

Gender Differences among Contingent Faculty: A Literature Review

Final Report

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Introduction

The Association for Women in Science has reviewed recent literature that addresses all faculty not on the tenure track (NTT) or tenured. In this report we discuss two different categories of non-tenure track faculty, full-time faculty and part-time faculty. A large number of women choose to be in one of these non-tenure track categories, especially during child-bearing years. But overall both male and female faculty members prefer to be tenured or on the tenure track. Male faculty members have slightly differing views on their employment in non-tenure-track jobs from their female counterparts. Job satisfaction also differs by gender.

The goals of the project include:

- Review current literature on the status of NTT faculty in science and engineering.
- Collect institutional data related to the following faculty characteristics: tenure/non-tenure status, gender, and discipline.
- Identify some of the gender differences among NTT faculty in the fields of STEM, along with gaps in current research.
- Disseminate literature and resources from our study on AWIS's website, www.AcademicClimate.org.

Research on faculty who are not on the tenure track, both part-time and full-time faculty, is difficult to analyze because different institutions of higher education use different names for their categories of non-tenure track faculty. Thus, our report begins with some definitions to help one sort out faculty with similar contracts, although their titles are quite different.

Definitions: Part-Time Faculty, Non-Tenure Track Faculty, Contingent Faculty.

Academic faculty can be classified into two major categories: part-time faculty and full-time faculty. Full-time faculty can be further classified as tenured faculty, tenure-track faculty, and non-tenure-track faculty. This literature search provides data on non-tenure-track faculty, both those who are full-time and those who are part-time.

There is a diversity of definitions of “non-tenure-track faculty.” Some research studies use the term “non-tenure-track faculty” to refer to two major groups: those who teach part time and those who teach full-time but are off the tenure-track line. (AAU, 2001). However, the term “non-tenure-track faculty” is sometimes used to refer only to those full-time faculty members who hold positions off the tenure track at institutions with tenure systems. (AFT, 2003 and NEA, 1997) The term “part-time faculty” is used narrowly to refer only to those who teach part time regardless of tenure status, for example, the study of Conley, Leslie, and Zimble (2002) uses this definition of part-time faculty. Some studies use the term “contingent faculty” instead of “non-tenure-track faculty” referring to both part- and full-time faculty who are appointed off the tenure track (e.g., AAUP’s 2003 Contingent Appointments and the Academic Profession.)

To avoid confusion, we will employ the following terminologies in this literature review:

- (1) Contingent faculty: faculty members, either part time or full-time, who are appointed off the tenure-track.
- (2) Part-time faculty: those who work less than a full-time load . Some part-time faculty may be tenured and therefore it is often difficult to know if the part-time faculty in some studies would all be contingent faculty.
- (2) Non-tenure-track (NTT) faculty: those *full-time* faculty members who hold positions off the tenure track at institutions with tenure systems.

These categories are based on the institution’s classification of faculty members. These definitions are used in this review regardless of the terminology used by the original researcher. Essentially, untenured part-time and full-time NTT faculty are sub-sets of the contingent faculty category.

Data Sources

Most studies of faculty in higher education use statistics compiled by the U.S. government or by the American Association of University Professors (AAUP). Some studies also may incorporate special purpose surveys, but the most extensive and detailed data are those compiled by the government or by AAUP. Summaries of federal and AAUP data are accessible to the public on the Internet, but more detailed data are only available to researchers with special data access privileges. Tables in this review may come from public data sets or from restricted data summarized by authors of various studies, but the original government data source when used is cited in all cases. The tables mentioned in this report are all in Appendices A and B in order to provide a better flow to our discussion of the results of each study.

The U. S. Department of Education’s National Center for Education Statistics (NCES) conducts periodic surveys of higher education faculty with a wealth of information related to gender issues and NTT faculty. The National Study of Postsecondary Faculty, carried out in 1987-88, 1992-93, 1998-99 and 2003-04, gathered information about full-time/part-time status, tenure status, backgrounds, responsibilities, workloads, salaries, benefits, attitudes and future plans of all categories of higher education faculty. NCES has also established the Integrated Postsecondary Education Data System (IPEDS) as its core postsecondary education data

collection program. IPEDS consists of institution-level data that can be used to describe trends in postsecondary education at the institution, state, and/or national levels.

The AAUP publishes its *Annual Report on the Economic Status of the Profession*, which includes institutional listings and ratings of mean salary and compensation for the current academic year as well as an analytical essay and summary tables. In addition, its research web site contains many links to studies and databases concerning higher education, including on-line data.

The National Science Foundation (NSF) conducts a variety of surveys on the nation's scientific and engineering work force. Detailed information about these surveys and access to some on-line databases are available at its web site.

Defining the Population

Although the terminologies used in studies may be the same, for various reasons the populations studied may not have been the same. For example, in the 2004 AAUP Salary Survey, the definition of faculty only included full-time faculty and excluded administrative officers (e.g., academic dean, associate dean), and graduate students who assist in the instruction of courses, etc. In the 2001 AAU study, the faculty was divided into two categories: tenured/on-tenure-track and non-tenure-track. Each category of faculty contained full-time and part-time faculty members. As for the faculty at institutions with no tenure system, it is not always clear whether the researchers include them in "non-tenure-track faculty" or not. Examples of this are the 1998 AAUP and the 1997 NEA studies.

Contingent faculty members are primarily employed as teachers, but many have other responsibilities in addition to teaching. Many appointments are under other names such as "fellowships" or "visiting professorships." (Long, J.S., 2001) Thus, the number of contingent faculty in the statistics may be underestimated (AAUP 2004, Contingent Faculty and the New Academic Labor System) when these categories are not broken down further to determine the exact nature of these appointments.

Readers should note that even where this literature review presents quantitative results, the results can only be taken as a qualitative index for the different populations defined, especially when a topic is discussed across several studies. This is because not all studies use the same data bases or because researchers may aggregate data differently, as discussed above.

Appendix A lists the principal sources of data used in this literature review, along with the population discussed in each of those studies. It is important to note that data are seldom disaggregated by gender in some of these studies. In the future, researchers should be encouraged to do so to enable more complete analyses of the gender differences among contingent faculty.

The Background of Hiring Contingent Faculty

A rapid increase in the use of contingent faculty occurred between 1972 and 1977, a period of time when both private and public institutions experienced sharply reduced financial strength (AAUP, 1993). The use of contingent faculty has continued to rise in many institutions since then, with the greatest growth occurring during times of financial health, rather than during times of financial difficulty. Institutions of higher education were spending a larger proportion of their budgets on new facilities during the 80's and 90's, leaving fewer dollars available for faculty hiring. A college can offer a course taught by a contingent faculty member for a fraction of what the same course taught by a tenured or tenure-track faculty member would cost. Usually contingent faculty members teach lower level core courses with larger student enrollments.

Another major reason for hiring contingent faculty is the need for institutional flexibility. Institutions with a large proportion of contingent faculty can easily increase or decrease course offerings in response to fluctuation of student enrollments. In addition, it can be an administrative or Trustee strategy to control the size of the tenured faculty since their salaries constitute a very large percentage of an institution's budget. Also, by hiring contingent faculty, institutions can offer upper level courses in the latest technology or practical skill areas that may be unfamiliar to tenured or tenure-track faculty, such as Manufacturing Engineering or Special Topics in Medical Microbiology (Chronister and Baldwin, 2001). These upper level courses generally have lower enrollments than the core courses.

Part-time contingent faculty most often have contracts for shorter time periods than full-time faculty, with 77% of part-time faculty having contracts of one year or less and 57% of part-time faculty have contracts for only one term. (NCES, National Study of Postsecondary Faculty, 1999).

Studies on Contingent Faculty

Sixty-five percent of the higher education faculty are contingent faculty members. The mass use of contingent faculty has brought about some problems: equity among academic colleagues, integrity of faculty work, academic freedom, etc. (AAUP's 2004, Contingent Faculty and the New Academic Labor System; AAUP's 2003 Contingent Appointments and the Academic Profession).

While a lot of attention has been drawn to gender differences among tenured/tenure-track faculty and the under-representation of women among tenured/tenure-track faculty, particularly in the STEM disciplines, only in recent years have researchers examined gender differences among contingent faculty and the overrepresentation of women among contingent faculty (Anderson, 2002; Conley et al 2002; Association of American Universities, 2001).

However, most current studies are at the basic stage of describing the characteristics of contingent faculty, particularly with respect to gender differences. More advanced studies are needed on topics such as why there is an overrepresentation of women among non-tenure-track faculty, the relationship between gender and employment status by academic discipline, and the satisfaction levels of part-time faculty in some fields. There are some data on these topics, but, for example, breaking down workload by gender when looking at the size of the classes and

number of different preparations required would tell more about the nature of the workload for women and men than simply saying how many classes are taught per term.

One important fact is that contingent faculty members are a heterogeneous group. Within a given institution and discipline, contingent faculty members are quite diverse. Moreover, the group characteristics vary over different types of institutions and different disciplines. The gender differences and variations in employment status combine to make the contingent faculty a complex work force.

Section I: The Growth of Contingent Faculty and Its Distribution

1975 to 2005

There is a 30-year trend of growth of part-time faculty and full-time non-tenure track faculty in academia. This growth varies by gender, type of institution, and discipline.

The academic faculty structure has changed in the three decades since 1975. Many institutions now recruit more part-time and full-time NTT faculty, and a smaller proportion of new hiring is at the tenure-track or tenured level. Overall, since the 1980's, the majority of new full-time faculty hires have not been tenured or tenure track hires, which is different from 1969 where only 3.3% of new full-time faculty hires were not on the tenure track.

Table 1 in Appendix B shows the breakdown of faculty by status from 1975, 1995, and 2003. The number of part-time faculty members increased over the twenty year period. The number of tenured/tenure-track full-time faculty decreased during the time period and there was an increase among NTT full-time faculty members. The table helps to reiterate that over the past thirty years institutions have begun to hire more faculty on a NTT basis. (AAUP,1998, Curtis, 2005; IPEDS, 2004)

Table 2 (See Appendix B) shows the faculty status of tenured/on tenure track, NTT, and part-time by gender. The percentage of males and females in tenured/on tenure track positions decreased from the 1975 to the 1995 study. The percentages of males and females in part-time and NTT positions increased over the twenty year span. Since 1995, ever increasing numbers of contingent faculty are being hired, with the most rapid growth being in full-time non-tenure-track hires. AAUP will soon release new and updated comparable data on faculty status by gender.

The distribution of contingent faculty by institutions

Table 3 shows the composition of faculty members by type of institution. In all types of institutions, the percentage of either part-time faculty, full-time non-tenure track faculty, or both increased. Only private research institutions showed an increase in their percentage of tenured/tenure-track faculty. In 1998, the tenured/tenure-track faculty were the majority in public research institutions (57.6%) and public comprehensive institutions (51.8%), while the

contingent faculty were majority in private research institutions (54.4%), private comprehensive institutions (63.1%), and public two-year institutions (75.7%).

Notably, the public two-year colleges traditionally depend heavily on part-time faculty. Four-year colleges employ higher percentages of full time non-tenure-track faculty than two-year colleges. See Table 3 (Anderson, 2002).

The Distribution of Contingent Faculty by Discipline

In all types of institutions, the percentage of either part-time faculty, full-time non-tenure track faculty, or both increased. Only private research institutions increased their percentage of tenured/tenure-track faculty. In 1998, the tenured/tenure-track faculty were the majority in public research institutions (57.6%) and public comprehensive institutions (51.8%), while the contingent faculty were majority in private research institutions (54.4%), private comprehensive institutions (63.1%), and public two-year institutions (75.7%). See Table 4

Figure 1 below shows the tenure track status of women scientists and engineers with their doctorates in 2001.

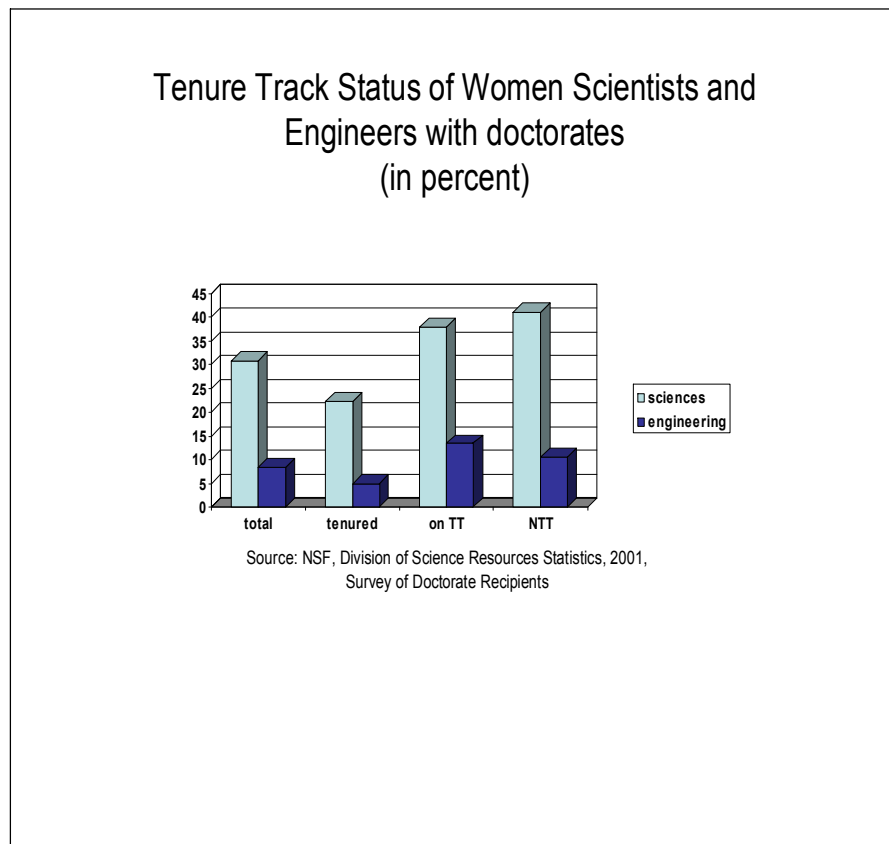


Figure 1

Summary

Contingent faculty members have become the majority in academe. The distribution of contingent faculty varies by type of institution and discipline. In public two-year colleges, 66% of all faculty are contingent, the largest percentage of contingent faculty in any category of higher education institution in this country. The smallest percentage of contingent faculty are in the public research universities. In business, social sciences, education, fine arts, health sciences, and humanities the contingent faculty formed the majority. Engineering and the natural sciences employ fewer contingent faculty than other disciplines and most of these faculty are in the part-time ranks rather than as full-time NTT faculty.

As seen in figure 1 the largest percentage of women scientists are NTT. The largest percentage of women engineers are tenure-track faculty. A future study could determine why this difference exists.

The reasons for the growth of contingent faculty varied widely across institutions. A 2001 AAU study of doctoral universities found that institutions increased their numbers of contingent faculty for the following reasons: (1) an increased use of teaching associates and visiting scholars; (2) an increase in senior lecturers and professors emeriti following the implementation of an early retirement program; (3) an increased use of contingent faculty with special skills but without traditional academic certification, and (4) a reclassification of advanced graduate students involved in undergraduate teaching .

No study was found that detailed why master's degree and bachelor's degree institutions increased their use of contingent faculty in the last few decades. We expect the reasons are not totally dissimilar from those of research universities, but a study of the reasons may be in order.

Section II: Gender Differences among contingent faculty employed as Full-Time NTT Faculty

Over-Represented VS. Under-Represented: among Full-Time Faculty

Some studies showed that women faculty are under-represented in the tenure/tenure-track ranks but are over-represented in the NTT category of full-time faculty (Association of American Universities, 2001; AFT Higher Education, 2003).

Looking at data for all full-time faculty, in doctoral institutions the ratio of men to women is 4.5 to 1 in the rank of "professor", while in the ranks of "instructor" and "lecturer", the ratio of men to women is 0.7 to 1 and 0.9 to 1, respectively. Note that in Table 5 part-time faculty members are not counted (AAUP 2004). In all four categories of institution, we see a larger percentage of males in the upper ranks than females with their percentages coming closer together as we go from professor to associate professor to assistant professor. The differences between males and females in the instructor and lecturer ranks is small.

The distribution of faculty in doctoral institutions differs from other types of institutions, particularly for full professors. In the nondoctoral institutions there are only slight gender differences over the lower academic ranks. Table 5 shows that 67.5% of male faculty are employed full-time and only 32.5% of women at doctoral institutions, a gap of over 30%. There is approximately a 20% gap in the percentages of men and women employed full-time in both the Master's and Baccalaureate institutions, while men and women are almost equal in the two-year colleges with ranks.

The Majority of Full-Time NTT faculty

Looking at the full-time faculty who are NTT, and therefore one group of contingent faculty, we see in Table 6 that in 1995, the number of male NTT faculty was 85,996 (55 %) and the number of NTT females was 69,645 (45%). Males still formed the majority of NTT faculty in 1998 (AAUP, 1998). In a 1999 study of 32 research institutions by the Association of American Universities (AAU, 2001), the proportion of male full-time NTT faculty was 52 % and the proportion of female full-time NTT faculty was 48 %. (AAU, 2001) (See Table 6) By 2004, females formed the majority of full-time NTT faculty (AAUP, 2004). Today, females are over-represented in the full time NTT faculty in almost every type of institution. (See Table 7.)

The Distribution of Full-Time NTT Faculty in Different Types of Program Area

The most recent and most comprehensive data on NTT faculty put forth by the Department of Education is for 1992, although a new full report is to be issued soon. Female full-time NTT faculty were a small minority in agriculture/home economics and engineering programs but formed the majority in education, fine arts, health sciences and humanities. See Table 8 . The two disciplines with the lowest percentage of females in full-time NTT positions are the natural sciences and engineering. Given that these same disciplines employ the fewest full-time contingent faculty at 5% and 4% respectively, these data indicate the well-known dearth of female faculty overall in these disciplines.

Academic Preparation of Full-Time NTT Faculty

In 1992, about 33 % of male full-time NTT faculty held a doctorate as their highest degree, and about 21 % of female full-time NTT faculty held a doctorate as their highest degree. About 39 % of male full-time NTT faculty held a Master's as their highest degree, and 58 % of female full-time NTT faculty held a Master's as their highest degree (NEA 1997).

Table 9 shows that the tenured/tenure-track faculty in research or doctoral institutions had the highest proportions of Ph.D. degrees; by contrast, the not on tenure track faculty in public two-year institutions had lowest proportions of Ph.D. degrees (AFT, 2003; DOE 1999). Within

each category of institution, those faculty in NTT positions with doctorates constituted >50% in all categories except the two-year public colleges where master's degrees were the predominate degree held by NTT faculty.

Age

In 1992, male and female full-time NTT faculty members had mean ages of approximately 46 and 44, respectively. When the mean age is compared with program area, the major difference was in business, where males had a mean age of 49 and females had a mean age of 41. (NEA, 1997.) In 1998, the average age for full-time NTT faculties was 46. (Anderson, 2002.)

Time at current position

In 1992, the average number of years in current position was seven years for males and seven years for females. The most substantial gender difference in years in current position was at two-year colleges where males had an average of 10.1 years and females had 7.8 years. When the mean age is analyzed by program area, the most substantial difference was in agriculture/home economics where males averaged 10.6 years and females averaged 3.2 years. (NEA, 1997.)

In 1998, even with an increase in the numbers of full-time NTT faculty, their average length of time in current position remained about the same. By contrast, the average years in current position increased for tenured faculty. Table 10, from AFT (2003), indicates these trends. One possible interpretation of this finding is that fewer faculty are added to the tenure track/tenured ranks and their places are taken by contingent faculty.

Workload and Scholarly Productivity

Table 11 shows the workloads distributed by employment status. Full-time NTT faculty have higher teaching loads on average, than tenured/tenure-track faculty. While the number of courses taught is only slightly higher for NTT faculty, the numbers of students in those courses are generally substantially larger. NTT faculty primarily teach core courses which service a large number of students. Often part-time faculty have schedules that amount to a full-time workload. (AAUP, 2003-4, Fact Sheet)

Full-time tenured/tenure-track faculty had higher scholarly productivity than full-time NTT faculty (Anderson, 2002). Looking only at NTT faculty, we do see in an NEA study that in 1992, there was no major difference in the average total number of classes taught per week by male and female NTT faculty. Again, we would need to know the class size of those classes generally taught by men and those taught by women before we would know the real workloads of each group. However, scholarly productivity measures are consistently higher for male than

female NTT faculty. The average number of career publications for males is 15.7 and for females is 6.7. Male NTT faculty were more productive than female NTT faculty at research institutions (6.4 publications in the previous 2 years vs. 3.1), at doctoral institutions (4.0 vs. 2.2), and at baccalaureate institutions (2.8 vs. 1.7) while at comprehensive institutions and two-year colleges, the scholarly productivity was similar for males and females (NEA, 1997). Further study of this discrepancy in scholarly productivity and the reasons for it is warranted.

Allen (1998) pointed out that male and female faculty allocate their time at work differently. Males spend more time on research and females spend more time on teaching and advising. Total hours worked vary by discipline, but males work more hours per week than females. See Table 12 and Table 13. Regardless of whether faculty are classified by type of institution, by discipline or by age (a proxy for years of experience), males worked more hours per week than females.

Compensation

Gender differences are present in basic salaries. Male faculty earn more than their female faculty counterparts. On average women earn 80% of what men earn in academe. (Curtis, AAUP fact sheet, 2005) NTT faculty at doctoral institutions had the highest mean 1992-3 academic year salary of \$54,706. The biggest salary differences between genders were found at doctoral institutions. Among program areas, the biggest salary differences between genders were in agriculture/home economics where males were paid \$47,355 and females were paid \$28,667 (NEA, 1997). Table 14 shows the average salaries of NTT faculty by type of institution and gender.

Job Satisfaction

In job satisfaction of NTT faculty, in 1992 there was not much difference between genders regarding instructional matters. As for the topics of salary, security, etc., there were also no major differences in satisfaction between males and females. However, female faculty members were consistently slightly lower on their satisfaction ratings on these variables. This pattern is noteworthy (NEA, 1997).

In 1992, when NTT faculty were asked about “level of importance of factors considered when leaving current position for another position,” regardless of the highest degrees held by NTT faculty, “salary level” and “opportunities for advancement” were considered as “very important” factors. “Tenure-track/tenured position” and “greater opportunity to do research” were considered as “not important” factors by Master’s or Bachelor’s degree holders among NTT faculty. The doctoral degree holders among NTT faculty had some what different opinions: “tenure-track/tenured position” was rated “not important” by 36%, “somewhat important” by 29%, and “very important” by 35%. See Table 15 (AFT, 2003).

Section III: Part-Time Contingent Faculty

Motivation to Work Part-Time

Few studies have been performed regarding part-time faculty members. The data that do exist are not generally disaggregated by gender or position held within the institution. For example, some part-time positions are only held for one semester while a tenured faculty member is on sabbatical.

Tuckman and Tuckman (1981) defined several groups of part-time faculty:

1. “full-mooners” – part-time faculty who held a full-time job (more than 35 hours).
2. “part- mooners” – part-time faculty who held a part-time job (less than 35 hours).
3. “hopeful full-times” – part-time faculty who held two or more jobs that totaled less than a full-time job.
4. “students” – part-time teachers employed in a different department from the one in which they were pursuing a degree.
5. “homeworkers” – those who chose part-time positions in order to have time for home and child care.
6. “semi-retired” – part time because partly retired.
7. “part-unknowners” – those who do not fit in any of the above categories.

Of the recent studies on part-time faculty, Gappa and Leslie (1993) studied the similarities and differences among part-time faculty. Conley et al (2002) discussed the different motivations that part-time faculty have for holding a part-time position. The U.S. Department of Education studied motivations for part-time faculty in 1992 and did a more complete survey of part-time faculty in 1998 and 2003. AAUP also surveyed part-time faculty in 2001 and incorporated some of the IPEDS information from 1998 as well. (AAUP Fact Sheet, 2001) A study of the motivations for part-time faculty work broken out by gender and discipline would be very useful.

Table 16 shows the variation in the distribution of both full-time and part-time faculty by gender, institution type, and program area in Fall 2003. There is a larger percentage of female faculty in the part-time ranks of all disciplines, except business, and in all categories of institution except the two-year public colleges than in the full-time ranks. The exact opposite is true for male faculty. These data also indicate the extremely low numbers of female full-time and part-time faculty in engineering compared to other disciplines.

The most recent profile of part-time faculty done by the Department of Education was in 2004 but their tables are not posted publicly yet. In 1998, 59% of part-time faculty taught part-time because no jobs were available as full-time faculty, a higher percentage than in 1992 (See Table 17). Of those faculty, only 39% preferred full-time. The largest percentages wanted to be

in academia badly enough to take a part-time position if no full-time position was available, or because they preferred part-time work. This may represent the fact that more emeriti faculty continue teaching part-time than earlier, more non-academics are teaching specialized courses as a supplement to their full-time work, more women early in their careers choose part-time while raising a family, or for other reasons. More study of these choices are warranted, particularly because more data on part-time faculty need to be disaggregated by gender.

Anderson (2002) found that age, degree, and number of dependents were associated with the preference to be part-time faculty. Table 18 displays the association of degree and preference for part time status.

Age was associated with differences of personal preference for part-time position. Forty-eight percent of individuals older than 65, 42% of those between 45 and 54 and 35% of those under 45 described their part-time status as personally preferred. In a 2001 NSF study of all science and engineering doctorate holders, 51.7% of the women cited family responsibilities as the reason for working part-time, while only 9.7 of the men cited that reason for working part-time. (NSF, Survey of Doctorate Recipients, 2001).

Leslie and Walke (2001) conducted a study on part-time faculty whose institutions have a tenure system that provides tenure for part-time faculty. The principal finding was that age and gender interact to lead men and women to different career paths at different stages. For example, older (>50) tenured part time males and females are equally likely to state that they can not find full time work, but younger females are more likely than younger males to make this statement. Part-time tenured men tend to be older, have more years experience, more years in rank and more time since receiving their highest degree, as compared to part time tenured women. Male part-time tenured faculty are more likely to be married with dependents, but this may reflect the different age distributions of male and female part-time tenured faculty.

Satisfaction of Part-Time Faculty

Table 19 shows the percentages of how satisfied faculty members are with their employment. Full-time tenured/tenure track faculty had higher percentages of satisfaction in all the categories over part-time and NTT. The one major difference is with job security, where full-time tenured/tenure track faculty had a larger percentage of satisfaction over NTT and part-time faculty (Anderson, 2002) because having tenure provides job security.

Conley et al (2002) found that among six principal program areas, part-time humanities faculty had the highest dissatisfaction. These data were not disaggregated by gender, but it would be useful if they had been.

Compensation

Table 20 shows that in 2003 part-time faculty had more outside income than income from their reporting institution.. A small proportion of outside income is from paid consulting work, indicating that part-time faculty either have another job outside of academe (perhaps even full-time) or teach part-time at several institutions. This is the case for all disciplines. In addition, on average part-time faculty earn a total income of \$52,500 vs. \$81,200 for full-time faculty, which is 65% of what full-time faculty earn on average.

Section IV: Summary and Topics for Further Research

Contingent faculty now form a majority of all postsecondary faculty. Moreover, two-thirds of all female faculty members are contingent, as compared to about half of all male faculty. Gender differences are not consistent across disciplines, however, and not all contingent faculty members desire tenure/tenure track status.

Contingent faculty members are a heterogeneous population. They vary by degree status, preference for part-time status, preference for four-year or two-year institutions, gender, discipline, age, and by satisfaction levels. Some contingent faculty members have full-time employment outside of academia while others may hold part-time academic positions at multiple institutions. Similarly, the utilization of contingent faculty, whether part-time or full-time, varies according to type of institution and by academic discipline.

Federal surveys conducted by NCES and NSF contain a wealth of information about higher education faculty, broken out by gender, part-time/full-time status, tenure status, type of institution and academic discipline. However, detailed studies on gender differences among contingent faculty are lacking. For the most part, researchers have published mainly descriptive studies, aggregated over broad classes of faculty members.

Although substantial gender differences are present among contingent faculty, the reasons for these differences have not been investigated in depth. Some women choose contingent status, especially part-time contingent status, because they give family and children higher priority. Nevertheless, there may be elements of gender discrimination that may affect women's decisions not to pursue a tenure track academic career. Issues of this sort have begun to receive some attention in the literature, but there is a real need for solid statistical studies dealing with women's choices of type and timing of her academic career.

The situation in engineering and science deserves particular attention. As more women obtain doctorates in these fields, one could anticipate that more women would likely be in tenure-track positions. However, this is not what the data show. This might be explained by the heavy demands placed on young scientists to succeed in academia, the relative absence of female role models in the higher academic ranks, or gender discrimination, whether perceived or real. There is a growing body of literature on full-time women faculty in science, technology,

engineering and mathematics (STEM) disciplines , but the number of part-time women faculty in engineering, for example, is so small that this group has not been studied in as much detail.

How women scientists might balance the conflicting demands of career and family is also a factor. If women choose to begin a family before or soon after completing a doctorate, they run the risk of falling behind as their discipline advances if they choose not to work at all in their discipline during this time. None of these issues have been addressed in depth in the literature with respect to women in part-time positions. Indeed, the literature on both types of contingent faculty has almost nothing to say about gender differences in specific disciplines.

Findings

- In 1995, contingent faculty formed the majority, constituting 57.6% (part-time 40.9%, full-time non-tenure-track 16.7%) of all higher education faculty. By 2003, contingent faculty were 65% of the total number of faculty in all categories with full-time NTT being 18.7% and part-time faculty at 46.3%.
- In 1995, 68% of all women faculty were contingent faculty, while 51% of all male faculty were contingent faculty.
- Public two-year colleges heavily depend on part-time faculty. Four-year colleges employ a higher percentage of full time non-tenure-track faculty than two-year colleges.
- Gender differences within rank are more substantial in doctoral institutions than in two year colleges.
- In 1995, males were 55% of all NTT faculty. In 1999, males were only 52% of all NTT faculty. In 1992, 33 % of male full-time NTT faculty held a doctorate degree, and 21 % of female full-time NTT faculty held a doctorate degree.
- In 1992, there was no major difference in the average total number of classes taught per week by male and female NTT faculty. However, scholarly productivity measures are consistently higher for male than female NTT faculty. Males spent more time on research and females spent more time on teaching.
- Among full-time NTT faculty who changed jobs, regardless of institution type, finding a “tenure-track/tenured position” was considered as a “not important” factor by 39% of Master’s degree holders and by 45% of Bachelor’s degree holders among NTT faculty. The doctoral degree holders among NTT faculty had somewhat different opinions: “tenure-track/tenured position” was rated “not important” by only 36%, “somewhat important” by 29%, and “very important” by 35%.
- Part-time faculty are a heterogeneous group. Those with only Bachelor’s or Master’s degrees are quite satisfied with their part-time status, while many holding doctoral degrees are dissatisfied and would like to find full-time academic employment.

- The total income earned by part-time contingent faculty is well below that of full-time faculty, but we don't know what the total income is for the full-time NTT faculty who are contingent faculty.
- In 2001 forty percent of women science faculty with a doctorate were NTT faculty, whereas 12% of women engineering faculty with a doctorate are NTT faculty.
- Very few data are available for part-time faculty who are women.
- It is very difficult to do many comparisons from one study to another due to differences in the population studied, even when the same terms are used to define each population.

Suggested research topics to improve one's understanding of contingent faculty as a group:

- What are the reasons for master's degree and baccalaureate degree institutions continuing to use more and more contingent faculty? (There *is* information on this question for doctoral degree institutions.)
- Do women contingent faculty in science and engineering differ from their peers in other disciplines in their perceptions of barriers to a full-time career when they want to have a family? Are these barriers truly different, or simply imagined as different?
- Faculty workload issues for contingent faculty should be studied in enough depth to ascertain any differences in class size, number of preparations, and committee assignments to ascertain gender differences in these areas.
- Data for NTT faculty need to be disaggregated by gender and by whether the position is for a short period of time (e.g. one semester or academic year) or is essentially a "permanent" part-time slot.
- The reasons for contingent faculty to be in those positions need to be disaggregated more fully by gender.
- For those faculty in contingent faculty slots for whatever reason, is there a preference for full-time NTT over part-time? Or vice versa?
- Are women scientists and engineers at a greater disadvantage than other academics if they interrupt their careers to begin a family?
- While are male contingent faculty members spending more time on research than female contingent members?

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Appendix A

The following table describes the principal sources of statistical data used in this literature review.

Primary Statistical Studies of Contingent Faculty used in this report		
Study	Data source	Population in study
AAUP, 1998	NCES	Full-Time: tenured, on tenure-track, and non-tenure track. Part-Time: all part-time. NOTE: if no-rank included or not, is unknown.
AAUP, 2004	AAUP Salary Survey, NCES (IPEDS)	Faculty who are employed full time, excluding administrative officers (e.g., academic deans), graduate students.
Conley, Leslie, and Zimbler, (2002)	NCES (NSOPF:93)	Full- and part-time refer to the employment status of the person at the institution rather than the amount of instruction the person did.
NEA, 1997	NCES (NSOPF:93)	NTT faculty: full-time non-tenure-track faculty. NOTE: if no-rank included or not, is unknown.
Tuckman and Tuckman.(1981)	AAUP (1976)	Part-time faculty: who work less than a full-time load.
AAU,2001	AAUDE (1997 or 1998)	NTT faculty: They are either full-time NTT or part-time NTT faculty. Titles include professor, associate, assistant professor, adjunct, visiting, lecture, instructor.
AFT, 2003	NCES (NSOPF:93,99)	NTT faculty: full-time non-tenure-track faculty. NOTE: if no-rank included or not, is unknown.
Anderson, 2002	NCES (NSOPF:93,99)	Full-Time: tenured, on tenure-track, non-tenure track, and no-rank. Part-Time: all part-time.

