2.3	39.5	27.5
Bachelor’s degree major			
<b>Applied fields</b>			
Education	2.6	51.7	28.1
Business	1.9	33.1	29.8
Engineering/architecture	1.8	40.6	32.0
Computer science	1.9	39.4	29.6
Health/nursing	1.6	19.0	32.8
Health/other	1.9	30.0	30.9
Communications/journalism	2.8	47.3	24.3
Social work/protective services	2.2	36.6	29.3
<b>Academic fields</b>			
Humanities and arts	2.9	46.5	23.9
Biological/interdisciplinary sciences	2.5	48.8	25.3
Mathematics/physical sciences	2.5	42.9	27.5
Social sciences	2.5	41.9	25.2
Other <sup>2</sup>	2.3	34.8	25.9

<sup>1</sup>Maximum possible is 52. Dates were bounded between 1/1/93 and 4/30/97.

<sup>2</sup>Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

NOTE: Compared to all graduates: gray box = higher than average; white box = lower than average (p<0.05).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

majored in either engineering (\$32,217) or business (\$29,017). In contrast, education majors had lower than average 1994 full-time salaries (\$20,443),<sup>7</sup> as did those with majors in social work/protective services (\$21,328), communications/journalism (\$22,170), humanities and arts (\$22,359), and social sciences (\$23,166).

<sup>7</sup>It is possible that some of the salaries reported by education majors (73 percent of whom were working as educators) were for a 9-month academic year rather than a 12-month year.

In 1997, with a few exceptions, similar salary patterns emerged. The exceptions were computer science majors who earned a substantially higher than average 1997 salary (\$44,624 versus \$34,310), and biological science majors who earned a lower than average salary (\$28,760). In addition, communications/journalism majors no longer earned lower than average salaries in 1997. For education majors, graduates not only reported

**Table B—Percentage distribution of 1992–93 bachelor’s degree recipients who had not enrolled in graduate school by 1997, according to their occupation in April 1997, by major field of study**

	Edu- cators	Busi- ness or manage- ment	Engi- neering/ software engineers/ archi- tecture	Com- puter science	Medical profes- sionals	Editors/ writers/ per- formers	Human/ protec- tive service profes- sionals	Research/ scientists/ technical	Adminis- trative/ clerical/ legal support	Mech- anics laborers	Service occu- pations
Total	12.5	29.3	5.4	4.9	7.0	4.9	5.9	4.7	5.5	3.9	14.6
Bachelor’s degree major <sup>1</sup>											
<b>Applied fields</b>											
Education	73.9	7.0	0.0	0.3	2.1	1.0	1.4	1.2	4.3	2.8	5.2
Business	3.7	55.8	0.8	5.2	0.5	0.9	2.0	1.8	4.7	3.5	20.3
Engineering	1.4	7.5	59.7	6.1	1.1	1.0	0.5	9.0	1.2	7.5	3.9
Computer science	3.7	12.5	12.9	57.9	1.0	0.0	0.9	3.3	1.3	2.2	3.3
Nursing	0.5	2.8	0.0	0.5	96.2	0.0	0.0	0.0	0.0	0.0	0.0
Health/other	7.3	7.5	0.0	0.9	68.3	0.0	3.3	3.6	2.7	0.5	6.0
Comm./journalism	4.1	22.8	0.3	2.8	0.6	23.0	1.9	3.2	5.6	2.5	33.0
Social work/prot. serv.	6.8	10.5	0.0	0.0	2.0	0.0	59.8	0.9	10.9	1.6	6.7
<b>Academic fields</b>											
Humanities	17.8	23.4	1.0	3.7	2.0	17.0	4.8	4.0	6.3	3.8	15.0
Biological/interdis./sci.	24.6	14.6	1.5	0.8	16.2	1.7	1.5	23.6	2.3	5.2	6.2
Math/phys. sciences	26.2	11.5	9.0	7.3	0.8	0.6	1.7	24.0	5.8	4.0	8.4
Social sciences	8.8	31.9	0.3	1.2	3.1	2.3	16.4	3.5	9.3	3.0	17.7
Other <sup>2</sup>	8.0	32.0	1.2	1.5	3.5	5.6	8.8	5.0	5.4	12.3	15.2

<sup>1</sup>For full labels of major fields see table A.

<sup>2</sup>Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

NOTE: Details do not sum to 100 because the “other” occupation group (1.4 percent) is not included. Gray boxes indicate the occupations with the highest percentage of graduates for a given major. If less than 50 percent, then two or more occupations (up to 50 percent) were identified.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

lower than average salaries in *both* 1994 and 1997 but also experienced lower rates of salary increase than did all graduates.

## Job Benefits and Job Satisfaction

With respect to their job held in April 1997, engineering majors reported very favorable outcomes and were generally very satisfied with their

employment. For example, engineering was the only field in which graduates were more likely than all graduates to report that their job both required a degree *and* had definite career potential (54 versus 38 percent). Engineering majors also were more likely than all graduates to report that their jobs provided health insurance, paid vacations, retirement benefits, family leave, and outside job training (table D1). Computer science

**Table C—Among 1992–93 bachelor’s degree recipients who had not enrolled in graduate education by 1997, full-time salaries in 1994 and 1997, and for those employed full-time in both 1994 and 1997, the average percent increase in salary between 1994 and 1997, by major field of study**

	Full-time 1994 salary in 1997 dollars	Full-time 1997 salary	Percent increase in salary if full time in 1994 and 1997
Total	\$26,464	\$34,310	24.5
Bachelor’s degree major			
<b>Applied fields</b>			
Education	20,443	24,543	18.2
Business	29,017	37,448	25.1
Engineering/architecture	32,217	42,931	25.2
Computer science	29,428	44,624	31.2
Health/nursing	34,194	37,012	10.9
Health/other	35,515	42,066	17.2
Communications/journalism	22,170	32,294	28.7
Social work/protective services	21,328	27,350	21.7
<b>Academic fields</b>			
Humanities and arts	22,359	29,630	25.6
Biological/interdisciplinary sciences	25,380	28,760	22.4
Mathematics/physical sciences	25,958	31,565	23.6
Social sciences	23,166	33,463	26.8
Other*	24,694	33,374	23.4

\*Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

NOTE: Compared to all graduates: gray box = higher than average; white box = lower than average (p<0.05).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

majors also fared well with respect to job benefits: they were more likely than all graduates to report receiving health insurance benefits, paid sick leave, paid vacation, retirement, and family leave benefits. In contrast, humanities and arts majors were less likely than all graduates to report receiving any of the benefits reported in the survey, while education majors were less likely to report working in jobs that provided paid vacations.

Few differences were found across fields of study with respect to measures of job satisfaction (table D2). Engineering majors and health (other than nursing) majors were more likely than all graduates to report being very satisfied with pay. Conversely, education and humanities and arts majors were less likely to be very satisfied with pay. Engineering was the only field in which majors were more likely than all graduates to report

**Table D1—Among 1992–93 bachelor’s degree recipients who had not enrolled in graduate education by 1997, percentage reporting various job benefits offered at their April 1997 job, by major field of study**

	Health insurance	Paid sick leave	Paid vacation	Retirement	Family leave	Job training outside the job
Total	85.9	83.0	86.1	78.0	66.1	43.8
Bachelor’s degree major						
<b>Applied fields</b>						
Education	81.4	83.3	74.6	77.8	60.3	44.0
Business	90.1	84.5	91.2	81.1	67.3	47.2
Engineering/architecture	93.2	85.0	94.7	85.9	73.9	54.2
Computer science	94.8	91.5	95.4	87.9	79.7	48.2
Health/nursing	87.5	87.7	87.2	86.8	68.9	55.8
Health/other	88.5	84.2	88.1	82.5	73.6	42.1
Communications/journalism	83.7	80.9	84.3	77.1	65.2	38.6
Social work/protective services	83.1	84.7	87.3	76.7	64.6	40.7
<b>Academic fields</b>						
Humanities and arts	78.1	76.7	79.4	67.7	58.5	37.1
Biological/interdisciplinary sciences	79.7	80.7	79.8	71.9	57.3	37.8
Mathematics/physical sciences	89.5	86.5	81.4	80.6	79.8	40.7
Social sciences	85.8	82.9	85.2	76.8	66.8	43.7
Other*	84.0	77.9	80.9	74.0	63.3	42.6

\*Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

NOTE: Compared to all graduates: gray box = more likely than average to report; white box = less likely than average to report (p<0.05).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

high satisfaction with co-workers, while computer science was the only field in which majors reported high satisfaction with working conditions more often than all graduates. Finally, education was the only field in which majors were more likely than all graduates to report being very satisfied with the challenge the job offered.

## Gender Differences

The findings of the study illustrated substantial gender differences in earnings among 1992–93 bachelor’s degree recipients who did not enroll in

graduate school by 1997. These differences were more apparent in 1997, four years after most graduates had earned their bachelor’s degree, than when graduates first entered the labor market. Looking at individual fields of study, in 1994 men with majors in business, computer science, communications/journalism, and social sciences earned higher salaries than women majoring in these fields. By 1997, men earned more than women in all fields of study except engineering, health (other than nursing), and humanities and arts (figure B).

**Table D2—Among 1992–93 bachelor’s degree recipients who had not enrolled in graduate education by 1997, percentage reporting being very satisfied with various aspects of their April 1997 job, by major field of study**

	Very satisfied with						
	Pay	Job security	Job challenge	Fringe benefits	Promotion opportunity	Co-workers	Working conditions
Total	32.6	63.0	55.8	52.8	38.3	79.6	55.6
Bachelor’s degree major							
<b>Applied fields</b>							
Education	27.0	64.1	66.3	45.8	31.8	78.7	50.4
Business	34.3	61.5	52.7	54.3	42.1	80.0	58.5
Engineering/architecture	42.0	60.4	60.4	57.6	46.1	85.4	54.4
Computer science	40.7	62.8	59.7	65.9	43.9	78.7	69.4
Health/nursing	38.0	55.8	62.1	48.4	33.5	79.1	41.6
Health/other	48.4	70.4	63.3	54.4	27.3	75.9	51.9
Communications/journalism	30.9	63.3	54.6	60.1	42.3	81.3	56.5
Social work/protective services	33.9	66.9	60.4	53.7	33.6	76.9	48.9
<b>Academic fields</b>							
Humanities and arts	26.6	60.7	53.1	51.0	34.1	79.2	54.9
Biological/interdisciplinary sciences	23.9	57.6	50.8	41.5	28.1	73.4	46.4
Mathematics/physical sciences	38.1	62.5	49.9	51.5	30.5	77.7	52.7
Social sciences	29.3	66.0	52.9	50.8	36.4	79.7	53.7
Other*	34.1	69.0	59.0	50.6	44.2	82.4	59.9

\*Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

NOTE: Compared to all graduates: gray box = more likely than average to report; white box = less likely than average to report (p<0.05).

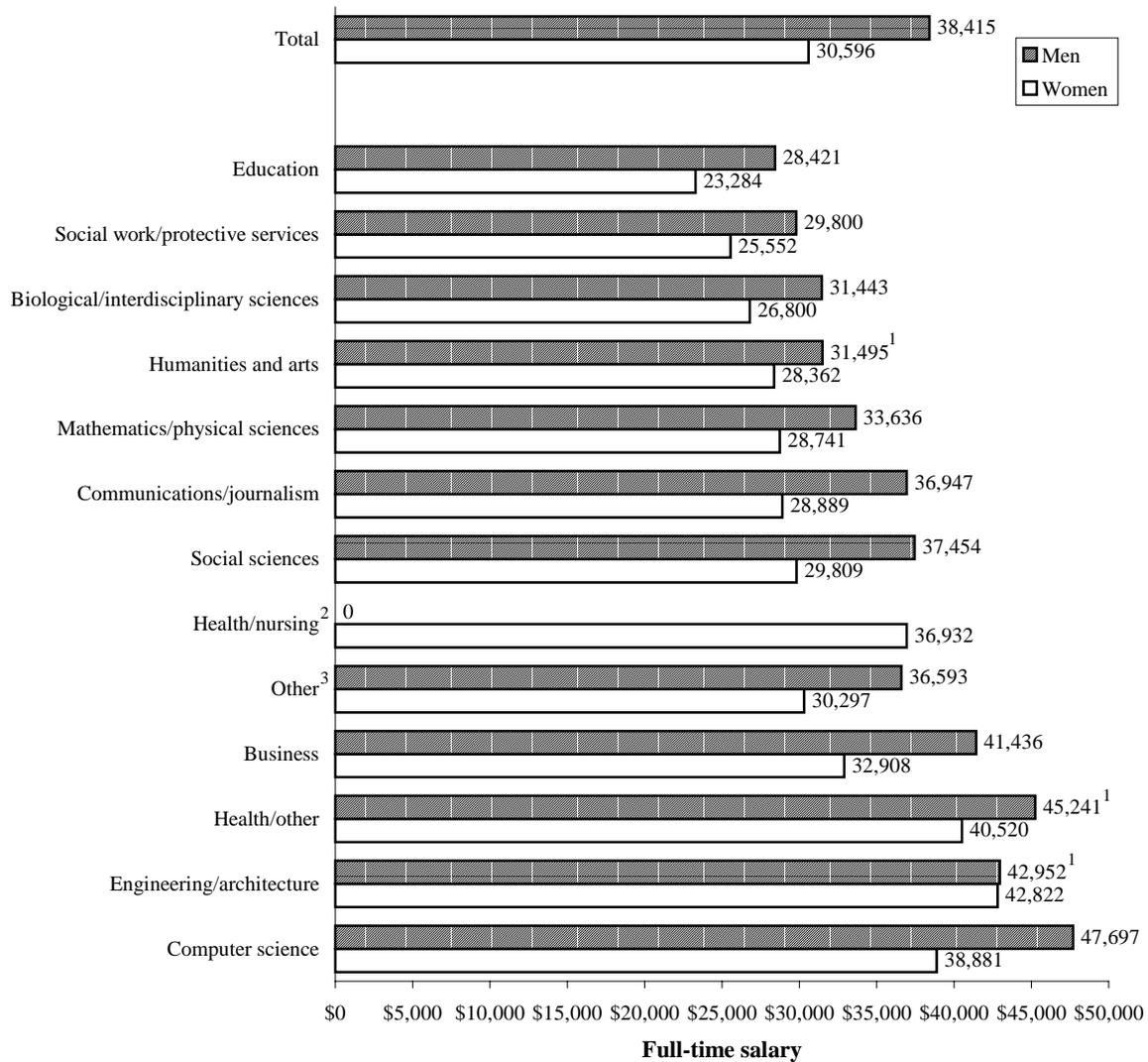
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

In a multivariate analysis conducted separately for men and women, several factors, including age, race/ethnicity, and work experience were associated with women’s 1997 salaries, but not with men’s salaries. Specifically, after controlling for related variables including major field of study, women age 30 or older when they received their bachelor’s degree earned higher salaries than women 23 or younger, as did Asian/Pacific Islander women compared with white women, and women who did not work in any overlapping jobs compared with those who did. For men, on the other hand, only major field of study and institu-

tion attended (those attending doctoral-granting private, not-for-profit institutions earned more than men in comparable public institutions) predicted their 1997 salaries. These results suggest that women may be subjected to greater scrutiny in entering and advancing in the labor market.

Finally, when asked why they took their 1997 jobs, women were more likely to report that they chose their job because it provided interesting work. In contrast, men were more likely to do so for the job’s advancement opportunities or income potential.

**Figure B—Average full-time salaries for men and women in 1997 among 1992–93 bachelor’s degree recipients who had not enrolled in graduate education by 1997, by major field of study**



<sup>1</sup>Male and female salaries not statistically different.

<sup>2</sup>Not enough men for a reliable estimate.

<sup>3</sup>Other includes agriculture, natural resources, forestry, textiles, home economics, law, library science, military science, leisure studies, basic/personal skills, industrial arts, precision production, transportation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.