2010 NSF ADVANCE Program Workshop

Panel on

The Case for Retention: Women in the STEM Workforce

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Barriers to change

- exclusion from information networks,
- exclusion from grant writing opportunities,
- marginalization of research areas,
- smaller and less well-equipped offices and laboratories,
- lack of decision making power,
- etc.

Although university leaders acknowledge and discuss women in relation to science and engineering, these connections are not strong enough to appear in reverse at the same level of association.

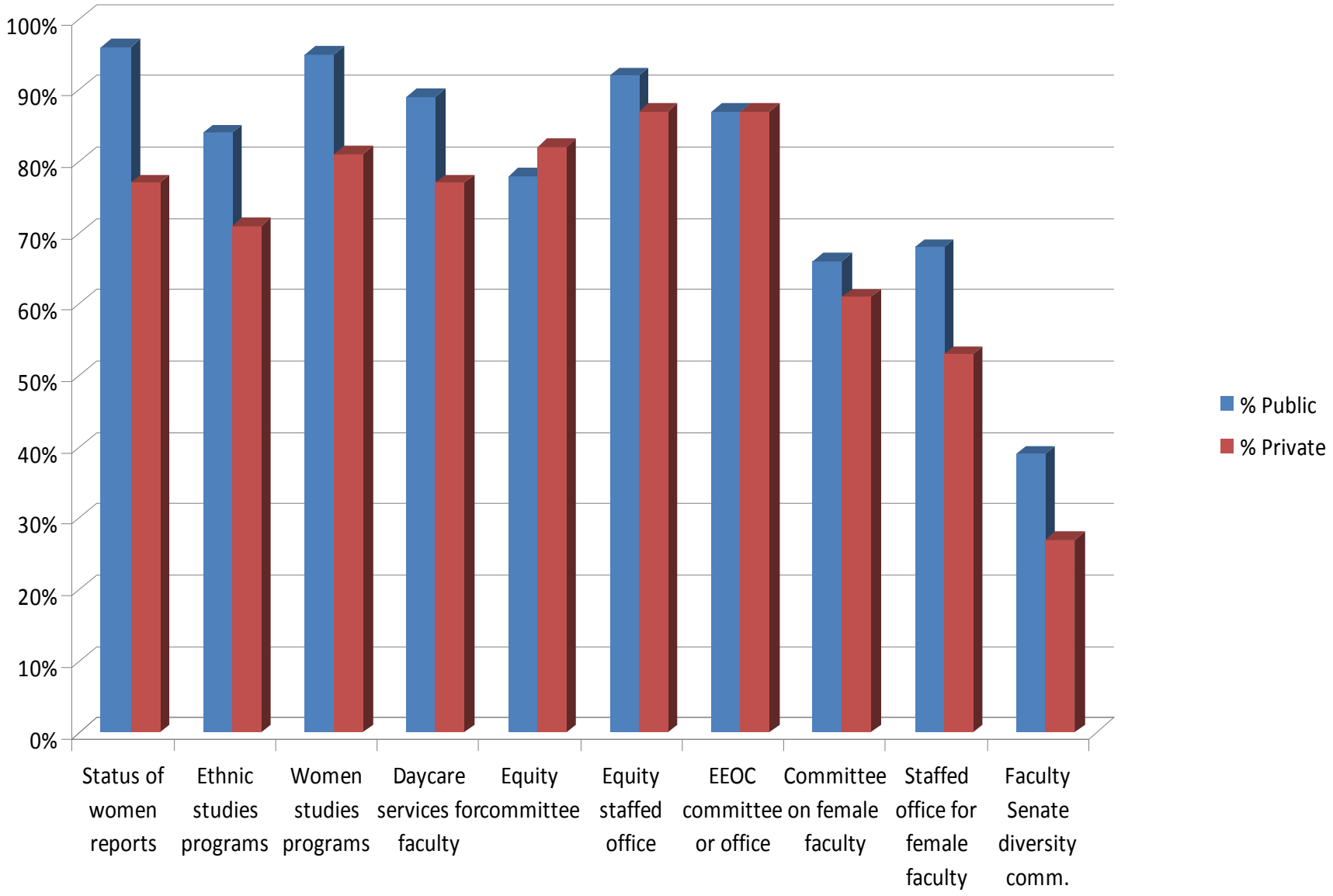
Typical Research Foci

- why women have historically entered STEM fields at lower rates than men,
- how women's experiences differ during STEM training, and
- the differential career paths of women in academic positions

Conditions for Success

- explicit efforts to expand the female applicant pool, including
- placing advertisements in outlets that specifically target women scientists and engineers,
- increasing the gender diversity of search committees
- visible and credible career opportunities for women,
- clear incentives, and
- supportive organizational policies

Key structural resources in public and private universities



Percent of Women by Degree Level, 1966-2006

	Baccalaureates		Masters		Doctorates	
	All	STEM	All	STEM	All	STEM
1966	42.6	24.8	33.8	13.3	11.6	8.0
1976	45.6	33.6	46.4	23.1	23.3	16.8
1986	51.0	39.0	50.3	32.3	35.4	26.6
1996	55.2	47.1	55.9	39.3	40.1	31.9
2006	57.8	50.5	60.0	44.9	45.1	38.5

Source: NSF, Science and Engineering Degrees, 1995-2006

Percent of Women Applicants and Academic Employment Opportunities

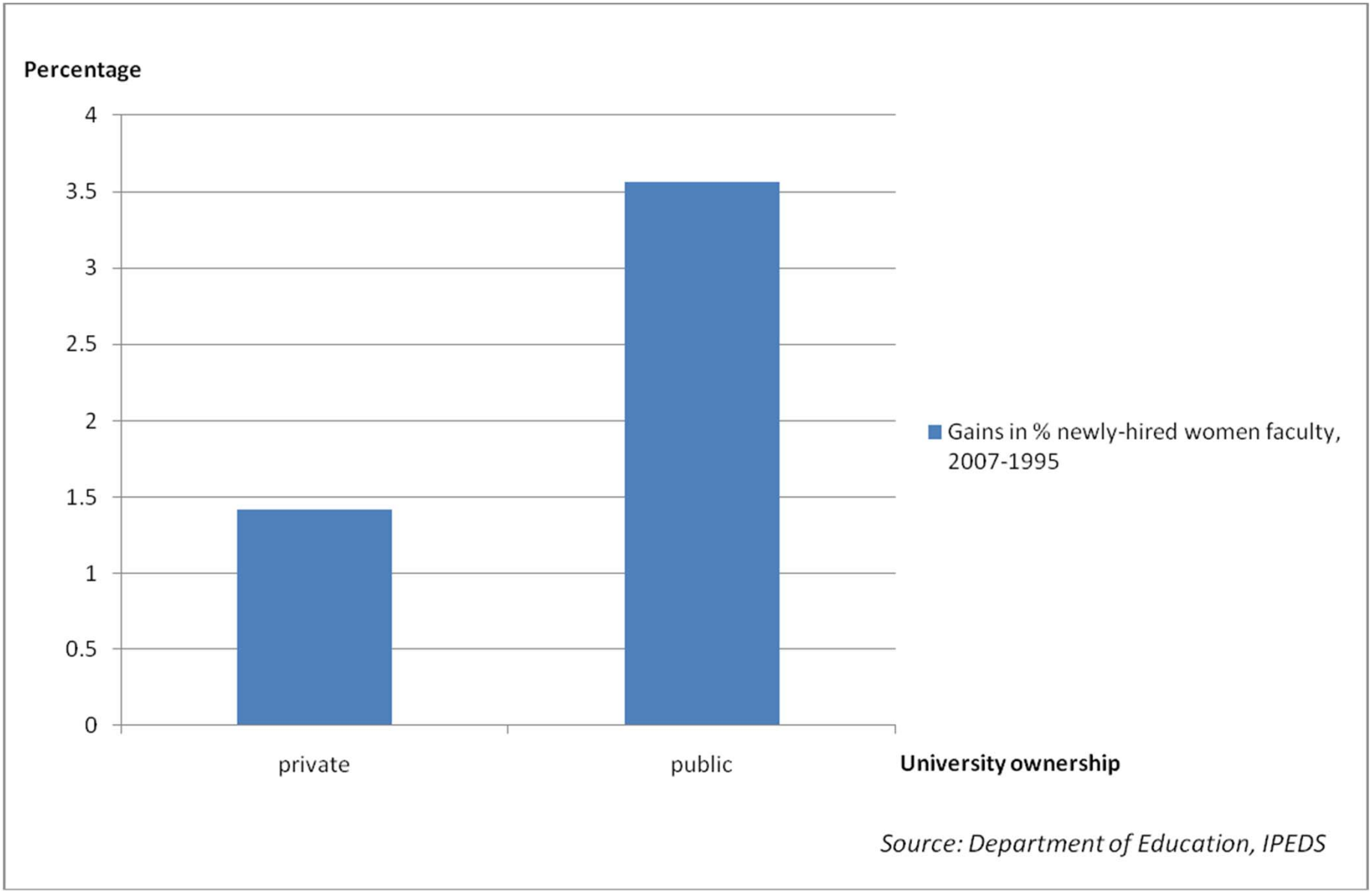
Discipline	% Women Doctorates	% Difference Doctorates/Applicants	% Difference Doctorates/Interviewed	% Difference Doctorates/Offered job
Biology	45%	-19%	-17%	-11%
Chemistry	32%	-14%	-7%	-3%
Mathematics	25%	-5%	+3%	+7%
Civil Engineering	18%	-2%	+12%	+14%
Electrical Engineering.	12%	-1%	+7%	+20%
Physics	14%	-2%	+5%	+6%

Source: NRC, 2009

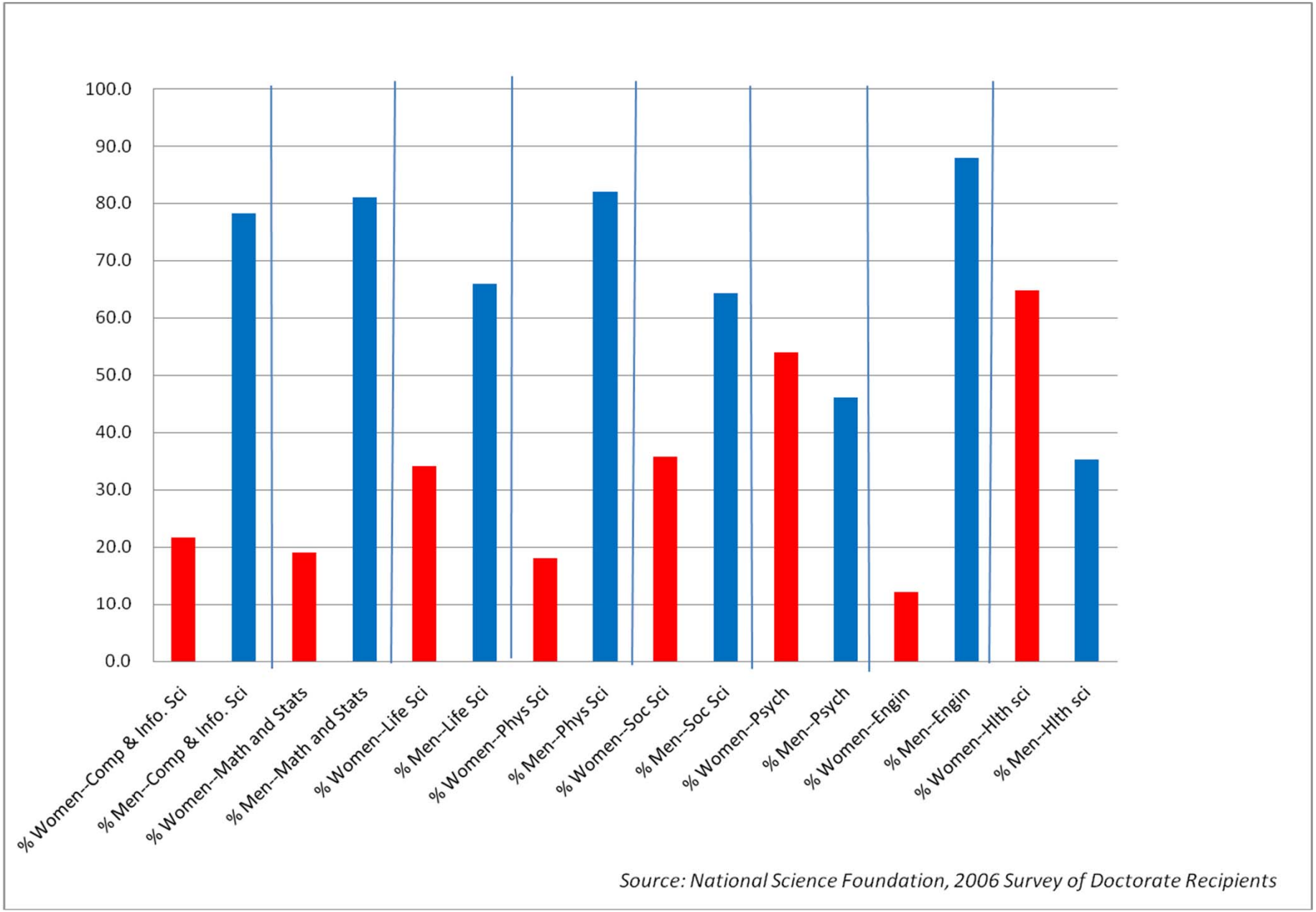
The differences among the proportion of STEM women who graduate, apply, or are offered jobs appear almost inversely dependent of the overall number of women in that particular academic field.

Universities with lower initial numbers of women have much higher gains than their peer institutions. However, the upward hiring trend starts to flatten out once the percentage of newly-hired women reaches a number that could be considered "average" among this peer group.

Percentage Gains in Newly-Hired Women Faculty, by University Ownership, 1995-2007



STEM Faculty in 4-Year Colleges and Universities, by Field and Gender, 2006



Source: National Science Foundation, 2006 Survey of Doctorate Recipients

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