

## **Appendix B.—Productivity Ratios for the Leading 100 Undergraduate Sources of Science and Engineering Ph.D.s**

One way to investigate the effect of undergraduate settings on science and engineering careers is to look at what types of undergraduate institutions produce the most people who go on to get science and engineering Ph.D.s. OTA conducted an analysis of institutions' "productivity" of science and engineering Ph.D.s, and also looked at trends in this institutional productivity over time. OTA analyzed this productivity at six points in time, looking at baccalaureates conferred between 1951 and 1976.<sup>1</sup> Trends in science and engineering Ph.D. awards, lagged from the mid-1950s to 1986, yield measures of institutional Ph.D. "productivity" in terms of baccalaureates going on to earn science and engineering Ph.D.s.

A way of looking at institutional productivity, independently of institutional size, is to look at the proportion, rather than the absolute numbers of baccalaureate graduates who go on to earn science and engineering Ph.D.s. The "productivity ratio" for each institution was calculated by dividing the number of baccalaureates from institution "A" that went on to earn a science/engineering Ph.D. from any doctoral granting institution for a specific referenced baccalaureate year (or for the total of the 6 referenced baccalaureate years) by the total number of baccalaureates awarded by institution "A" for the same referenced year(s). The baccalaureate year was used as the reference point, rather than the Ph.D. year. For example, the number of baccalaureates who graduated from the Massachusetts Institute of Technology (MIT) in 1955-56 and continued graduate studies to earn a science and engineering Ph.D. (irrespective of where and when said Ph.D. was earned) was divided by the total number of baccalaureate degrees awarded by MIT in 1955-56.

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1. Betty D. Maxfield, "Institutional Productivity: The Undergraduate Origins of Science and Engineering Ph.D.s," OTA contractor report, July 1987, table 1A. Six academic years were sampled for baccalaureate data: 1950, 1955, 1960, 1965, 1970, and 1975.

**Leading 100 Undergraduate Sources of Science/Engineering Ph.D.'s  
for 6 Selected Years**  
(Adjusted for Institution Size)

Rank	B.A. to Ph.D. rank	Institution	Total # S/E Ph.D.'s	Productivity ratio	Type
1	32	Cal Institute of Technology	388	44.34	Private
2	207	Harvey Mudd College/CA	68	30.63	Private
3	2	Mass Institute of Technology	1,114	21.28	Private
4	104	Reed College/OR	172	20.67	Private
5	78	Swarthmore College/PA	228	17.14	Private
6	146	Cooper Union/NY	126	13.71	Private
7	23	Chicago, Univ of/IL	497	13.48	Private
8	154	Radcliffe College/MA	97	13.43	Private
9	51	Rice University/TX	288	11.98	Private
10	179	Haverford College/PA	86	11.73	Private
11	453	New Coil-South FL U	30	11.63	Private
12	111	Carleton College/MN	161	10.95	Private
13	108	Pomona College/CA	161	10.16	Private
14	159	Grinnell College/IA	119	9.87	Private
15	50	Oberlin College/OH	292	9.72	Private
16	131	Antioch College/OH	156	9.41	Private
17	112	Calif, U-San Diego	127	9.37	Public
18	5	Cornell Univ/NY	981	9.27	Private
19	389	N Mex I Mining & Tech	33	9.17	Public
20	28	Princeton Univ/NJ	410	9.02	Private
21	222	Wabash College/IN	73	8.89	Private
22	140	Wesleyan Univ/CT	133	8.88	Private
23	127	Amherst College/MA	143	8.60	Private
24	208	Earlham College/IN	72	8.53	Private
25	578	Hampshire Coil/MA	20	8.37	Private
26	1	Calif, U-Berkeley	1,472	8.31	Public
27	27	Rensselaer Poly I/NY	368	8.24	Private
28	92	Polytechnic Univ/NY	210	8.10	Private
29	212	Bryn Mawr Coil/PA	75	7.90	Private
30	106	Brandeis Univ/MA	148	7.88	Private
30	56	John Hopkins U/MD	276	7.88	Private
32	89	Calif, U-Riverside	189	7.86	Public
33	10	Harvard Univ/MA	730	7.54	Private
34	138	Franklin & Marshall C/PA	134	7.19	Private
35	628	St Johns College/MD	18	7.17	Private
36	148	Wooster, Coil of/OH	119	7.03	Private
37	202	Kalamazoo College/MI	65	7.00	Private
38	24	Yale University/CT	470	6.88	Private
39	49	Carnegie-Mellon U/PA	277	6.83	Private
40	158	Calif, U-Santa Cruz	110	6.67	Public

Rank	B.A. to Ph.D. Rank	Institution	Total # S/E Ph.D.'s	Productivity y Ratio	Type
41	43	Rochester, Univ of/NY	320	6.54	Private
42	38	Brown University/RI	321	6.50	Private
43	144	Williams College/MA	113	6.49	Private
44	293	Phila C Pharm & Sci/PA	52	6.42	Private
45	782	Webb I Naval Arch/NY	6	6.38	Private
46	185	Worcester Poly I/MA	93	6.29	Private
47	75	SUNY at Stony Brook	191	6.26	Public
47	19	Stanford Univ/CA	560	6.26	Private
49	33	Case Western Reserve/OH	399	6.24	Private
50	205	Bowdoin College/ME	77	6.20	Private
51	218	Knox College/IL	75	6.02	Private
52	200	Stevens Inst Tech/NJ	80	5.79	Private
53	220	Davidson College/NC	74	5.78	Private
54	35	Calif, U-Davis	337	5.73	Public
55	130	Union University/NY	144	5.72	Private
56	431	Eckerd College/FL	24	5.70	Private
57	8	Calif, U-Los Angeles	848	5.68	Public
58	532	Blackburn College/IL	21	5.65	Private
59	7	CUNY-City College	915	5.59	Public
60	245	Lawrence Univ/WI	69	5.51	Private
61	67	Dartmouth College/NH	235	5.45	Private
62	14	Columbia Univ/NY	646	5.44	Private
63	438	Delaware Valley C/PA	34	5.37	Private
64	261	Bates College/ME	62	5.35	Private
65	216	Beloit College/WI	72	5.33	Private
66	178	Clark University/MA	92	5.32	Private
67	375	Ill Benedictine Coil	25	5.31	Private
68	621	King College/TN	15	5.24	Private
69	275	Juniata College/PA	54	5.23	Private
70	156	Occidental Coil/CA	106	5.20	Private
71	129	SUNY at Binghamton	131	5.18	Public
72	95	Illinois Inst. Tech	187	5.15	Private
73	244	Muhlenberg Coil/PA	77	5.08	Private
74	164	Lafayette College/PA	117	5.06	Private
75	282	Whitman College/WA	52	4.99	Private
76	150	Wellesley College/MA	118	4.94	Private
77	147	Calif, U-Irvine	102	4.92	Public
78	271	SUNY Envr Sci Frstry	52	4.84	Public
79	82	Lehigh University/PA	190	4.78	Private
80	190	U.S. Military Academy	99	4.76	Public
81	310	Rhodes College/TN	41	4.71	Private
82	677	U.S. Merchant Mar Academy	18	4.69	Public
83	252	Hamilton College/NY	60	4.64	Private
84	281	Kenyon College/OH	40	4.63	Private
85	57	Duke University/NC	282	4.60	Private

<u>Rank</u>	<u>B.A. to Ph.D. Rank</u>	<u>Institution</u>	<u>Total # S/E Ph.D.'s</u>	<u>Productivity Ratio</u>	<u>Type</u>
86	497	Bard College/NY	20	4.58	Private
87	473	Centre Coil Kentucky	29	4.56	Private
88	206	Hope College/MI	74	4.53	Private
89	333	Lebanon Valley C/PA	45	4.52	Private
90	240	Colorado Sch Mines	55	4.47	Public
91	280	Drew University/NJ	51	<b>4.40</b>	Private
92	191	Vassar College/NY	92	4.33	Private
93	300	S. Dakota S Mine & Tech	45	4.31	Public
94	711	Pitzer College/CA	12	4.29	Private
95	21	Iowa State Univ	520	4.28	Public
95	483	Charleston, C of/SC	26	4.28	Public
97	266	Berea College/KY	61	4.26	Private
98	358	Cornell College/IA	38	4.21	Private
99	136	Bucknell Univ/PA	130	4.20	Private
100	204	Yeshiva Univ/NY	65	4.16	Private
100	229	Macalester Coil/MN	72	4.16	Private