

RESEARCH dialogue

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THE RESHAPING OF AMERICA'S ACADEMIC WORK FORCE

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IN THIS ISSUE

| | |
|--|---------|
| Executive Summary | page 2 |
| The Reshaping of America's Academic Workforce, 1998 - 2004 | page 3 |
| Mega-changes in the Population | page 4 |
| Work Patterns | page 12 |
| Career Progression..... | page 13 |
| Effects of an Occluded Pipeline | page 15 |
| Variations Among Teaching Fields | page 17 |
| Conclusion | page 19 |
| References | page 21 |
| Appendix: Methods..... | page 22 |

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EXECUTIVE SUMMARY

The characteristics, work patterns, career progression, and retirement plans of American college and university faculty provide waymarks in the continuing transformation of higher education. Five major conclusions emerge from an analysis of four surveys conducted by the National Center for Education Statistics :

- 1.** Women have provided the most important source of new talent in the academic work force, but their gains (and their contributions) may be offset by the dramatic increase in “contingent” appointments – faculty who are hired on short-term contracts without being eligible for tenure, and who now constitute the majority of all who teach in postsecondary institutions.
- 2.** Changes have been very uneven across the varied landscape of institutions and disciplines. Some evidence, for example, points to increasing gender segregation in traditionally female fields, although women have also made advances into some traditionally male fields. Women have advanced more rapidly in teaching-oriented institutions than in research-oriented institutions. Some disciplines are aging more quickly than others.
- 3.** The academic profession’s increasing emphasis on competitive excellence may have so deformed the norms of work (longer hours, more publishing, etc.) that individuals, especially women, find it increasingly difficult to balance work and family.
- 4.** Bifurcation appears to be occurring between fields in which institutions are investing and fields from which they are divesting. The “harder,” more male-dominated disciplines – those that also attract the most outside funding – have evidently benefited in the form of more tenure-eligible positions. The “softer” fields have had to adjust to doing their work with comparatively fewer tenure-eligible positions and more contingent faculty.
- 5.** The academic pipeline has become more occluded. Young faculty are not entering the profession at a rate that would replace the coming wave of retirees. And faculty appear to be remaining at institutions, in-rank, and on their jobs for longer and longer (although not beyond traditional retirement age). This occlusion in faculty mobility may be feeding the increasing use of contingent faculty as a way to adapt to shifting demand for instruction in the face of static funding.

While the profession appears to remain generally attractive and satisfying, these trends offer troubling signs. Will institutions continue to bring the best and brightest to a profession that has led the world in both mass higher education and in the discovery and application of knowledge? Signs of unequal investment and disinvestment among disciplines, as well as signs of widespread occlusion in mobility coupled with trends toward earlier retirement bear careful watching for their consequences. Perhaps most troubling are signs that opportunity for women is uneven in academe, notwithstanding that women are the more rapidly growing source of new talent. If workplace norms do not adjust to the realities of young women’s lives, there is a real danger that the pool of prospective faculty will not keep pace with the burgeoning demand projected in coming years.

¹ Data and tables from the National Study of Postsecondary Faculty (NSOPF) can be accessed at <http://nces.ed.gov/surveys/nsopf/>

THE RESHAPING OF AMERICA'S ACADEMIC WORK FORCE, 1988 – 2004

American higher education has undergone an enormous transformation in the last three decades. Over 1.1 million faculty and instructional staff now teach the nearly 16 million students enrolled in over four thousand colleges and universities in the U. S. (Schuster and Finkelstein, 2006). These numbers are roughly double the number of faculty and students in 1970. Changes of this magnitude, like those of the earth's plate tectonics, are caused by extraordinary forces and produce effects that are raggedly distributed along fault lines.

Relying on four surveys conducted as part of the National Study of Postsecondary Faculty (NSOPF), this report describes how the characteristics, work patterns, career progression, and retirement plans of American college and university faculty have changed since 1988. Appendix A provides an overview of method.

Five major conclusions emerge:

1. Women have provided the most important source of new talent in the academic work force, but their gains (and their contributions) may be offset by the dramatic increase in “contingent” appointments – faculty who are hired on short-term contracts without being eligible for tenure, and who now constitute the majority of all who teach in post-secondary institutions.
2. Changes have been very uneven across the varied landscape of institutions and disciplines. Some evidence, for example, points to increasing gender segregation in traditionally female fields, although women have also made advances into some traditionally male fields.
3. The academic profession's increasing emphasis on competitive excellence may have so deformed the norms of work (longer hours, more publishing, etc.) that individuals, especially women, find it increasingly difficult to balance work and family.
4. Bifurcation appears to be occurring between fields in which institutions are investing and fields from which they are divesting. The “harder,” more male-dominated disciplines – those that also attract the most outside funding – have evidently benefited in the form of more tenure-eligible positions. The “softer” fields have had to adjust to doing their work with comparatively fewer tenure-eligible positions and more contingent faculty.
5. The academic pipeline has become more occluded. Young faculty are not entering the profession at a rate that would replace the coming wave of retirees. And faculty appear to be remaining at institutions, in-rank, and on their jobs for longer and longer (although not beyond traditional retirement age to any significant extent). This occlusion in faculty mobility may be feeding the increasing use of contingent faculty as a way to adapt to shifting demand for instruction in the face of static funding.

This report assesses change in the profession by analyzing NSOPF data from these perspectives:

- Mega-changes in the population, including the distribution of genders and racial and ethnic groups among disciplines and types of institution.
- Trends in work patterns such as proportion of time spent on teaching and research.
- Patterns of career progression, with a particular focus on the rate at which faculty plan to retire.
- Effects of a career pipeline that appears to be too slow in attracting a new generation of faculty.
- Variation among teaching fields in these major trends.

The report concludes with an overview of troubling signs for the future. Buffeted by economic, policy, institutional, and demographic change, the academic profession appears to be morphing – intentionally or not – into more temporary and conditional opportunities for the realization of the next generation’s aspirations. While the profession remains highly satisfying in the face of its many challenges, it may not remain attractive enough to new Ph.D.’s to assure continuity in the nation’s intellectual future.

I. MEGA-CHANGES IN THE POPULATION

As Blackburn and Lawrence (1995) and Schuster and Finkelstein (2006) tracked the characteristics of teaching faculty at American colleges and universities over the past few decades, several important trends signaled large transformations in work, career paths, mobility, and departure patterns.

The most compelling changes since 1988 are two: women hold a steadily increasing share of both tenure-eligible and non-tenure-eligible faculty jobs, and non-tenure-eligible positions are increasing at a much faster rate than are tenure-eligible positions.

a. Gender

A recent report by a committee of the National Academies concluded that “...women have not been able to translate their success at earning science and engineering PhDs into academic careers equal to those attained by men” (Committee on Science, Engineering, and Public Policy, 2006, p. 181). Although women have made enormous progress as measured by raw numbers of entrants to the profession, those gains appear tempered by the distribution and quality of opportunity.

Figure 1 shows that men continue to hold the large majority of academic positions. However, the number of men holding full-time positions has remained virtually unchanged for 16 years while the number of those holding part-time positions has continued to increase. Women, both full- and part-time, occupy an increasing number (and share) of all positions. Women constituted about 27% of all full-time faculty in 1988; by 2004, women had expanded their share of full-time positions to 38%. Women’s share of part-time positions rose more slowly from 42% in 1988 to 47% in 2004. Roughly 2/3 of the increase in all (full- and part-time) faculty positions between 1988 and 2004 went to women, a total of over 210,000 more women among the 323,000 additional teaching positions.

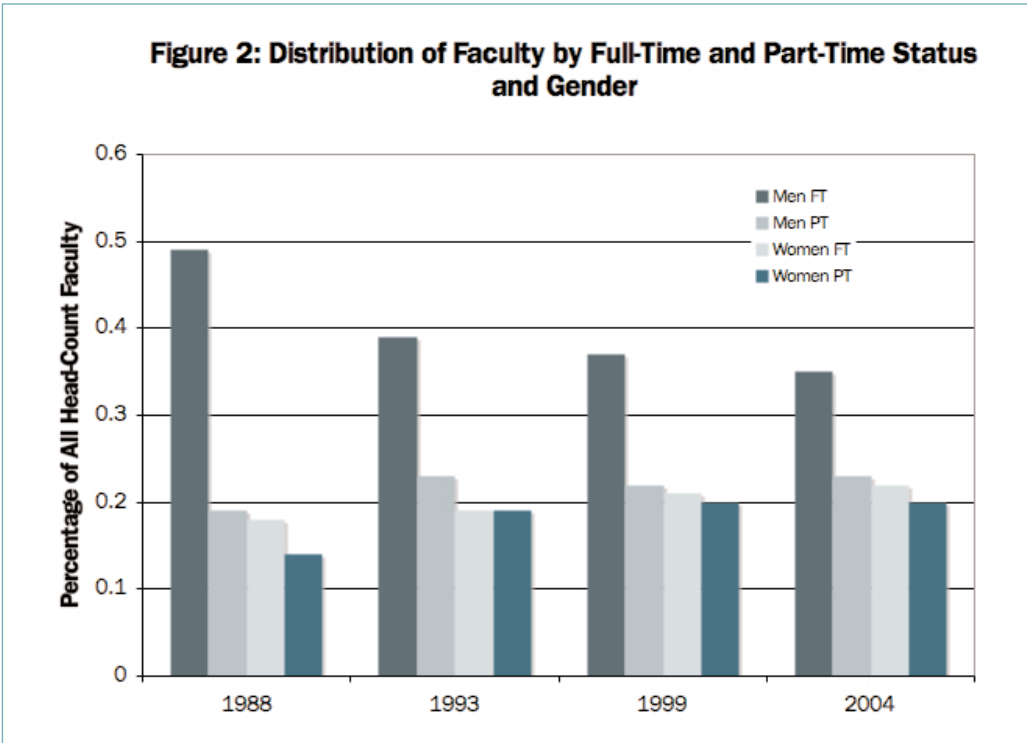
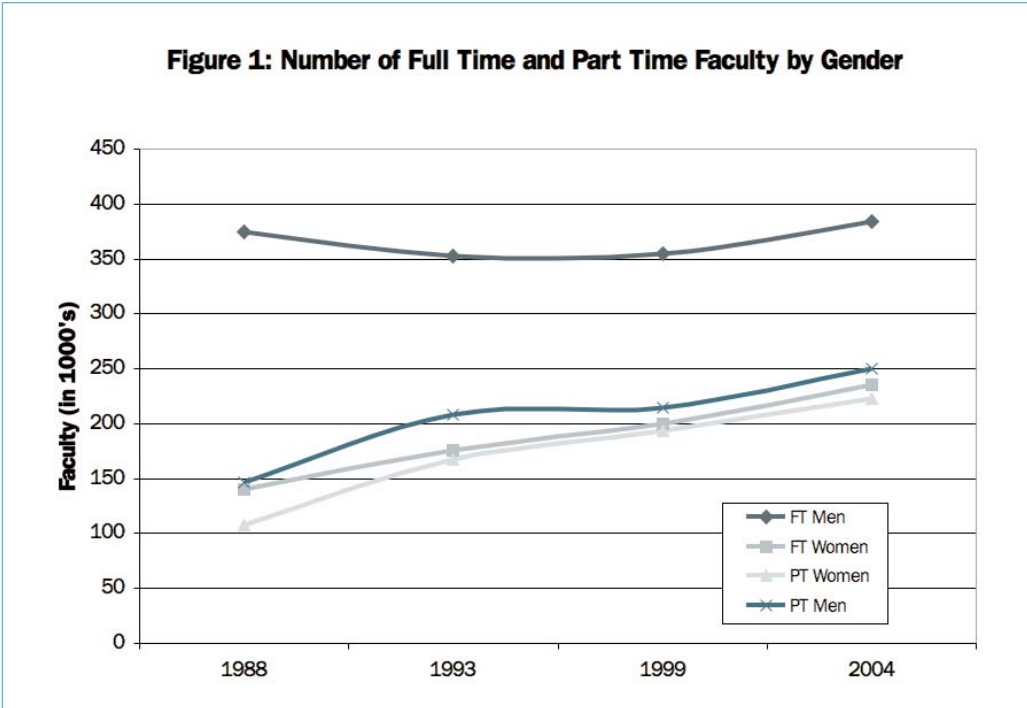


Figure 2 shows the percentages of full- and part-time positions occupied by men and women for the four survey years. Although the profession remains heavily male, women have become far more proportionally represented. Women are still far more

likely to occupy positions at the more teaching and less research oriented institutions. (In 2004, women constituted nearly 50% of all full-time faculty at two-year colleges, but only about 30% of all full-time faculty at research and doctoral universities.) Also, teaching fields remain highly uneven in the proportions of male and female faculty they employ. Figures 3a and 3b show the changes in number of men and women full- and part-time faculty across the major teaching fields.

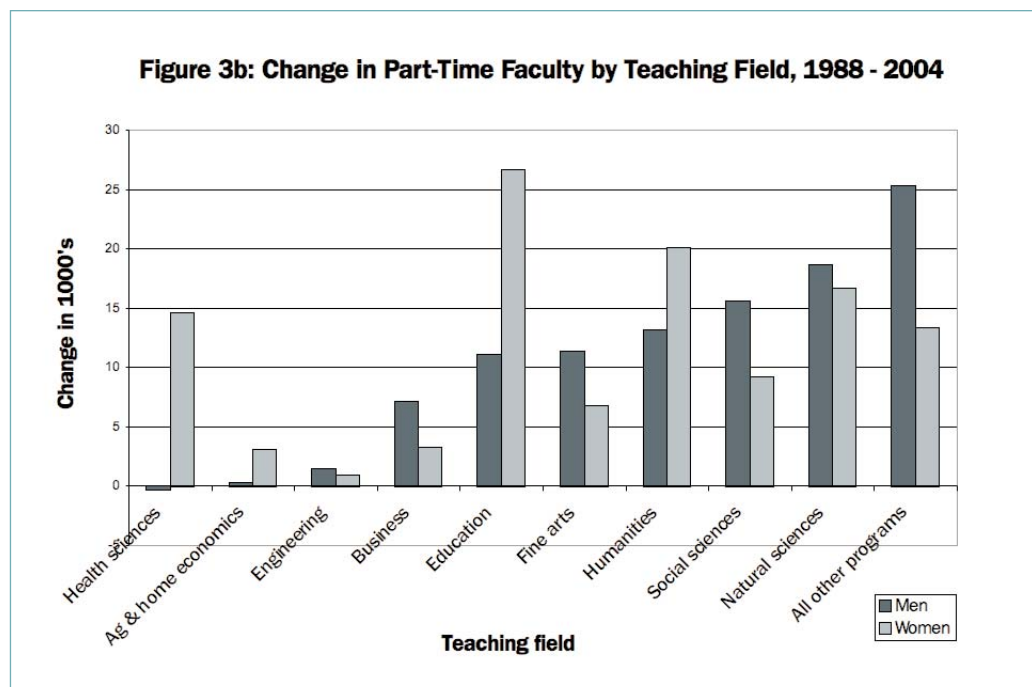
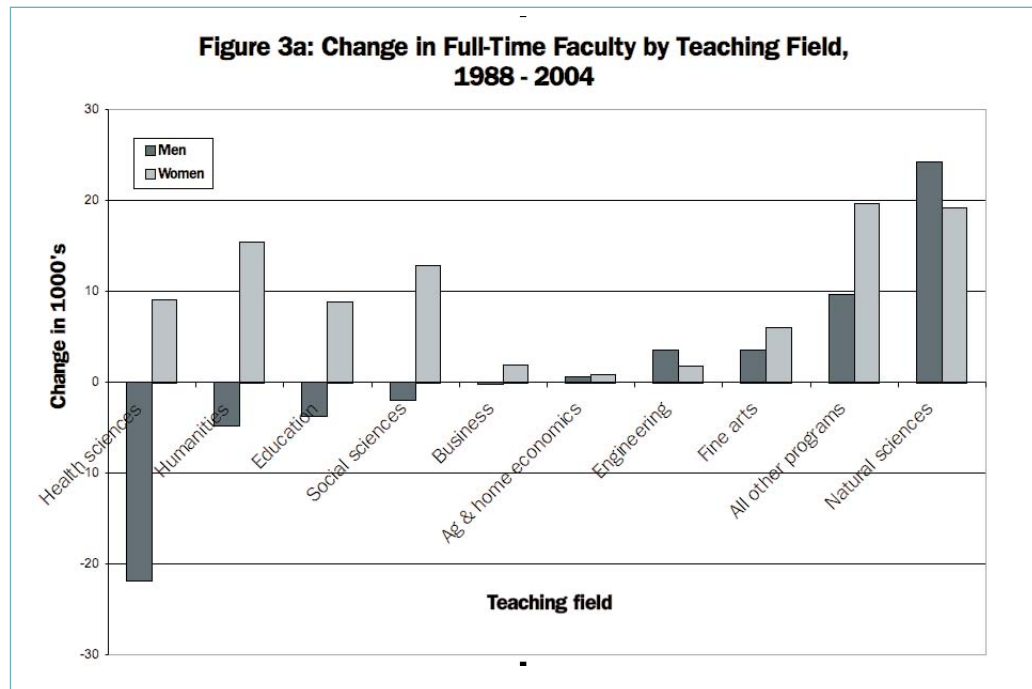
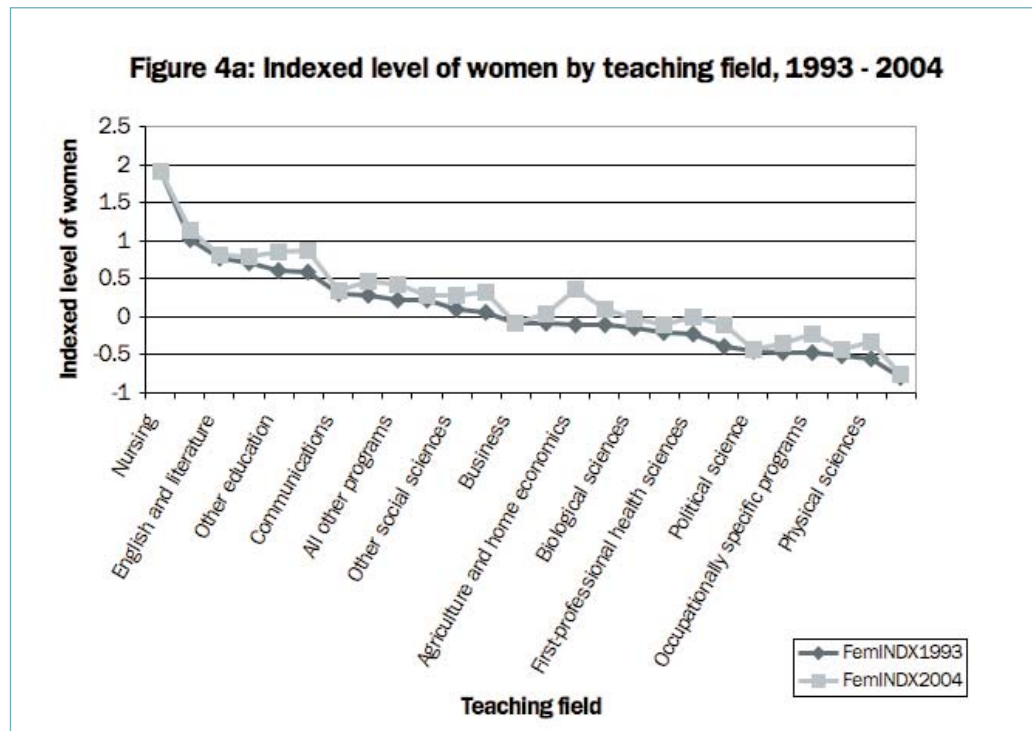
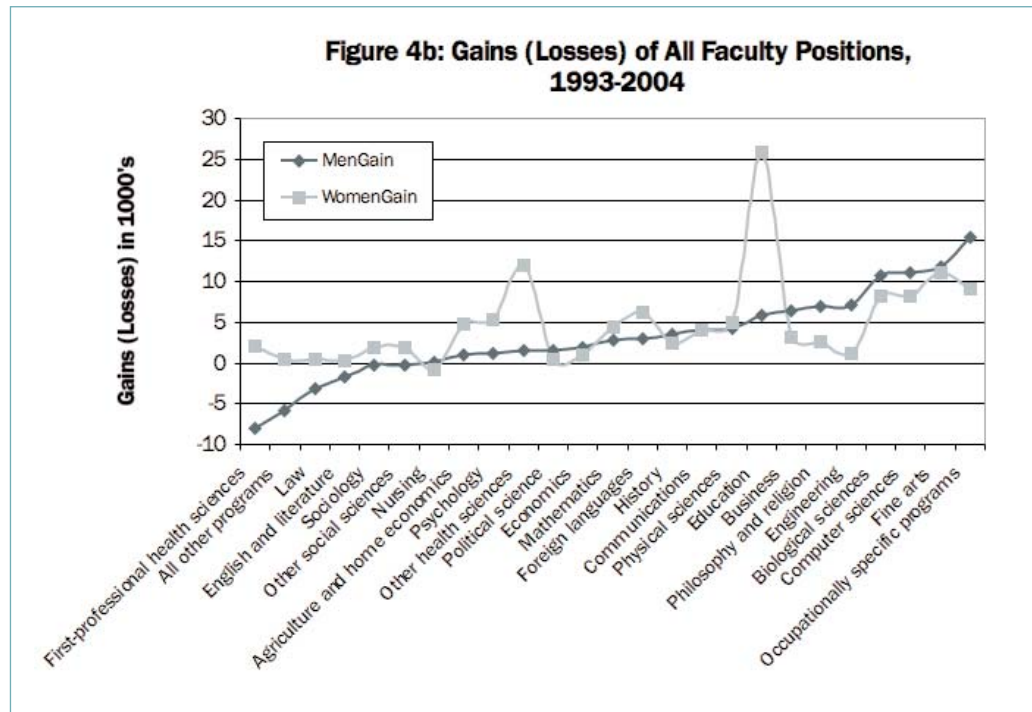


Figure 4a shows the more refined teaching fields represented in NSOPF ranked by the index of representation showing the relative position of women.¹ On the whole, this figure shows a large discrepancy at the extremes: nursing, for example, is an almost entirely female field while engineering is an almost entirely male field. The two graph lines show little difference over the 1993 to 2004 time period, indicating that women and men continue to be represented in the same ways in the same fields with only marginal changes. Figure 4b shows that women made large numerical gains in some of the most traditionally “female” fields, such as education, allied health, fine arts, and foreign languages. However, they also made substantial gains in more traditionally male fields like the biological, computer, and physical sciences. But these gains in positions are partially reflective of overall growth in the teaching fields, rather than substantial changes in the gender mix.



¹The index is calculated by the following formula: $(X - (Y-X))/(Y+X)$, where X is the number of women faculty, Y is the number of male faculty. The more positive the index, the smaller the gap between the number of men and number of women relative to the number of women. (In other words, the more positive the index, the less distance women would have to cover to achieve numerical equality with men.)



The quality of these gains can be assessed in comparing women’s access to tenured and tenure-eligible positions, or, conversely, the extent to which these gains may be due to expanded numbers in non-tenure eligible positions. Figures 5, 6, and 7 compare the gains (and losses) of positions by gender. Figure 5 shows that women gained more tenured positions than men in all fields except Agriculture/Home Economics and Business. Men actually lost substantial numbers of tenured positions, especially in the more traditionally female fields. (In the aggregate, over 23,000 fewer full-time male faculty were tenured in 2004 than in 1988, while over 34,000 more women were tenured.) Women’s gains in the natural and social sciences suggest the availability of a much wider array of career opportunities for them.

Figure 6 also shows that opportunity has expanded for women in tenure track positions. Although (as Figure 7 will confirm) “contingent” positions are increasingly common, tenure-track positions have also increased, on the whole, for both men and women. But women have occupied an increased share of tenure-earning positions in most fields, and generally held even with men otherwise.

Figure 5: Change in Number of Tenured Faculty by Teaching Field, 1988 - 2004

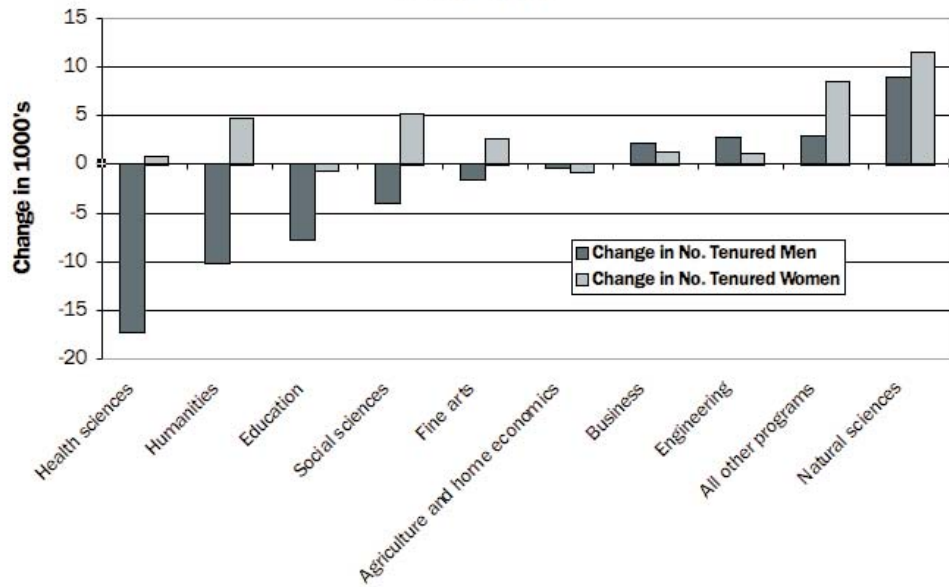


Figure 6: Change in Tenure Track (Eligible) Faculty by Teaching Field, 1988 - 2004

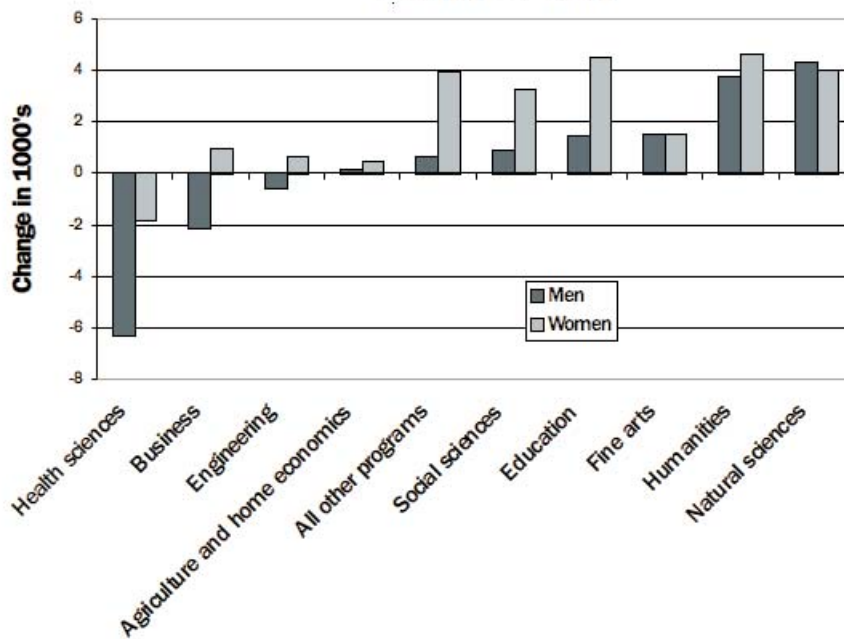
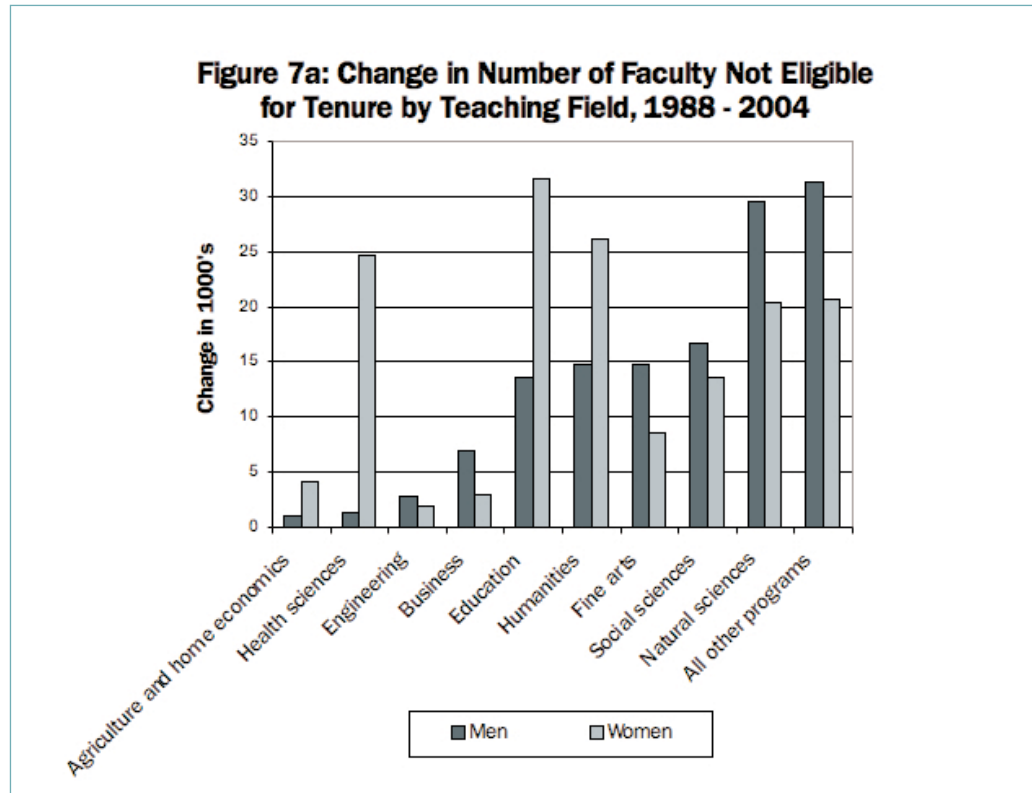


Figure 7a, however, shows a somewhat different picture. Two fields in which large numbers of women have boosted their aggregate numbers are relying far more heavily on contingent positions. In Education, women gained no tenured positions, and only about 4,000 tenure track positions. However, women occupied about 32,000 more contingent positions in education during the 1988 – 2004 period. The picture was less stark in the case of the Humanities, where women gained both tenured (5,000) and tenure-track (4,100) positions while also adding about 26,000 contingent positions.



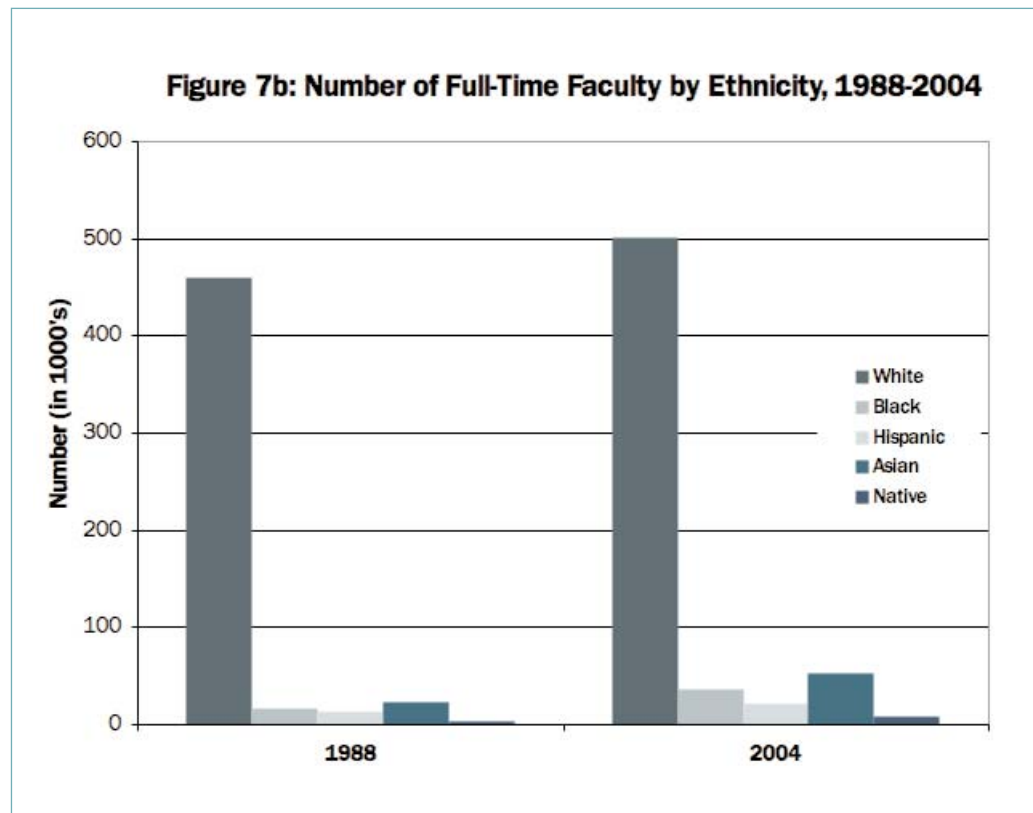
The larger picture is comparatively grim, though, as the net gain in all tenured positions across a 17-year period amounted to just under 10,000, while the net gain in non-tenure-eligible positions was over 285,000. Only about a tenth as many positions, 25,560 (compared to 285,000 non-eligible positions), were tenure-track. (None of which, of course, guarantees the occupant tenure.) This trend has been explored in depth by Gappa and Leslie (1993) and Baldwin and Chronister (2001). The resulting challenge to conventional norms and policies has been recognized in a statement on contingent appointments by the American Association of University Professors (2003).

So, although women appear to have made proportional gains relative to men, three overriding realities suggest that the quality of those gains is more fragile. First, traditionally female fields appear to remain substantially female. Second, the large increases in contingent, non-tenure-eligible positions may erode the attractiveness of academic careers for both men and women. Third, women are gaining positions at comprehensive, liberal arts, and two-year institutions faster than they are gaining at research and doctoral universities.

b. Race/Ethnicity

Of about 104,000 full-time faculty positions added between 1988 and 2004, roughly 60% went to ethnic minorities. Asians, Blacks, and Native Americans all more than doubled the number of positions they had held in 1988, while the number of Whites increased by only about 9%. Hispanics held 68% more full-time positions in 2004 than in 1988. Each minority group added more positions in the natural sciences than in any other teaching field. But their distribution across teaching fields changed in ways that have seldom been noticed. Blacks, for example, increased their numbers over 17-fold in engineering, and almost 4-fold in natural sciences, a proportionately massive expansion of opportunities in fields that had previously had few (if any) Black faculty at all. Asians, meanwhile, increased at the fastest rates in Education (almost 6-fold), Fine arts (almost 5-fold), and Humanities (almost 4-fold).

Although these advances signal a far more diverse work force, the numbers of minorities remains vanishingly small, as Figure 7b illustrates. The distribution of minorities among types of institutions has shifted, as well, although the only dramatic changes are the rapid advance of Asians in research and doctoral universities, and the movement of Blacks into other than HBCU's.



II. WORK PATTERNS

Faculty work appears to remain essentially unchanged, although all faculty appear to be working more and enjoying it at the same level. (See Table 1. Data for this section come from 1993 and 2004, because the 1988 survey did not include the necessary response options.)

Table 1: Work Patterns, full-time faculty

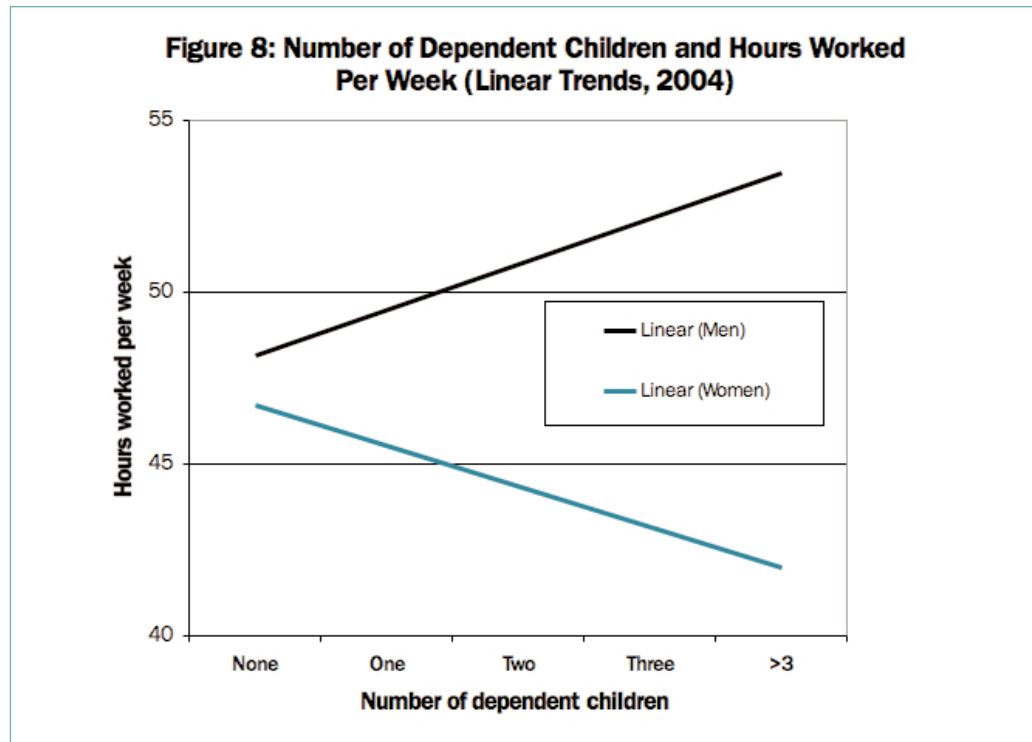
| Years | Total hours worked per week | % of time on research | % of time on teaching |
|-------|-----------------------------|-----------------------|-----------------------|
| 1993 | 52.5 | 17.64 | 54.41 |
| 2004 | 53.4 | 18.17 | 61.74 |

Ironically, although faculty are spending more time on research, they are ALSO spending an even greater proportion of their time teaching, as well as working slightly longer hours. As Schuster and Finkelstein (2006) have pointed out, the cost may be to “community maintenance” functions that help sustain coherent and healthy departments and academic programs.

a. Gender differences

On the whole, women teach more and publish less than men. The reasons for these differences are extraordinarily complex. To some extent, they are due to differences in the characteristic work patterns among disciplines: Fields in which externally funded research may displace teaching (such as natural sciences and engineering) have been more male-dominated. Women are also more likely to work at teaching-oriented institutions like liberal arts colleges and community colleges.

But it is increasingly clear that having children has a particularly serious effect on women’s careers. This impact is clearly observable in Figure 8. While men tend to work more hours in proportion to the number of dependents they report, women tend to work fewer. For both men and women, the trend line was generated from 2004 data.



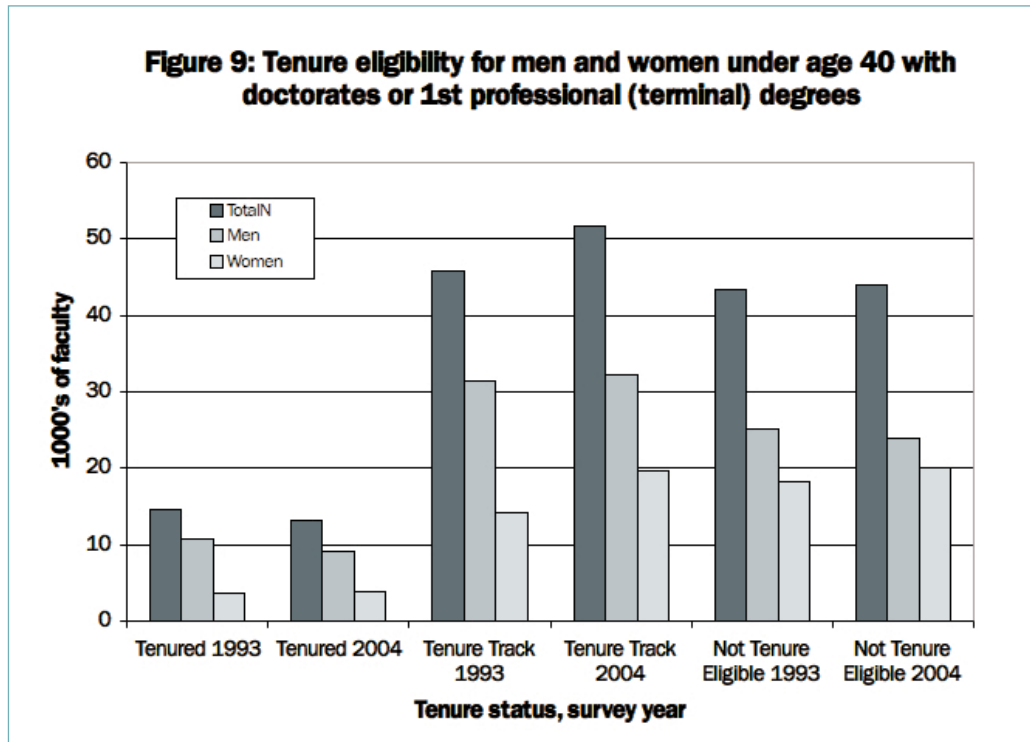
This “family effect” on men’s and women’s work (and careers) is especially important when it is interpreted against the increasing number (and proportion) of women in academic employment. Mason and Goulden (2004) explore the implications of motherhood for academic career progression, and the American Council on Education (2005) has recommended policies and practices to ameliorate the unequal impact of parenthood on men’s and women’s careers.

III. CAREER PROGRESSION

Entry into academic careers on the tenure track most commonly involves investing in a Ph.D. or “First Professional” degree considered terminal in one’s field – such as the J.D. in Law. Figure 9 shows that few faculty under age 40 with the terminal degree have earned tenure. In fact, between 1993 and 2004, fewer men and only about the same number of women had earned tenure by their 40th birthdays. In the aggregate, there were only about 4,000 more under-40’s with terminal degrees in tenured or tenure-eligible positions in 2004 than in 1993. They were not showing up in non-tenure-track positions, either; rather surprisingly, the number in non-tenure-eligible positions had increased by only 800 for under-40’s with terminal degrees. (And there were actually about 1,000 fewer men in non-tenure-eligible positions, while the number of women increased by nearly 2,000.)

Taking age 40 as an important indicator of career commitment (albeit an arbitrary one), it appears that the pathway into academic careers is both narrow and slow – perhaps too restrictive to keep pace with the burgeoning student demand and the potential number of retirements projected in the coming decade.

* These lines represent linear transformations of the raw data.



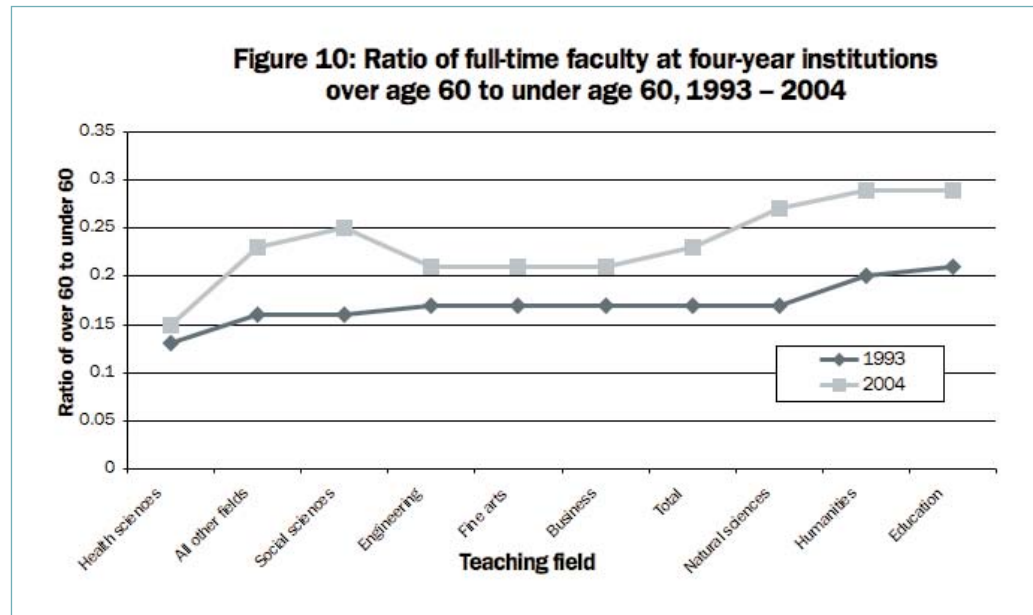
Counting all faculty under age 40, there were just over 900 fewer men in tenured or tenure-eligible positions in 2004 compared with 1993, and about 5,500 more women. The number of under-40's in non-tenure-eligible positions, both men and women together, increased by only 740. So there is reason to think the career is either less attractive to younger aspiring academics or that the pipeline is becoming more obstructed. Either way, it should be a cause for serious concern about renewal of the profession.

Rates of advancement and/or mobility in the profession have slowed since 1993. The length of time (in years) both men and women have spent in their current jobs, have held tenure, and have remained at their present rank have all increased, and at similar rates for both genders.

a. Retirement Plans

If both entry and mobility appear to be occluding the pipeline, the picture at the point of retirement is different. Contrary to expectations that uncapping of mandatory retirement in 1994 would lead to faculty remaining on the job into their 70's, the average projected age of retirement has declined. (See Leslie and Conley, 2006, for a fuller exploration of trends in faculty retirement patterns.) It has declined slightly more for women, who are becoming a larger proportion of the work force. Generally speaking, younger age cohorts project a slightly earlier retirement age than each successively older cohort. But the surveys show an increasingly tight convergence on about age 66. The data point to neither substantially earlier nor substantially later retirement on average. It is nevertheless worth noting that as full-time faculty at 4-year institutions have aged (the ratio of faculty over age 60 to those under age 60 was .17 in 1993 and .23 in 2004), their projected retirement age has declined from 66.72 to 66.17 ($p < .001$). The ratio increased the most in core teaching fields like the Humanities, Social Sciences,

and Natural Sciences. If intentions to retire hold, these ratios indicate that nearly one in three faculty (29%) in the Humanities and Education, and one in four in the Natural and Social Sciences (25%), would have to be replaced by 2010. Figure 10 shows the ratio of faculty over age 60 to faculty under age 60 by broad teaching field.



The implication of these two trends, an increasingly occluded pipeline coupled with a trend toward earlier (or at least not later) retirement, suggests a conflicted profession. Institutions may well have been hedging their bets against uncapped retirements and unpredictable funding streams by tightening up on tenure-eligible positions. They may also have been doing so because they could not project adequate financial or market strength to sustain a conventionally tenured work force. Having tightened up the pipeline, though, they may have tightened too much as retirements may exceed expectations.

Tightening standards for tenure and promotion in rank may have a more pervasive normative effect on career progression than is sustainable. As pressure inevitably builds to attract new, committed faculty to career-sustaining positions, these norms (ever more stringent publish-or-perish expectations, for example) may bear reexamination. That reexamination may be especially needed as women's career advancement becomes a more substantial consideration as men and women become more evenly distributed in the academic workforce.

IV. EFFECTS OF AN OCCLUDED PIPELINE

Figure 11 graphically shows the gap between changing numbers of full-time faculty at four year institutions who are respectively in the 30-40 age interval, and those who are over 60. Most disciplines are absorbing increasing numbers of the oldest faculty, but are not replacing them as quickly with younger faculty. In rough statistical terms, the gap can be approximated by the older and younger trend lines in how quickly change is occurring. The higher line (although simply a linear trend estimate, and not specific to individual disciplines) shows that almost all disciplines are absorbing increasing

numbers of faculty over the age of 60. The lower line suggests an aggregate tendency for the profession to be adding fewer faculty in the 30 - 40 age interval. In some specific fields, the gap is particularly clear.

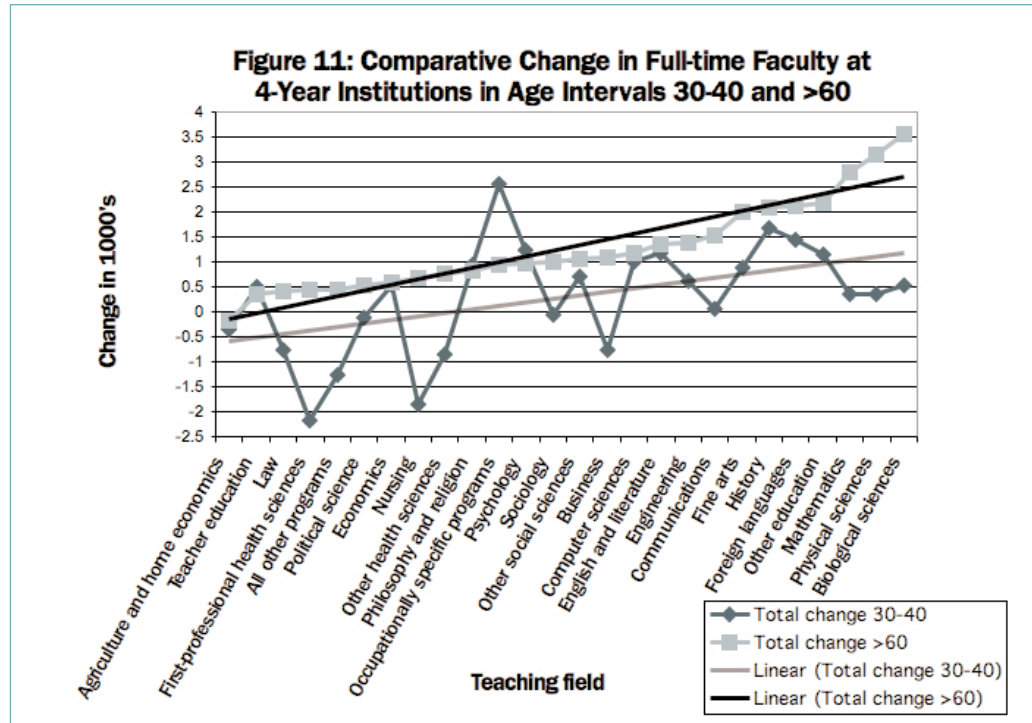
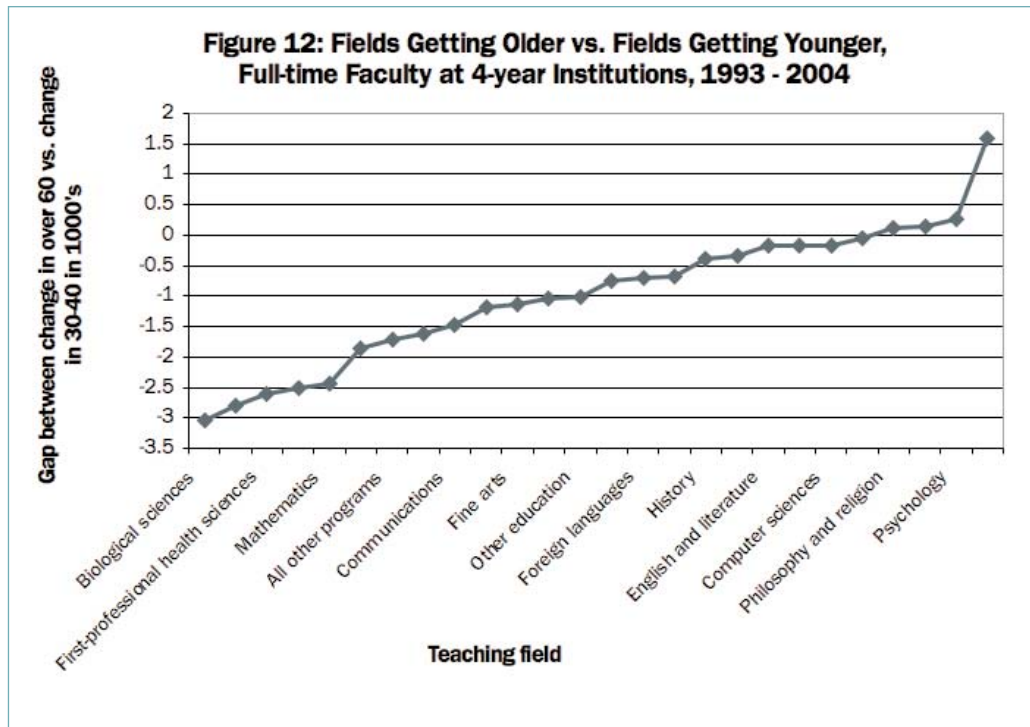


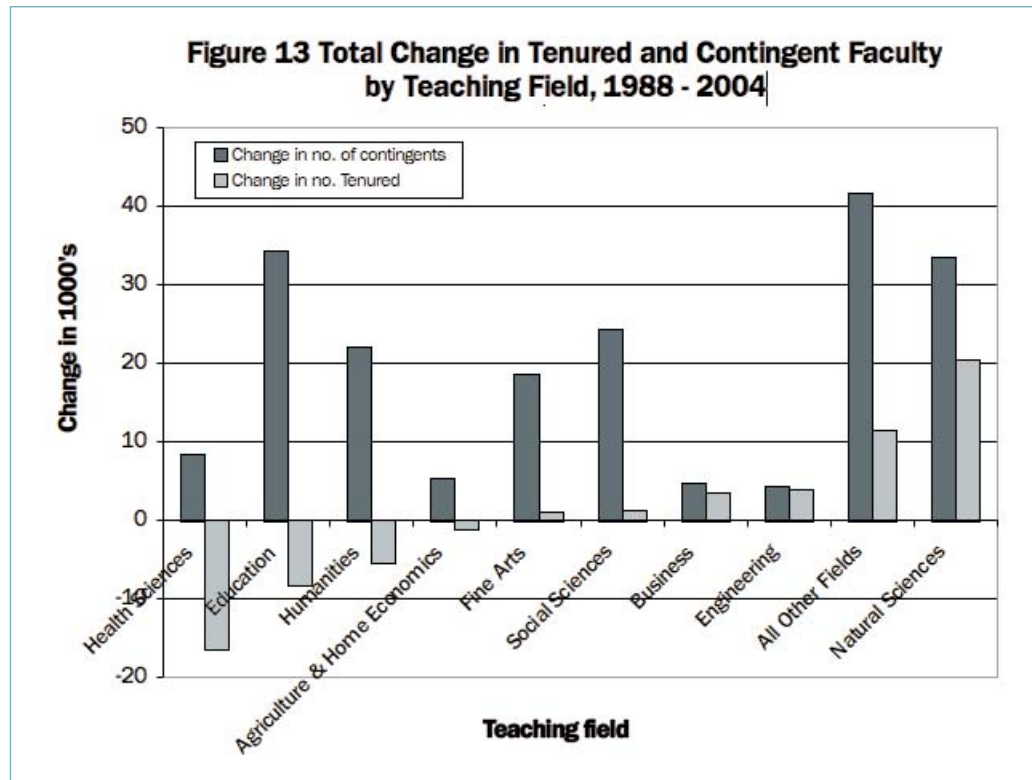
Figure 12 illustrates the extent to which disciplines (in rank order from left to right) are either aging or renewing themselves with younger faculty. All disciplines whose index falls below zero are aging faster than they are replacing younger faculty; conversely, those with indexes above zero, are replacing older faculty faster. Note that disciplines at the heart of the nation's most pressing economic, security, and health issues (biological, physical, and health sciences, mathematics, and business) are precisely those aging the fastest. Occupational fields, teacher education, and psychology are among those replacing older faculty at the fastest rates. The indexes for both computer science and engineering fall slightly below zero.



Explaining these trends is beyond the scope of this report, although the Bureau of Labor Statistics data do suggest that competition from better paying jobs is a concern, especially in health sciences and business. Likewise, a 10% decline in Ph.D.'s in science and engineering occurred between 1998 and 2002, and foreign student enrollment has declined since 2001 (National Science Foundation, 2005). In the long run, Ph.D. production has remained remarkably invariant over a long period – notwithstanding large increases in college and university undergraduate enrollment. These are exogenous reasons – factors that may be difficult for colleges and universities to control. On the other hand, endogenous factors reflected, for example, in the upward creep in contingent faculty say more about the strategic views of institutions themselves. The occlusion of the faculty pipeline and tightening of standards for tenure, coupled with lengthening work weeks, the impact of having young children, and difficulty in funding research may affect how younger faculty, especially women, see career opportunities in academe.

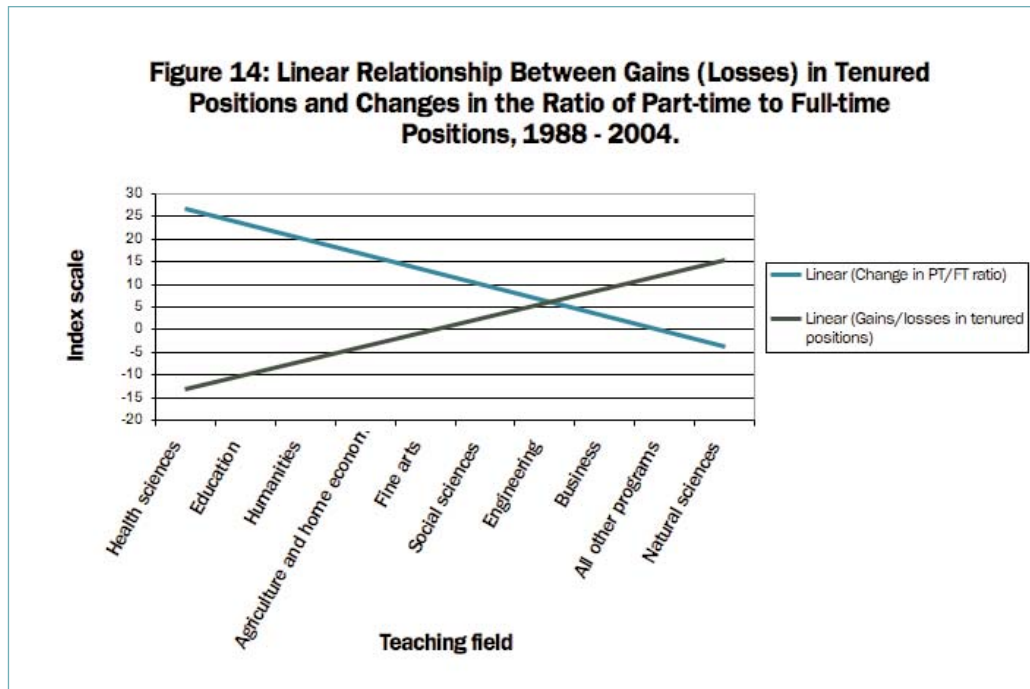
V. VARIATIONS AMONG TEACHING FIELDS

All broad “teaching fields” in which NSOPF survey data are aggregated added far more contingent than tenured positions during the 1988 – 2004 period (Figure 13). But there is a stark bifurcation among these fields in the rate at which change has occurred. Natural sciences, “other” fields (largely occupational), business, and engineering, have added tenured positions; in the latter two cases nearly as many tenured as contingent positions have been added. All of the other fields have either lost tenured positions or barely held to the same number over the period. The changes in education and the humanities are particularly striking. Faculty appointments in both of these fields are becoming far more likely to be contingent than tenured.



Work, productivity, and pay distinguish the fields gaining tenure positions from the others. Faculty in the “high-tenure-gain” fields have higher pay, lower undergraduate teaching loads, and produce more publications than faculty in the “low-tenure-gain” fields. They are also (significantly) more likely to receive research funding (60% vs. 43%) and to characterize their research as “basic” (vs. applied). Faculty in the high-gain fields also report spending significantly more of their time on research and significantly less on undergraduate teaching than faculty in the low-gain fields. Since tenure-eligible faculty reproduce these patterns, it is plausible to suggest that these trends imply a rich-get-richer scenario.

Figure 14: Linear Relationship Between Gains (Losses) in Tenured Positions and Changes in the Ratio of Part-time to Full-time Positions, 1988 - 2004.



Increasing use of part-time faculty is negatively correlated ($r = -.80$) with gains in tenured positions over the 1988 - 2004 period. Figure 14 shows the linear relationship graphically. Fields to the left (particularly education and the humanities) have tended to shed tenured positions while substituting part-time for full-time positions. Fields to the right (particularly natural sciences) have tended to add tenured positions while reducing reliance on part-time positions.

VI. CONCLUSION

On the whole, the academic profession has moved in “ragged” (non-linear) fashion toward the future. Dramatic changes in demography are clearly evident. Women and minorities have entered the professoriate in unprecedented numbers. But they have not entered it uniformly. There are major differences among types of institution and among teaching fields in where and how women and minorities have found opportunities.

Traditional modes of entry into the profession appear to have slowed markedly, as under-40’s with advanced degrees have gained proportionately few tenured or tenure-eligible positions. Similarly, measures of career progress indicate faculty are staying in their positions longer and being promoted less frequently. Salaries for full-time faculty have barely kept pace with inflation in the face of competition from higher paying opportunities at non-academic employers. Not only does the “pipeline” appear to be increasingly “occluded,” but retirements may come earlier than in the past. Although colleges and universities were apprehensive that “uncapping” mandatory retirement would result in an aging and immobile professoriate, it appears that just the opposite should be cause for concern. Women tend to favor earlier retirement than men, and younger generations of faculty aspire to retire sooner than older generations. In other words, not only is it harder to enter and progress through an academic career, it may also be a career that ends sooner than has been “normal.” If these trends continue, and

if institutions continue to face economic pressure as they have for the past 15 years or so, and if enrollment trends continue upward as forecast, the academic profession could face a new and very unexpected crisis.

Quite simply, the full-time faculty work force has not kept pace with burgeoning demand for higher education. Instead, the slack has been taken up by increases in time-on-the-job for full-time faculty and by massive increases in contingent (not tenure-eligible) faculty who are almost exclusively employed to teach at rates of pay that do not keep up with inflation. In other words, colleges and universities, for whatever reasons, have controlled the cost of instruction largely by hiring a more transient work force to whom they have no long-term commitment. Janson's (2006) research shows that part-time faculty members only seldom aspire to or achieve full-time tenure-track positions, further emphasizing that the academic career is increasingly bifurcated into two distinct tracks: tenure-eligible and contingent. Full-time faculty members, however, are working longer hours, and teaching more – as well as doing more research. The burden of increased workload with only marginal gains in pay, and signs that pressure to do research and publish affect morale, especially among women, suggest that there is a limit to current trends.

It has been widely asserted that women expect to succeed professionally while also attending to their families. Women faculty with dependent children are more likely to work shorter hours than male faculty with dependent children. As long as the norms for tenure-eligible faculty jobs require both long hours and increasing research productivity, the obvious clash with expectations of the new generation of academics may come sooner rather than later.

Faculty are generally satisfied with their jobs, though. Trends like static pay and pressure to work longer and harder seem to have had no effect on measures of satisfaction. Yet, the data have been gathered from “volunteers” – those who have pursued academic careers for their own (probably intrinsic) reasons; we know almost nothing about those who choose nonacademic careers or those who depart after starting out in academe. Although it is risky to attempt comparisons between pay in academic fields with pay in analogous professions, there do appear to be major gaps in some fields, especially fields like the health professions in which far higher salaries may accrue in practice. There are undoubtedly complex reasons for these trends, but the data from this study provide graphic, if only suggestive, evidence that academic careers may need to be made more competitive and attractive to the best and brightest.

In short, all is not as it has been, all is not as it seems, and all is not well. While full-time, tenure-eligible faculty may look like and work like their predecessors on some measures, the species is slowly vanishing under a variety of trends. The “academic marketplace” which Theodore Caplow and Reece McGee (1965) examined more than 40 years ago may be fragmenting into micro-markets. These micro-markets each present their own challenges to colleges and universities. Some are heavily female (education, allied health, humanities). Some are heavily male (engineering, physics). Some face heavy competition from other employers (health professions, business). Some are older (education) and some are younger (arts), although the mean age of all faculty in all fields is inexorably creeping upward. And, perhaps most vexing, some are more tenured (natural sciences) while others are more transient (education).

These trends are now becoming both clearer and more self-sustaining. Many recent calls for reform, especially those advocated by the late Ernest Boyer (1990), now appear more urgent than ever. Is the academic profession capable of reuniting in common cause? Or will it continue its ragged and increasingly fragmented way?

REFERENCES

American Association of University Professors (2003). *Contingent Appointments and the Academic Profession*. Washington: American Association of University Professors. <http://www.aaup.org/statements/SpchState/Statements/contingent.htm>

American Council on Education (2005). *An Agenda For Excellence*. Washington, American Council on Education. http://www.acenet.edu/bookstore/pdf/2005_tenure_flex_summary.pdf

Baldwin, R. G. and J. L. Chronister (2001). *Teaching Without Tenure: Policies and Practices for a New Era*. Baltimore: Johns Hopkins Univ. Press.

Blackburn, R. T. and J. H. Lawrence (1995). *Faculty at work : motivation, expectation, satisfaction*. Baltimore: Johns Hopkins University Press.

Boyer, E. (1990). *Scholarship Reconsidered: Priorities of the Professoriate*. New York: John Wiley & Sons.

Bureau of Labor Statistics (n.d.). *Occupational Outlook Handbook: Teachers – Postsecondary*. Retrieved from: <http://stats.bls.gov/oco/ocos066.htm#outlook> on October 17, 2006.

Caplow, T. and R. McGee (1965). *The Academic Marketplace*. Garden City, N.Y., Anchor Books, Doubleday.

Clark, B. R. (1987). *The Academic Life: Small Worlds, Different Worlds*. Princeton: Princeton University Press.

Committee on Science, Engineering, and Public Policy (2006). *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. Washington, DC: The National Academies Press. Retrieved from: <http://www.nap.edu/openbook/0309100429/html/99.html>

Curtis, J. (2005). *The Challenge of Balancing Faculty Careers and Family Work*. New Directions for Higher Education. No. 130. San Francisco: Jossey-Bass, Inc.

Gappa, J. M. and D. W. Leslie (1993). *The Invisible Faculty: Improving the Status of Part-Timers in Higher Education*. San Francisco: Jossey-Bass, Inc.

Janson, N. (2006). *Some Make It, Some Don't: A Study of the Characteristics of Aspiring Academics using the National Study of Postsecondary Faculty, 2004*. Ph.D. dissertation, The College of William and Mary, 2006.

Leslie, D. (2001) Differences in Faculty Salary among Institutional Strata: A Regression Analysis. Presented at the Annual Meeting of the American Educational Research Association, Seattle, WA, April 13, 2001.

Leslie, D. and V. M. Conley, eds. (2006). *New Ways to Phase into Retirement: Options for Faculty and Institutions..* New Directions for Higher Education, No. 132. San Francisco: Jossey-Bass, Inc.

Mason, M. and M. Goulden. (2004). Do Babies Matter (Part II)? Closing the Baby Gap. *Academe*. Retrieved from:

<http://www.aaup.org/publications/Academe/2004/04nd/04ndmaso.htm>

NCES (2005) <http://nces.ed.gov/pubs2005/2005172.pdf>

National Science Foundation (2005). 2004 Doctorate Awards Increase in S&E Fields for the Second Year in a Row. Retrieved from:

<http://www.nsf.gov/statistics/infbrief/nsf06301/>, October 17, 2006.

Schuster, J. H. and M. J. Finkelstein (2006). *The American Faculty: The Restructuring of Academic Work and Careers*. Baltimore: The Johns Hopkins University Press.

APPENDIX: METHODS

The data for this study was gathered from the National Center for Educational Statistics' (NCES) National Study of Postsecondary Faculty (NSOPF). NSOPF data were collected in four national surveys conducted in 1988, 1993, 1999, and 2004. Information about the design of these surveys, including the sampling methods, is available at <http://nces.ed.gov/surveys/nsopf/design.asp>. Analyses conducted for this study relied on NCES' Data Analysis System (DAS). Tabulations and correlations were produced with DAS then downloaded into Microsoft Excel spreadsheet form for data manipulation and graphical presentation. Additional manipulations were performed with SPSS 13.0 statistical software.

Describing longitudinal trends in NSOPF data from four surveys presented several challenges. Scope and methods for sampling and weighting of data changed from survey to survey. Changes in survey queries, some subtle and some significant, affected the comparability of responses to certain items. Some items were not included in all four surveys, a problem that particularly affected the content from the 1988 survey. In consequence, some of the analyses in this report use 1993 as the baseline. For most topics, survey questions have become increasingly detailed, with new variables added in 1993, 1999, and 2004 that were not included in 1988. A few variables have been reduced in complexity or eliminated since 1988. For example, details regarding the source and amount of grants obtained by survey respondents are no longer available.

When variables were included across multiple years, the exact wording of questions was occasionally modified. For example, a variable entitled "opinion about the treatment of female faculty" in 1993 is replaced by a variable entitled "opinion: female faculty are treated fairly" in 2004. Whether these two variables yield comparable data is not completely clear. The potential for varied interpretation based on alternate wording creates a threat to internal validity that should be considered.

Changes in Carnegie Classification of institutions along with shifting definitions of fields created some concerns about consistency. We frequently filtered variables by gender, employment status, field, and institution type across the four data collection years. In 1988, gender variables included a “missing data” filter option not available in the subsequent years. Teaching field categories relied on a ten category list that combined potentially diverse disciplines in broad groupings – so economics and sociology were lumped as “social sciences” and biology and physics were combined as “physical sciences.” Where possible, we relied on the more refined 26-category teaching field variable. Finally, although we consistently combine sorted institutional type into four standard categories (research/doctoral, comprehensive, liberal arts, and two year/other), shifting Carnegie definitions and movement of individual institutions across categories between survey years make it impossible to be assured that classifications were fully consistent across the data years.

On the whole, though, many measures showed remarkable stability across the survey years, suggesting that whatever errors may have affected the conclusions were within tolerable limits. Other studies relying on a broader selection of data sources (e.g., Schuster and Finkelstein, 2006) have found results that are consistent with those reported here.