

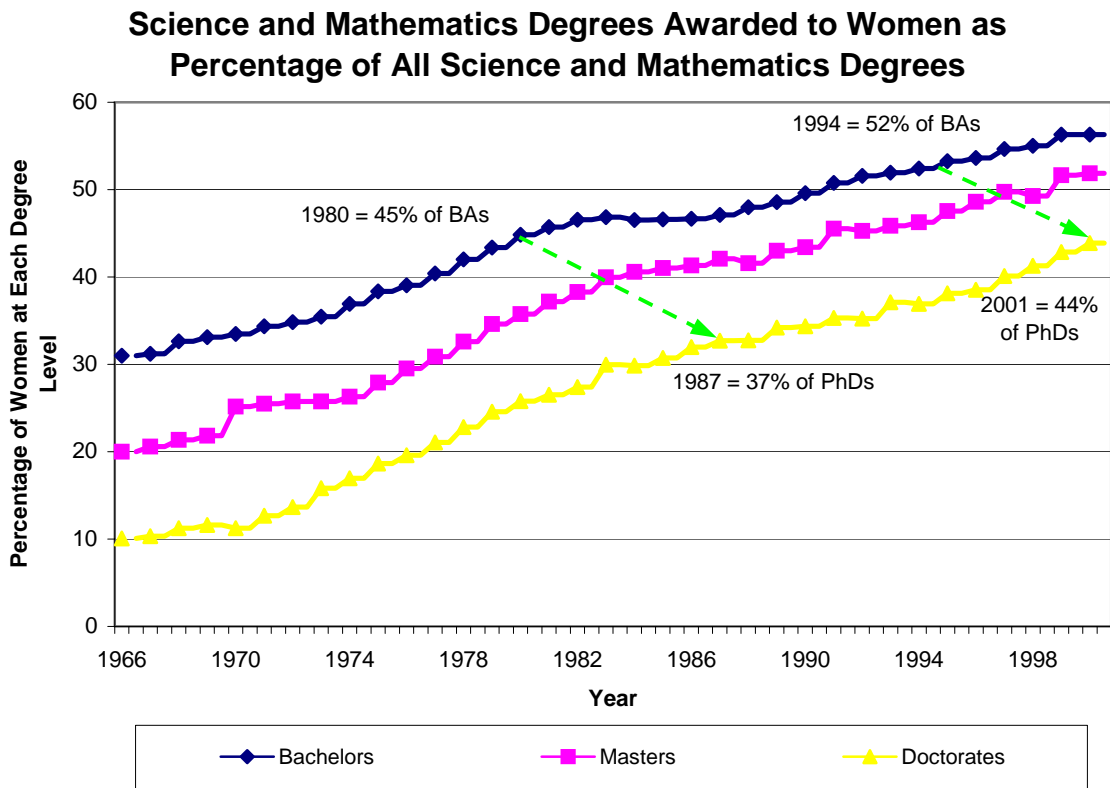
Sex Disparities in Advancement and Income

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Science and Mathematics

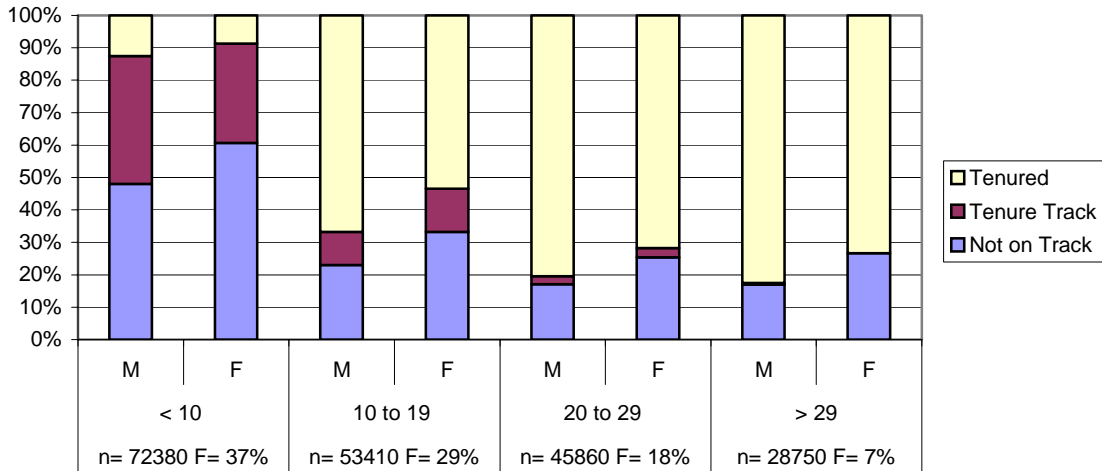
Holes in the Science Pipeline: Decreasing Percentages of Women in Science*



NOTE: The dotted arrows show the decrease in percentage of women graduates, assuming 7 years post-BA/BS to earn a Ph.D. Generated using the WebCASPAR (<http://caspar.nsf.gov>) website of the National Science Foundation.

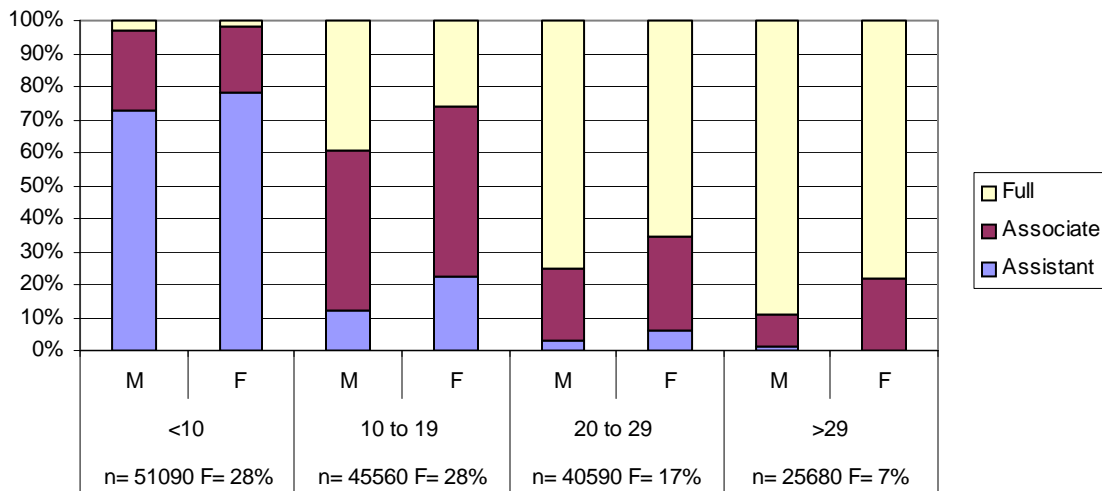
Scientists and Engineers by Sex and Years Since PhD

❖ *Academic Tenure: 2001*



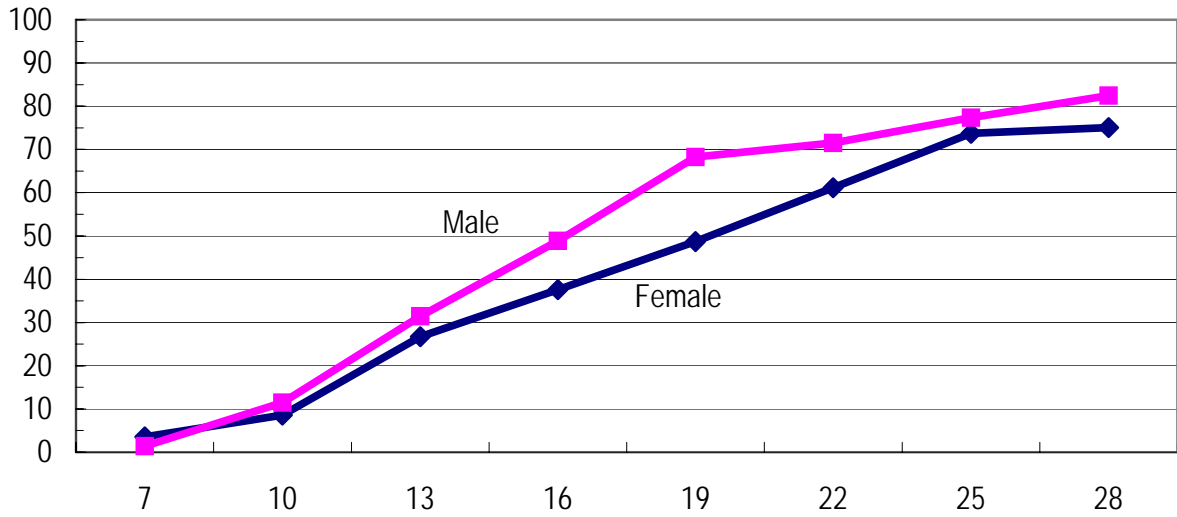
NOTE: National Science Foundation. (unpublished). *Women, minorities, and persons with disabilities in science and engineering: 2004*; calculated from table 21. Arlington, VA: NSF. “Not on Track” includes “not on tenure track” plus “tenure not applicable”. N.B. This figure includes all scientists, whether ranked or not, and thus includes more scientists than the following figure.

❖ *Academic Rank: 2001*



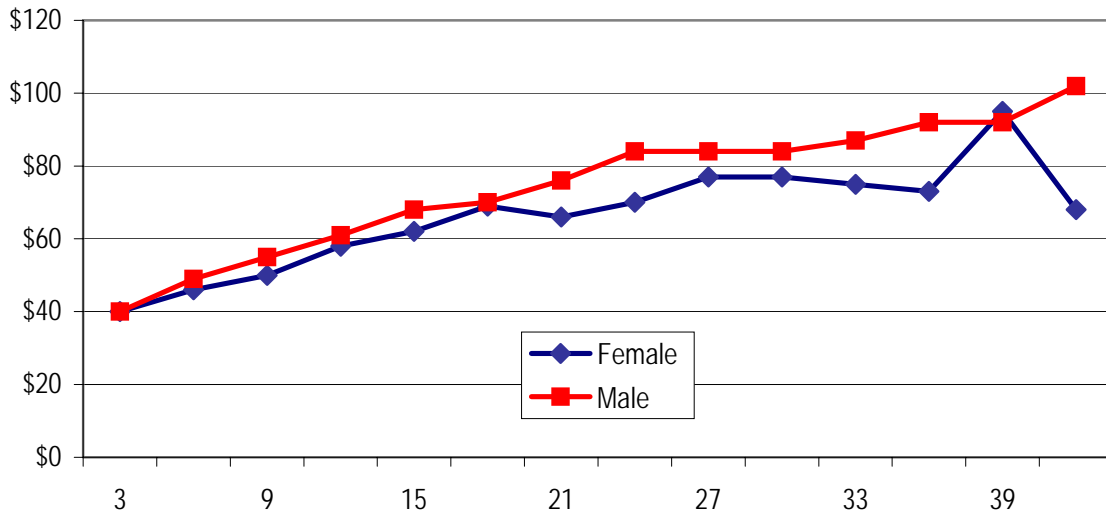
NOTE: National Science Foundation. (unpublished). *Women, minorities, and persons with disabilities in science and engineering: 2004*; calculated from table 21. Arlington, VA: NSF. N.B. This figure includes only ranked scientists and thus includes fewer scientists than the preceding figure.

Full professors as a percentage of full-time ranked S&E doctorate holders in 4-year colleges and universities, by sex and years since PhD: 2001



NOTE: Base of percentage is full, associate, and assistant professors. Because of small sample sizes, a 3-year average is used for years since doctorate. Source: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, 2001. Found in *Women, minorities, and persons with disabilities in science and engineering: 2004*. Arlington, VA: NSF.

Median salary of doctoral scientists employed full time in 4-year-colleges or universities by sex and years since PhD: 2001.



NOTE: Years since PhD is in 3-year intervals. The value shown is the first year in the interval, e.g., 3 is for 3, 4, or 5 years since PhD. Source: National Science Foundation, Division of Education Resource Statistics, Survey of Doctorate Recipients, 2001. Found in *Women, minorities, and persons with disabilities in science and engineering: 2004*. Arlington, VA: NSF.

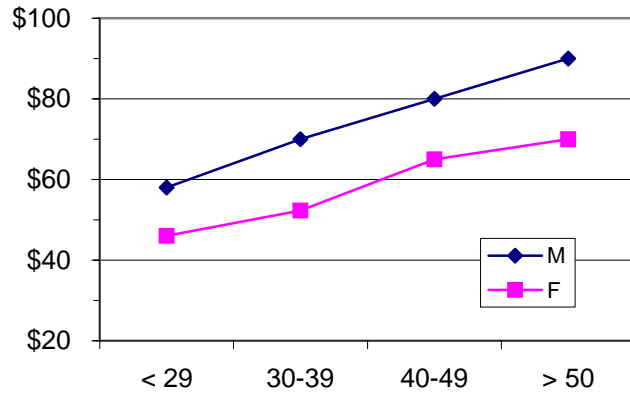
Scientists and Mathematicians by Sex and Age:

2001 Median Annual Salary in Thousand Dollars

All settings (academia, industry, etc.); doctorate recipients only.

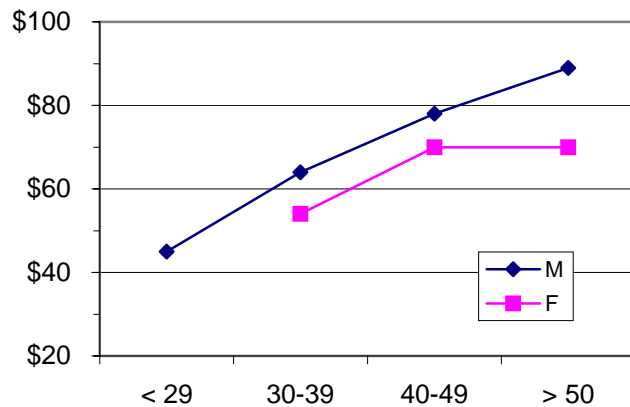
Total science and engineering

2001		
Age	M	F
< 29	58.0	46.0
30-39	70.0	52.3
40-49	80.0	65.0
> 50	90.0	70.0



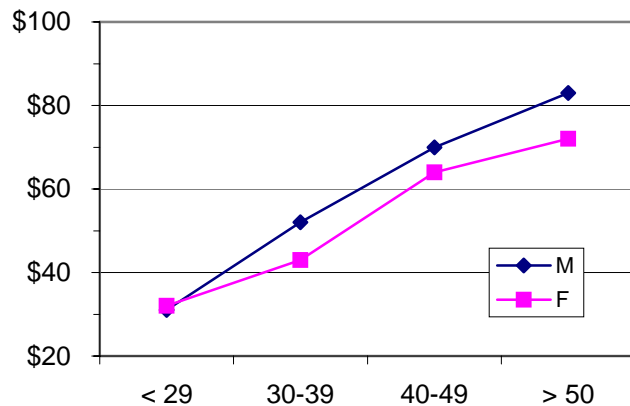
Physical and related scientists

2001		
Age	M	F
< 29	45.0	
30-39	64.0	54.0
40-49	78.0	70.0
> 50	89.0	70.0



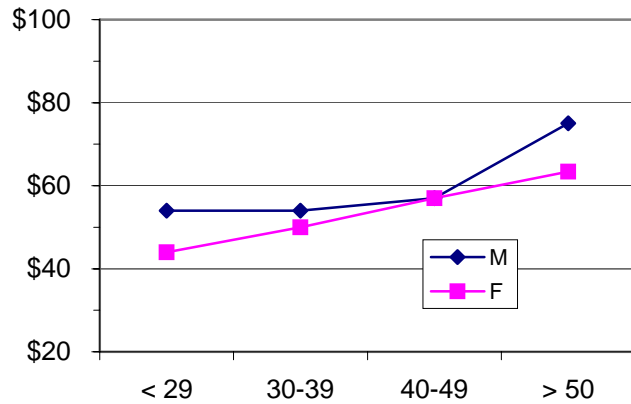
Life and related scientists

2001		
Age	M	F
< 29	31.0	32.0
30-39	52.0	43.0
40-49	70.0	64.0
> 50	83.0	72.0



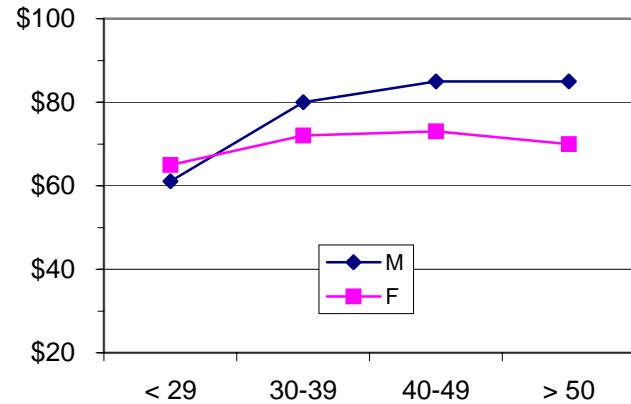
Social and related scientists

2001		
Age	M	F
< 29	54.0	44.0
30-39	54.0	50.0
40-49	57.0	57.0
> 50	75.0	63.4



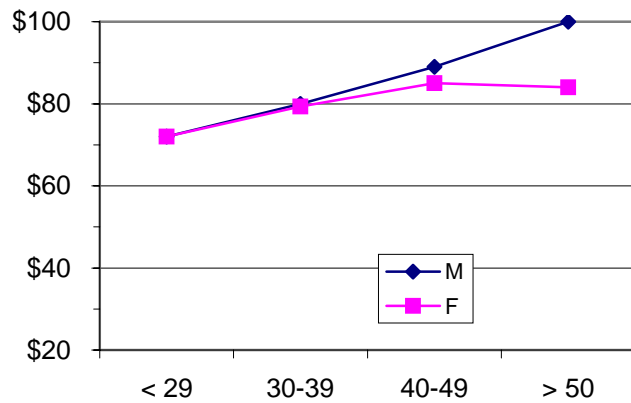
Computer and mathematical scientists

2001		
Age	M	F
< 29	61.1	65.0
30-39	80.0	72.0
40-49	85.0	73.0
> 50	85.0	70.0



Engineering

2001		
Age	M	F
< 29	72.0	72.0
30-39	80.0	79.3
40-49	89.0	85.0
> 50	100.0	84.0



NOTE: Blank cells = suppressed data because there were fewer than 200 weighted cases. 2001 data obtained from the National Science Foundation, found in Women, minorities, and persons with disabilities in science and engineering: 2004, Table 16 (unpublished), Arlington, VA: NSF. Median salary rounded to nearest hundred dollars. These figures are limited to those who earned a doctorate in an S&E field from a U.S. institution.

**Supervisory scientists and engineers by sex and age:
Median number of subordinates in 1999 in business and industry**
[n = 17,900; women = 20.5%]

<i>age</i>	<i>women</i>	<i>men</i>	<i>age</i>	<i>women</i>	<i>men</i>
< 35	5	6	35-44	6	8
45-54	6	10	≥ 55	6	8

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately. National Science Foundation/Division of Science Resources Statistics, 1999 SESTAT (Scientists and Engineers Statistical Data System).

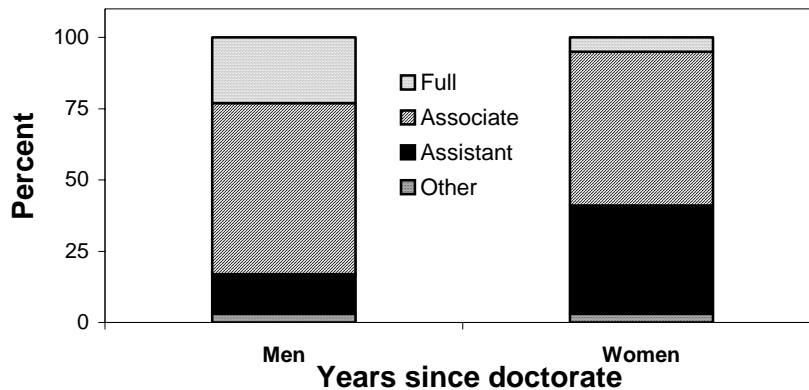
Medicine

Physicians in academic medicine: Advancement in rank

Male and female graduates between 1979 and 1993 advanced to associate and full professor at different rates: in all years, fewer women were promoted than would be expected on the basis of their representation in the lower rank. Women's advancement was slower than men's in all subfields.

NOTE: Nonnemaker, L. (2000). Women physicians in academic medicine. *New England Journal of Medicine*, 342, 399-405.

**Percentage Faculty at Different Ranks,
11 Years after First Appointment (1991)**



NOTE: Tesch, B.J., Wood, H.M., Helwig, A.L., & Nattinger, A.B. (1995). Promotion of women physicians in academic medicine. Glass ceiling or sticky floor? *Journal of the American Medical Association*, 273, 1022-1025.

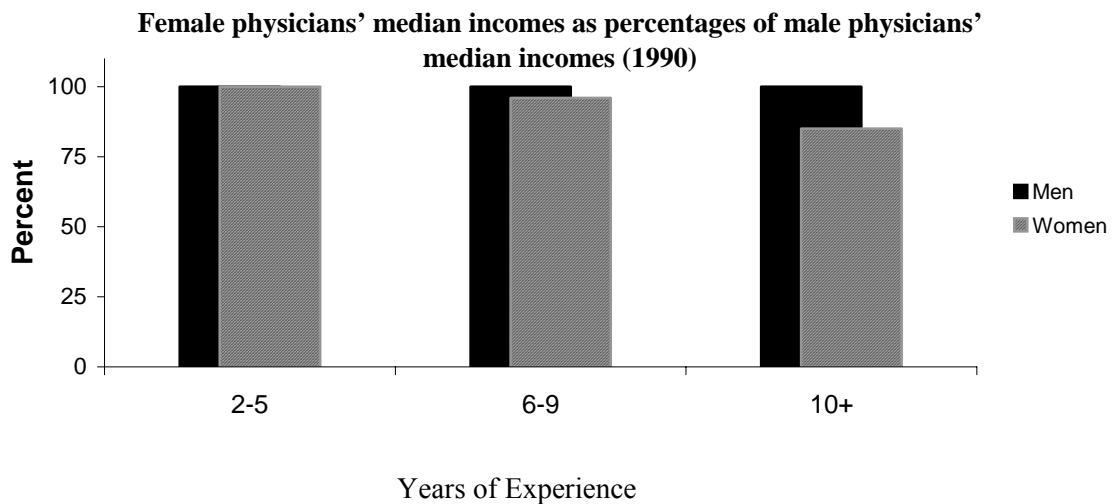
Physicians: Median income data in 1990

For physicians below age < 45 with 2-5 years of experience, no income disparity once adjust for:

- a) *hours worked per week* - men work 62, women work 51
- b) *specialty* - men work in more remunerative specialties than women (in 4 highest-paying fields [radiology, general surgery, anesthesiology, subspecialty surgery], 27% of men practice, 14% of women; in 3 lowest-paying fields [general practice, pediatrics, general internal medicine], 42% of men practice, 55% of women)
- c) *practice setting* - men work in more remunerative settings
- d) *miscellaneous factors* - AMA membership, marital status, etc.

For physicians with 6-9 years of experience, women make 96% of men's income even after adjustments.

For physicians with ≥ 10 years of experience, women make 85% of men's income even after adjustments.

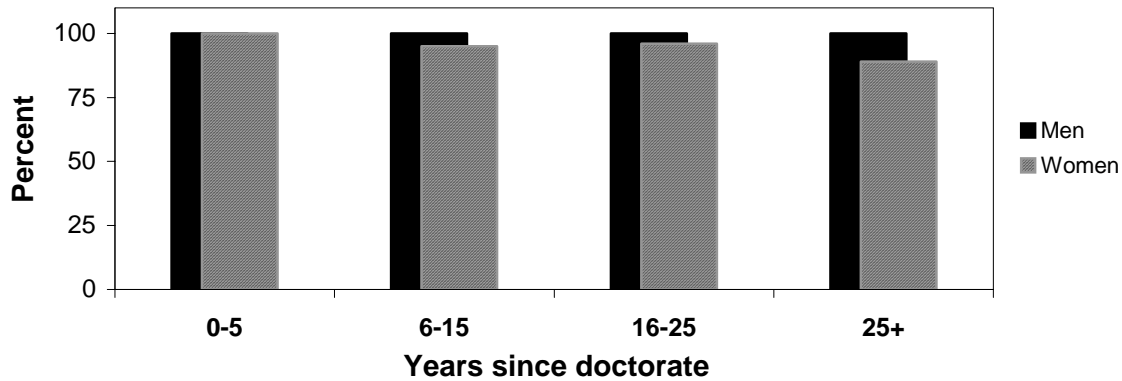


NOTE: Baker, L. C. (1996). Differences in earnings between male and female physicians. *The New England Journal of Medicine*, 334, 960-964. Cited in Valian, pp. 208-210.

Humanities

Humanists by years of experience: Salary in academia in 1995

Female humanists' median salaries as percentages of male humanists' median salaries (1995)



NOTE: Ingram, L. & Brown, P. (1997.) *Humanities doctorates in the United States: 1995 profile*. Washington, DC: National Academy Press; calculated from Statistical Table 19. Cited in Valian, pp. 223-224.

All disciplines

Academics across all disciplines: Tenure in universities and four-year colleges

	<i>% of women tenured</i>	<i>% of men tenured</i>
1976-77	44	64
1995-96	48	72
2002-03	59	72

NOTE: American Association of University Professors. (1997). The annual report on the economic status of the profession, 1996-1997 (Table 11). *Academe*, 83, no. 2 (March-April). Cited in Valian, pp. 230-231.

NOTE: American Association of University Professors. (2003). The annual report on the economic status of the profession, 2002-2003 (Table 11). *Academe*, 89, no. 2 (March-April).

University and college presidents

	% headed by women	
	1995	2001
Private universities which grant PhD	6	9
Private two-year colleges	25	28

NOTE: Ross, M. & Green, M. F. (1998). *The American college president*. Washington, DC: American Council on Education.

NOTE: Corrigan, M. (2002). *The American college president*. Washington, DC: American Council on Education.

Law

In-house lawyers: Salary in 1992

Across 500 corporate law departments employing 7000 lawyers: women earned 94% of men's salaries at three lowest ranks; women earned 78% of men's salaries at three highest ranks. Example: male general counsels averaged \$205,097; females averaged \$152,412.

NOTE: Franklin, B. D. (29 Oct 1992). Survey shows women earn less in-house than men. *New York Law Journal*, p. 1.

NOTE: Franklin, B. D. (9 Nov 1992). Women get lower pay in law departments. *The National Law Journal*, p. 17. Cited in Valian, pp. 204-205.

Gender gaps for lawyer's earnings, 1969-1989

	1969		1979		1989	
	\$	%*	\$	%	\$	%
Unadjusted gap	31,098	45.5	30,645	53.3	31,588	41.4
Adjusted gap adjusting for						
(1) Hours worked	24,407	35.7	25,910	45.1	28,090	36.8
(2) (1)+ weeks worked	20,891	30.5	22,165	38.6	25,709	33.7
(3) (2)+ class of worker	17,588	25.7	20,684	36.0	23,508	30.8
(4) (3)+ age and age ²	19,416	28.4	14,056	24.4	16,488	21.6
(5) (4)+ marital status and race	16,677	24.4	12,921	22.5	15,277	20.0

* Gender gap as a percentage of men's mean earnings

Study using cohort data from the National Survey of Lawyers' Career Satisfaction. The gender gap in lawyers' incomes narrows the most after adjusting for age.

NOTE: Chiu, C. & Leicht, K. (1999). When does feminization increase equality? The case of lawyers. *Law & Society Review*, 33, 557-593.

Lawyers in 8 large law firms: Partnership in 1994
Percent of promotions to partner by sex, 1973-86

Year of Hire	M	F
1973-74	18	25
1975-76	20	14
1977-78	26	9
1979-81	22	13
1982	19	5
1983-84	16	5
1985-86	16	5
Total	19	8

Study of 8 large Manhattan law firms.

NOTE: Epstein, C. F., Saute, R., Oglensky, B., & Gever, M. (1995). Glass ceilings and open doors: women's advancement in the legal profession. *Fordham Law Review*, 64, 306-449. Cited in Valian, pp. 201-203; new calculations from data Epstein et al.

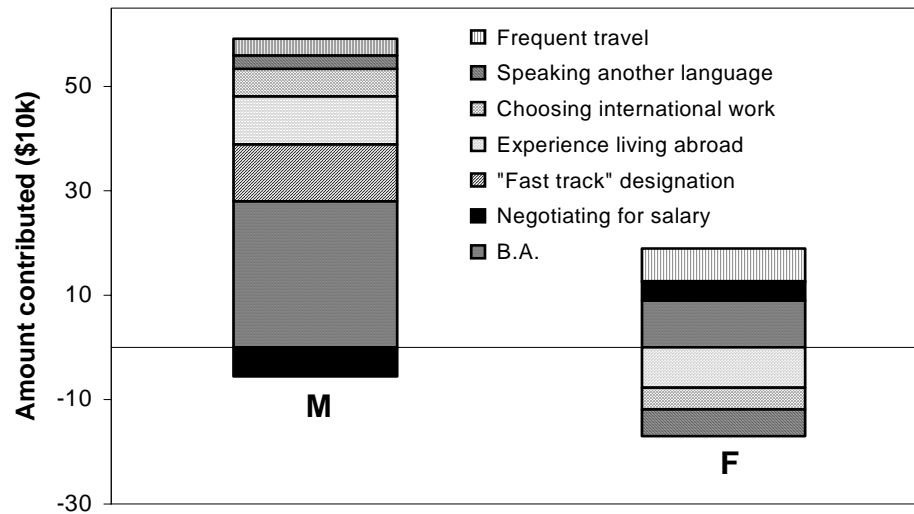
Business

International business people: Salary determinants

Of 17 factors that contributed to determining salaries, 14 helped men more than women, 2 helped women more than men. Examples:

<i>factor</i>	<i>men</i>	<i>women</i>
BA	adds \$28,000	adds \$9,000
“fast track” designation	adds \$10,900	adds \$ 200
experience living abroad	adds \$ 9,200	subtracts \$7,700
choosing international work		subtracts 4, 200

Salary determinants of international business people (1991)



NOTE: Egan, M. L. & Bendick, M., Jr. (1994). International business careers in the United States: Salaries, advancement and male-female differences. *International Journal of Human Resource Management*, 5, 35-50. See Valian, 196-197.

Conclusions

- 1) Progress: men and women make roughly equal starting salaries at similar ranks, although science and engineering salaries remain a problem.
- 2) A remaining problem: the science pipeline leaks women.
- 3) Another remaining problem: there are signs of early rank differences.
- 4) Yet another remaining problem: advancement is slower for women than for men.
- 5) The problem of advancement is general. It occurs in all the professions and thus requires general explanations. One such is social-cognitive: gender schemas and the accumulation of advantage.
- 6) Insuring equity requires knowledge of facts and theory, so that the problem can be intelligently analyzed and treated.