Non-financial Factors Related to the Retirement Process of Selected Faculty Groups

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By

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(ABSTRACT)

Faculty members are influenced by a complex set of factors when making decisions about when to retire. These factors generally include both financial and non-financial characteristics. This study was designed to examine the non-financial factors related to the retirement process for selected faculty groups. Key components of the design included selecting faculty groups for analysis and identifying the non-financial factors related to the retirement process. Two faculty groups were selected: (a) faculty who had previously retired from another position and (b) faculty members with no plans to retire in the next three years. The non-financial factors were identified through a review of the literature and included (a) employment characteristics, (b) demographic characteristics, (c) activity measures, and (d) satisfaction items. The study was based on secondary analysis of NSOPF: 99 data. A combination of descriptive statistics and logistic regression was used to analyze the data.

Major findings include (a) previously retired faculty members may be a substantial pool of qualified, productive talent intrinsically motivated to be part of an academic environment on a part-time basis because their financial status is not solely dependent on basic salary from the institution; (b) additional indicators distinguishing age at retirement from a career position versus age at retirement from all paid employment may also be needed to fully describe the issue; (c) employment status, years in current position, program area, age, gender, geographic region, average class size, and satisfaction with other aspects of the job (excluding instructional duties) were distinguishing characteristics of previously retired faculty members; (d) a sizeable portion of older faculty has not yet reached traditional retirement age; (e) the impact of uncapping

mandatory retirement ages for tenured faculty may not have yet been fully realized— even eight years after the legislation took effect; (f) evidence does not support some of the objections from the higher education community in opposition to uncapping; and (g) control of institution, program area, years in current position, age, marital status, number of dependents, recent publications, career publications, and satisfaction were distinguishing characteristics of faculty members with no plans to retire in the next three years.

Dedicated in loving memory to my Mother…

Imogene B. Martin

1934–2001

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Chapter One – Introduction

There have been calls for institutions to better manage their resources in recent years from business, state and federal governments, and the public. But the need for the information these calls create is not new. In 1983, Blackburn and Baldwin wrote: "In a labor-intensive enterprise like higher education, human resources are the most valuable commodity" (Blackburn & Baldwin, 1983, p.5). They recognized that institutional effectiveness is inextricably linked to the quality, resourcefulness, and vigor of the faculty. Their acknowledgment of the importance of the right fit between faculty resources and the mission of the institution came at a time when the future of the academic profession was an area of growing concern. Higher education was bracing for a period of constraint, retrenchment, and adjustment like it had never seen before. The message was clear. Since the majority of college and university expenses relate to personnel costs, postsecondary institutions should engage in activities that lead to better management of their human resources. The activities suggested included (a) understanding the condition of the professoriate, (b) creating an inventory of faculty talents and interests so that faculty could be matched with projected staffing needs, (c) using career change or early retirement incentives to encourage some faculty to leave the institution, (d) implementing policies and programs that focused on faculty as a renewable resource, and (e) investing in the future by providing on-going faculty development programs (Baldwin & Blackburn, 1983).

Nearly two decades later, higher education has emerged retrenched, restructured, assessed, evaluated, and benchmarked. Yet, there are several factors pointing once again to an increased need for college and university administrators to become more systematically involved in managing faculty resources. Four primary reasons academic administrators need to become more systematically involved in managing faculty resources include (a) changing employment

characteristics of faculty, (b) accountability, (c) technology, and (d) an aging professoriate. Each will be discussed in turn.

Changing Employment Characteristics

Changes in employment characteristics of faculty suggest that there is a need for a better understanding of the qualifications required to perform the duties associated with the traditional tenure-track position. The rapid growth among non-traditional employment relationships within the institution, such as the increase in part-time faculty and full-time non-tenure track faculty (Snyder, 2000) and emerging pseudo-faculty roles (e.g., instructional technology support professionals) have contributed to the urgent need for this information. Some have questioned the ability of academic departments to deliver quality instruction if they rely too heavily on individuals occupying non-traditional positions. Hiring people in these capacities however, may have been the only way to cope with the fiscal constraints of the 1990s. But as the economy boomed in the latter part of the decade, appropriations to higher education remained fixed or showed only modest increases. Some have argued that this level of support did not allow institutions to recover from the lean times earlier in the decade and have forced institutions to continue to focus on the bottom line when making human resource allocation decisions. Others have argued that this is only an excuse for shifting the balance of power from faculty to administrators in colleges and universities (Rhoades, 1998).

Regardless of the reason why, data describing the new generation of faculty hired since 1986 suggest that institutions have not been filling slots with tenure-track faculty members, but have continued to fill vacated positions instead with part-time and full-time non-tenure track faculty members. In many cases these new hires have had considerable employment experience outside higher education, but not necessarily experience within higher education (Finkelstein,

Seal, & Schuster, 1998).

Yet, Banachowski (1996) found that the research on part-time faculty, as an example, typically focuses on the increase in the number and percentage of part-time faculty, and the advantages and disadvantages for employing them part-time, rather than on their ability to deliver quality instruction to students or perform the other duties typically associated with the traditional tenure track position. Likewise, research typically focuses on the share of faculty members with tenure or on the tenure-track rather than on the relationship between being tenured or on-tenure-track and quality of instruction, research, or service. The share of faculty members who are tenured declined from 35% to 32% between the fall of 1992 and the fall of 1998 (Lee, 2001). It may be that the academy is changing from within in response to pressures from our knowledge-driven economy and rapidly changing environmental forces that alter market conditions (Baldwin & Chronister, 2001) rather than because of any direct empirical evidence that variations in the employment relationship affect institutional effectiveness.

Some faculty members appreciate the opportunity for an alternative academic career, not defined by the demands of the tenure system. Others feel exploited by their institutions— that their careers are at risk because of their temporary status and the absence of a long-term commitment to them by the university (Baldwin & Chronister, 2001). It is not at all clear whether these changes in the academic labor market will have positive or negative consequences associated with them. In some cases, faculty unions have begun to include stipulations regarding the use or misuse of part-time faculty in bargaining agreements (Leatherman, 2000). In other cases, researchers have recognized "the traditional full-time tenure-track faculty model is no longer adequately meeting the educational needs of a complex, dynamic society" (Baldwin & Chronister, 2001, p.7). Baldwin and Chronister (2001) believe that the quality of higher

education is dependent upon a vigorous academic profession, which includes faculty in non-tenure-track positions. Given this change, the seminal policy question facing academic administration is: What is the appropriate mix of employees for a department in today's academic labor market?

Accountability

Increases in calls for accountability are changing the way work is conducted in the academy in very significant ways. Many states have established performance measures for higher education. And even if states have not tied funding to performance in any significant way, the academy may need to be prepared to answer questions regarding employment practices that they have traditionally not had to answer.

Post-tenure review for example has emerged as a response to the perception that tenure protects faculty members from evaluation. In 1982, the National Commission on Higher Education recommended that academic administrators, along with appropriate faculty committees, regularly evaluate tenured faculty members. The formal response from the American Association for University Professors (AAUP) raised objections on the grounds that official programs of post-tenure review would incur more costs than benefits and threatened academic freedom (Goodman, 1990). Despite these objections, many colleges and universities have implemented programs of post-tenure review.

Some evidence suggests that post-tenure review programs impact faculty retirement decisions. A number of faculty members retire rather than go through the process. Others accept phased retirement options after being found deficient during the process. This is not surprising considering that faculty hired under standards established in the past are now evaluated based on current departmental expectations (Goodman, 1990).

Technology

It could be an understatement to say that technology has changed the way we do things in higher education today (Lewis, Farris, Snow, & Levin, 1999). The infusion of technology into the curriculum has many consequences, both intended and unintended. Effective management of faculty resources is crucial if technology is to enhance rather than detract from the educational experience of students. Many institutions have already seen the emergence of a new instructional technology support professional to assist in the development of distance education courses and faculty development initiatives, for example. We are only beginning to ask questions about the appropriate classification, qualifications, and placement within the overall organizational structure for these individuals.

Technology may also impact faculty retirement decisions. Faculty members are confronted with changing expectations about the use of technology, not only in the development of distance education courses, but also in their ability to effectively use technology in the classroom. Faculty members are expected to capture and keep students' attention in an environment that treats students as consumers. Expectations about the availability of faculty members are changing too. Whereas faculty members have traditionally kept office hours and made appointments to discuss issues with students outside the classroom, instant messaging and e-mail have contributed to increased expectations of faculty members' time. Some faculty members may decide to retire rather than adapt to these changing expectations ushered in by the technological era.

An Aging Professoriate

Changes in the demographics of the population in general and the faculty population more specifically suggest there is a need for the higher education community to consider the

impact that faculty retirement has on quality in the academy. An aging professoriate puts a spotlight on the need for college and university administrators to become more systematically focused on managing faculty resources and to recognize that they have a role in helping cope with transition. Faculty retirement is both a developmental and a policy issue (Ferren, 1998). The primary reason it is such a volatile issue is that ultimately what is at stake is the quality of higher education especially because colleges and universities have a responsibility to re-invent themselves for the next generation (Bok, 1990).

At the same time that these factors have emerged signaling the need for college and university campuses to focus on better managing their faculty resources, managing faculty resources has become more challenging. Political, social, and economic influences have altered the retirement process and created an environment of uncertainty. Federal legislation has created legal boundaries within which employers and employees must negotiate the retirement process. A review of related retirement literature confirms a need for a contemporary, detailed study of faculty retirement plans and the various stages of the retirement decision-making process.

Some people predict that more and more faculty members will postpone retirement indefinitely now that mandatory retirement ages have been eliminated (see Chapter Two for a detailed discussion of the Age Discrimination in Employment Act of 1967 and its amendments). Others sound alarms because of the unprecedented numbers of faculty members who are approaching traditional retirement ages. Now much more than one-third (44%) of all full-time tenured instructional faculty and staff are 55 years of age or older (National Study of Postsecondary Faculty (NSOPF: 99, Data Analysis System). But, other researchers point to evidence that suggests only small numbers of faculty members choose to postpone retirement for more than a few years, mainly because of financial reasons (Gustman & Steinmeir, 1991; Lewis,

1996; Monahan & Greene, 1987).

Yet another wrinkle to consider is the number of faculty members who are retiring from one institution, but are accepting employment elsewhere. About ten percent of faculty in the United States reported that they have already retired from another position (National Study of Postsecondary Faculty (NSOPF: 99, Data Analysis System). Although these individuals may have retired from a job outside of academe (e.g., from private industry or the military), this potentially growing pool of academic talent also includes faculty members who have previously retired from a position within higher education.

This could be a positive thing for both individual faculty members and institutions. Institutions have continued to struggle with maintaining effective faculty development initiatives, designing programs to invigorate the faculty, and providing opportunities to engage the faculty in the decision-making processes of institutions. Within this context, higher education could benefit from an application of the human resources perspective.

Organizations and people need one another. Organizations need the skills and talent that individuals bring to bear on the tasks of the organization and individuals need the salaries and jobs that organizations provide. If the fit between the individual and the organization is good, then the needs of both are met. If the fit is bad, then one or both may suffer (Bolman & Deal, 1984). Mech (1997) applied fit in a higher education setting. The fit between higher education institutions and their chief academic officers (CAOs) impacted both satisfaction of the CAO and institutional effectiveness. When the fit was poor, Mech (1997) found that CAOs had high levels of dissatisfaction and institutional effectiveness suffered.

Institutional “fit” is a concept that has taken hold in higher education, but academic administrators have few tools at their disposal that can be used to fix the problem. Higher

education is characterized by its inability to respond to change quickly and its inflexible, bureaucratic, and political nature (Baldridge, Curtis, Ecker, & Riley, 1982; Cohen & March, 1974; Gumport & Pusser, 1995; Smart, Kuh, & Tierney, 1997). Tenure is sometimes seen as the culprit and often bears the brunt of the blame for what those outside of the academy see as inefficient behavior. Early retirement incentives have become commonplace in the absence of mandatory retirement ages as one of only a few ways that faculty can be enticed to consider a change. These incentives are costly for institutions, however. While most retirement plans allow faculty members to retire early with a reduced annuity, faculty have been reluctant to do so without an added incentive in the form of supplemental annuities or one-time lump sum payments. Institutions typically recover the cost of such expenditures by not filling the vacated position, delaying filling the position, or hiring a less expensive replacement (Patton, 1983).

Despite their growing numbers, institutions cannot implement early retirement incentive programs carte blanche. They must be implemented within legal boundaries (See Chapter Two for a review of early retirement incentive programs and legislation governing them). Early retirement incentive programs should not be seen as a "quick fix" that relieves institutions of their responsibility to maintain data on faculty trends and projected needs. Institutions need to develop staffing plans for academic departments that take into account both departmental and institutional missions. One crucial piece of information that planners need to develop defensible plans is the expected number of vacant positions. People change jobs and leave them for a variety of reasons including (a) professional reasons, (b) personal reasons, (c) retirement, (d) involuntary separation, and (e) incapacitating illness or death. Some of these reasons are easier to plan for than others. Faculty demand models typically include estimates of the projected number of faculty retirements for a given academic unit. Models fall short, however, when they fail to

take into account the complexities of the retirement decision-making process.

Ekerdt, DeViney, and Kosloski (1996) focus on retirement generally as a process, rather than as a single event. While they acknowledge that "actual decision making for retirement is largely inaccessible to investigation," they "focus on plans as a window into the preretirement process" (p.S140). Research regarding retirement in general has focused on the outcome in "an end-game election of practicable alternatives" (Ekerdt, DeViney, & Kosloski, 1996, p.S140). The same thing can be said about research regarding faculty retirement decisions. Models should seek to take into account the complexities of the retirement decision-making process. In short, long range planning should include a combination of national and local data used to project a college or university's future staffing needs in addition to projections of student enrollment (Lee, 1983). One piece of an overall comprehensive plan should focus on retirement as a process and the factors that influence the retirement decision.

The Retirement Decision

Retirement decisions are based on many factors (see for example Atchley, 1976; Monahan & Greene, 1987; Lozier & Dooris, 1991b; Ekerdt, DeViney, & Kosloski, 1996; and Holden & Hansen, 2001). Some of these are financial (see for example Gustman & Steinmeir, 1991 and Lewis, 1996) while others are non-financial (see for example Monahan & Greene, 1987; Lozier & Dooris, 1991a; Costa, 1998; Szinovacz & DeViney, 2000; and Holden & Hansen, 2001). The post ADEA environment is a "significantly altered academic labor market" from the one of 2-3 decades ago (Clark & Hammond, 2001, p. 1). TIAA-CREF data provide evidence to suggest this environment is bifurcated because some faculty are beginning to receive retirement income much earlier than their predecessors, while others are waiting much later to do so (Clark & Hammond, 2001, p.6). This bifurcation adds to the complexity of understanding the

retirement decision-making process and suggests there is a need to analyze groups of faculty separately who may be contributing to these patterns.

The 1999 National Study of Postsecondary Faculty (NSOPF:99) provides data on the characteristics and attitudes of faculty and instructional staff employed by public and private, not-for-profit 2-year and 4-year postsecondary institutions in the U.S. These data offer information about a nationally representative cross-section of faculty and provide the first glimpse into the bifurcated academic labor market since the ADEA amendments took effect on January 1, 1994. Perhaps more important, however, these data provide an opportunity to distinguish between faculty members who have previously retired from another position and those who have not done so. They also provide researchers with an opportunity to analyze the characteristics of older faculty members with no plans to retire in the next three years. Taken together these data may provide information on the bifurcated environment that TIAA-CREF has identified.

The decision to retire is a personal one. Yet, "retirement decisions take place in a concrete social situation composed of a number of elements" (Atchley, 1976, p.39). In other words, individuals are influenced by a complex set of factors when making decisions about when to retire. Personal characteristics of faculty members, institutional characteristics, job histories and current responsibilities, and fringe benefits are among the factors that influence when faculty members retire (Holden & Hansen, 2001).

Researchers have determined what some of the most important of these considerations are for individuals in various circumstances. Finances appear to play an important role in the decision. Lower salaried faculty may be more likely to retire. Lower levels of identification and commitment to an organization may lead to a higher probability of retiring. Those most

productive in pedagogy and service tend to select early retirement, while those most productive in research do not (Monahan & Greene, 1987). Money as a factor in the retirement decision matters to nearly everyone, but the effects of less tangible elements of professional satisfaction matter also (Lozier & Dooris, 1991a, 1991b). Among the non-financial factors are institutional characteristics, personal characteristics, job histories and current responsibilities, and fringe benefits (Holden & Hansen, 2001).

Academic administrators should place an equal emphasis on the intangible aspects of retirement when designing retirement incentives (Keefe, 2001). If academic administrators heed this advice, then they will need reliable information on the non-financial characteristics that influence the retirement decision-making process. Monetary factors being equal, non-monetary factors help explain why some people retire sooner than others (Costa, 1998). This suggests that HR managers and academic administrators need data on faculty members at different stages of the pre-retirement process. Particularly, data are needed that distinguish those who retire at younger ages from those who do not and the characteristics of faculty that may postpone retirement. In addition, HR managers and academic administrators need better ways to predict what types of faculty may retire early or postpone retirement in the future.

NSOPF: 99 data provide an opportunity to develop nationally representative profiles of faculty who share similar characteristics regarding retirement, recognizing the heterogeneity of retirement intentions and the complexity of retirement decisions. Although researchers have acknowledged the complexity of retirement patterns and early retirement incentive programs, little is known about the characteristics of faculty who are contributing to this complexity. Given the emergence of a distinctly bifurcated pattern among faculty retirements and research suggesting that retirement is a process as well as an event (Ekerdt, DeViney, & Kosloski, 1996),

research aimed at providing profiles of faculty members in various stages of the retirement process is particularly timely. The present study sought to provide such data.

Purpose of the Study

The purpose of this study was to examine faculty retirement patterns and plans by investigating (a) differences in those who have retired from one job to take another and those who have not and (b) differences in older faculty members who were not at all likely to retire in the next three years and those who were very likely or somewhat likely to retire. The study was based on secondary analysis of NSOPF: 99 data and described the non-financial characteristics that distinguish previously retired faculty (PREF) from faculty members of similar age who have not previously retired (NPREF). In addition, the study described the non-financial characteristics that distinguish older faculty members who are not at all likely to retire in the next three years from those who are very likely or somewhat likely to retire.

The focus of the research was to specifically (a) describe the characteristics of faculty and instructional staff who have previously retired from another position, (b) determine if various demographic and employment characteristics distinguish them from their colleagues who are of similar age, but have not retired from another position, (c) describe the characteristics of older faculty members (55 and older) with no plans to retire in the next three years, and (d) determine if various demographic and employment characteristics distinguish older faculty members from their colleagues who are of similar age, but who have some plans to retire in the next three years. This research adds to the national discussion regarding human resources in higher education and the repercussions of eliminating mandatory retirement ages by providing some evidence about the characteristics of faculty members and retirement patterns.

Research Questions

This study addressed the following four questions specifically:

1. What are the characteristics of faculty members who have previously retired from another position (in or outside of higher education)?

2. Do employment status, type of institution, institutional control, academic program area, age, years in position, gender, marital status, number of dependents, region, satisfaction, teaching load, research productivity, basic salary of respondent, and spouse or significant other income distinguish faculty members who have retired from another position from those in the same age group who have not retired from another position?

3. What are the characteristics of older faculty members (those 55 and older) who have no plans to retire in the next three years?

4. Do employment status, type of institution, institutional control, academic program area, age, years in position, gender, marital status, number of dependents, region, satisfaction, teaching load, research productivity, basic salary of respondent, and spouse or significant other income distinguish older faculty members who have no plans to retire in the next three years from those in the same age group who do have plans to retire?

Definitions

It is often difficult to distinguish between the subtleties in terms that are used in the literature related to faculty. The present study included some key terms, which required clarification. This section defines the key terms used in the study so that the reader may refer to them throughout.

The term faculty is used to refer to different groups of people within higher education and means different things to different people. Some even use the term to refer to an employment

relationship with an institution. In this study faculty was defined the same way it was defined for the NSOPF:99 study sampling frame- including anyone with faculty status and instructional responsibilities for credit, regardless of whether the credit responsibilities were associated with a course.

The current study focused on faculty and instructional staff age 55 or older employed by public and private not-for-profit 2-year-and-above postsecondary institutions in the fall of 1998. The term older faculty will be used to refer to this population of interest.

Previously retired faculty (PREF) referred to those individuals who were employed by colleges and universities, but had previously retired from another position, regardless of whether or not the position they retired from was inside or outside of academe. No attempt was made to define retirement. Respondents were asked: Have you previously retired from another position? The response categories were yes or no.

Faculty members who were not at all likely to retire were distinguished from faculty members who were somewhat likely or very likely to retire based on responses to the following question: During the next three years, how likely is it that you will leave this job to retire from the labor force? The response categories were (a) not at all likely, (b) somewhat likely, and (c) very likely. The response categories somewhat likely and very likely were collapsed so that respondents who had no plans to retire could be distinguished from respondents with at least some plans to retire in the next three years. Each of these questions leaves the interpretation of what constitutes retirement up to the respondent.

Non-financial characteristics consist of personal characteristics of faculty members, institutional characteristics, job histories and current responsibilities, and fringe benefits (Lozier & Dooris, 1991a, 1991b). Most of the variables that are used in the analysis have common

meanings and are operationalized in Chapter Three including: (a) gender, (b) age, (c) marital status and (d) income. Exceptions include recent and career publications. Recent publications included works published in the past two years in refereed professional or trade journals and creative works published in juried media for which they had sole or joint responsibility. Career publications included articles published in refereed and nonrefereed journals, reviews of books or chapters in edited volumes, textbooks, and reports.

Significance of the Study

The present study had implications for practice, policy, and future research. Human resources and academic administrators may use the results to help them manage human resources more effectively and create more appealing early retirement incentive programs. Policymakers may find the study interesting because it provided data on non-financial factors that influence the retirement decision, but also because the study examined selected faculty groups at different stages in the retirement process. The study may also encourage researchers to focus on faculty retirement as a process and to seek to develop profiles of faculty members who are at various stages of the process.

The study provided human resources managers and academic administrators with information about the relationships among faculty retirement patterns and non-financial characteristics that influence retirement decisions for selected faculty groups. They may use the results to manage faculty resources more effectively. Understanding these relationships may give them information that they can use to create more appealing early retirement incentive programs and help faculty members make the transition to retirement.

The study also has policy implications. Policymakers at the institutional level may find the study interesting because it provided data about the non-financial factors that influence

retirement decisions for selected faculty groups. They might use the data to examine their internal policies on retirement and/or introduce new policies regarding retirement that address the particular HR needs at the institution. For example, institutions interested in encouraging turnover among their faculty could use similar data about their own faculty to develop ad-hoc early retirement incentive programs that would assist faculty members who are interested in continuing to work in relocating to another position as part of their incentive. On the other hand, institutions interested in minimizing turnover among their faculty may offer phased retirement options.

State and federal level policymakers may be interested in reviewing legislation with an eye toward understanding the repercussions of retiring from one position and accepting another at different ages. For example, portability of state-sponsored retirement programs may be called into question. The study may prompt policymakers to re-visit tax laws, penalties, and loopholes associated with retiring, but continuing to work. The study may also serve to educate policymakers regarding the complexity of the retirement decision, including (a) the existence of both financial and non-financial characteristics that influence the retirement decision-making process, (b) differences among the non-financial characteristics that influence the retirement decision-making process, (c) the complexities of the retirement process, and (d) the characteristics of selected faculty groups at different stages in the retirement process.

Finally, it may give policymakers better insight into the relationship between quality and employment status (i.e., full-time versus part-time employment by the institution) and it may inform the part-time faculty policy debate. Much of this debate centers on the quality of instruction delivered by part-time faculty and their qualifications. Knowing the percentage of part-time faculty who have previously retired from another position provides an indication of the

level of experience these faculty members bring to the classroom.

The current study has implications for future research. It employed quantitative techniques to examine the non-financial factors related to retirement for selected faculty groups. Future studies may employ qualitative techniques to gain a better understanding of retirement patterns at one institution, several institutions that share similar characteristics, or a group of institutions that represent differences by institutional type. For example, interviews at one institution across specific departments could explain how different factors, (both financial and non-financial characteristics) impact individual faculty members' decisions to retire, postpone retirement, or accept bridge employment. This study may also encourage researchers to focus on faculty retirement as a process and to seek to develop profiles of faculty members who are at various stages of the process. Profiling techniques may be useful at the institutional level in developing human resources plans that model expected retirement rates for specific academic departments and the institution as a whole.

Delimitations

As with all research, the present study had some initial delimitations. Delimitations "address how the study will be narrowed in scope" (Creswell, 1994, p.110). The delimitations in the present study were determined by the data set employed to conduct the research, the 1998-99 National Study of Postsecondary Faculty. The delimitations address (a) the variables chosen for analysis and (b) the population of interest. The variables chosen for analysis included non-financial characteristics because the data set was limited to non-financial factors.

This study is delimited to faculty and instructional staff who were 55 or older in the fall of 1998. In part, age 55 was chosen to delimit the study because other researchers have used age 55 to delimit their studies (Chronister, Baldwin, & Conley, 1997; Dey, Vander Putten, Han, &

Coles, 1997; Lozier & Dooris, 1991a,1991b). In some ways focusing the study on faculty who were 55 years old or older is an arbitrary decision on the part of the researcher. However, age 55 was selected to reflect a subset of the NSOPF dataset that would have attained an age at which they may have qualified to retire from a previous position, as well as to make comparisons against a relevant population for faculty members with no plans to retire in the next three years. In addition, the study focused on those 55 years old or older because there is less certainty among younger faculty members about the age at which they are most likely to retire (Chronister, Baldwin, & Conley, 1997).

Limitations

Research is also constrained by limitations. As with the delimitations described in the previous section, the limitations narrow the scope of the study. However, limitations generally constrain the bounds or the extent of the research. The limitations of the current study occur primarily as a result of using extant data. Secondary analysis of survey data has become a popular method for conducting research. National surveys offer advantages such as government sponsorship, large sample sizes, generalizability, sophisticated pilot tests, built-in mechanisms to address measurement error (e.g., re-interview studies), complex editing and data cleaning strategies, and large budgets that allow maximum nonresponse follow-up. However, broad research interests and policy concerns, rather than specific research questions or hypotheses guide the development of national surveys. Individual survey items are designed to answer general questions on many topics, not to definitively address any one-research topic. As a result, variables important for the analysis may not be included, or concepts may not be measured exactly as the researcher would have liked.

The present study did not provide a complete analysis of the factors that affect a faculty

members' decision to retire because there were no variables included in the data set on health or wealth. Financial factors are equally if not more important than non-financial factors. However, in the absence of mandatory retirement ages, a faculty members' decision to retire is influenced by a complex set of factors including both financial and non-financial factors. Lozier and Dooris (1991a,1991b) indicated the importance of the non-financial characteristics that may influence the decision to retire. More recently, Costa (1998) and Keefe (2001) reiterated this point. NSOPF: 99 was a comprehensive survey of faculty and instructional staff at various types of higher education institutions. Because of the size of the data set and the generalizability of the data, the data can be disaggregated to provide information on the retirement process for selected faculty groups. If both financial and non-financial factors had been examined, the results might have been different. The findings should be interpreted in that light.

Organization of the Study

The research is reported in five chapters. Chapter One provides an introduction to the research topic including the purpose statement and the research questions that guided the study. Chapter Two recounts the literature related to faculty retirement patterns and the factors that affect the decision to retire. Chapter Three explains the research design and data analysis procedure used in the study. Findings are described in Chapter Four. Finally, conclusions, along with implications for practice, policy, and future research are discussed in Chapter Five.

Chapter Two – Literature Review

This study explored the non-financial factors related to the retirement process for selected faculty groups in the United States. Literature is reviewed in this chapter in four major sections including (a) the demographic and legal context of retirement, (b) retirement in general, (c) the impact of uncapping mandatory retirement ages for faculty, and (d) non-financial factors related to faculty retirement. First, a contextual discussion of retirement begins with a description of the age of the population generally and the age of faculty members specifically. It also includes a discussion of the legal boundaries that constrain the retirement process. The second section of the chapter summarizes the literature on retirement in general. The third section of the chapter summarizes findings from studies conducted about faculty retirement resulting from changes in federal legislation that eliminated mandatory retirement ages for tenured faculty members. The fourth and final section of the chapter focuses on non-financial factors related to retirement patterns for faculty. To conclude the chapter, the researcher provides a summary explaining how the present study contributes to the body of work regarding non-financial factors related to the retirement process for selected faculty groups.

The Demographic and Legal Context of Retirement

The U.S. Bureau of the Census tracks the age of the country's population through the decennial census and the Current Population Survey (CPS). The Bureau describes the overall change in the age of the population as moving from a pyramid to a rectangle. This change in the age distribution is affected primarily by the baby boom generation (those born between 1946 and 1961). Census does 10 alternative projection series, which differ in terms of the assumptions concerning the future trajectories of fertility, mortality, and net migration. According to middle series Census projections, baby boomers will begin turning age 65 in 2011 and between 1990

and 2020 the population aged 65 to 74 will grow 74% while the population under age 65 will only increase 24% (http://www.census.gov/ipc/prod/97agewc.pdf).

Figure 1 shows the percentage age distribution of full-time instructional faculty and staff for the three years that NSOPF data have been collected. These data mirror the population data in that there has been moderate growth in the percentage of older faculty members (55 and older), most notably in the percentage of faculty members age 55-59. About one-third of full-time (31%) and part-time (27%) faculty members were 55 years old or older. This is consistent with findings of the Higher Education Research Institute (HERI) Faculty Survey that suggest that 33% of the faculty workforce in higher education is aged 55 or older.

Given the change in the age distribution of the population generally and of the faculty population specifically, there is growing concern that substantial numbers of the workforce will be retiring in the near future. The retirement process is complex, however. It must be analyzed within the context of the social situation and the legal boundaries (i.e., rules and regulations) associated with it (Atchley, 1976). Most people recognize retirement as a part of life (Atchley, 1976). The point at which retirement occurs, however, is in some ways negotiated between the employer and the employee within legal boundaries that constrain it.

The seminal legislation affecting retirement in the United States includes the Social Security Act of 1935, the Age Discrimination in Employment Act (ADEA) of 1967, and their subsequent amendments. The Social Security Act was originally established as a retirement insurance program for the primary worker. Amendments to the act expanded its coverage and added benefits for survivors and benefits for the retiree's spouse and children in 1939. Disability benefits were added in 1956. Today, social security is a dynamic program that pays benefits to almost 45 million people and provides protection for approximately 150 million workers

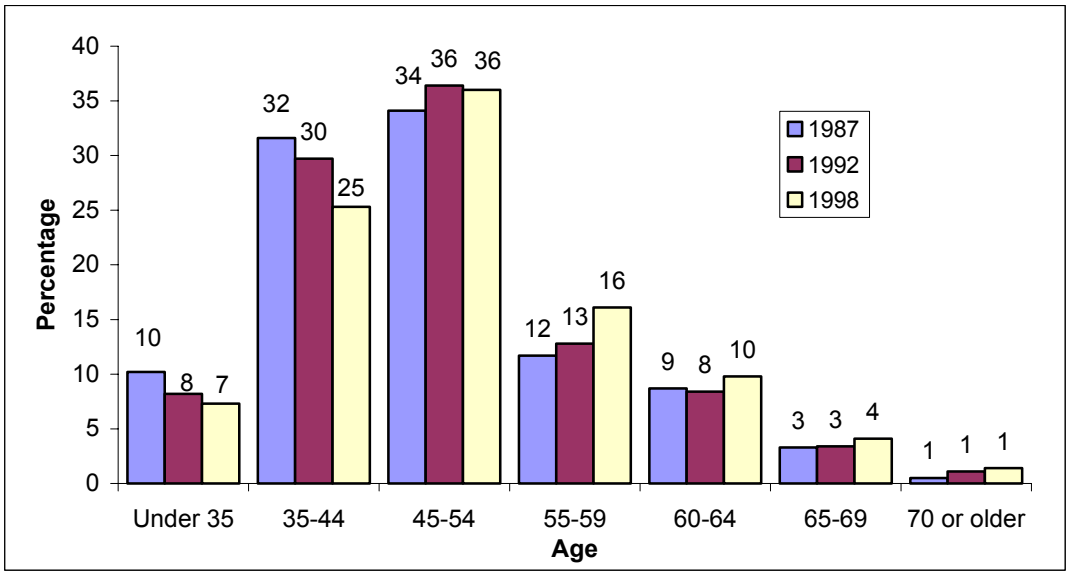

Figure 1. Percentage Age Distribution of Full-time Instructional Faculty and Staff, by Year: Fall 1987, Fall 1992, and Fall 1998

(http://www.ssa.gov/history/reports/briefhistory.html).

The historical events that led to transferring the welfare of older Americans from local jurisdictions and private charity to the federal government have been documented (Graebner, 1980). Put simply, these events can be understood as taking place as the U.S. economy shifted from an agricultural base to an industrial base. The Social Security Act emerged as a response to the crisis that the Great Depression triggered in the 1930s. A fuller explanation of social security and related topics is beyond the scope of this research. With regard to retirement decisions, it is important to note that the earliest a person can begin receiving social security retirement benefits is 62. However, the age of retirement is increasing for younger Americans. To receive full retirement benefits from social security a worker born in 1960 or later must be 67 years old. Workers born in 1960 or later who retire at age 62 will receive a 30% reduction in benefits. While social security impacts all American workers, ADEA legislation has the potential to have more of an impact on faculty retirement plans and patterns. Both social and political pressures influenced the legislated changes (Martin, 1993). The ADEA was passed in 1967, prohibiting discrimination on the basis of age for anyone between the ages of 40 and 65. Several researchers have traced the events leading to the passage of the 1974, 1978, and 1986 amendments to ADEA (Ford, 1989; Pratt, 1989; Hammond & Morgan, 1991; DiGiovanni, 1993). At first this legislation was not viewed as terribly relevant for higher education since public employers and tenured faculty were exempt and most institutions had mandatory retirement policies that set the age of retirement at 70 years old anyway (Pratt, 1989). The act was further amended, however, first in 1974 extending provisions to public employers, then again in 1978 raising the upper age limit to age 70, and finally in 1986 eliminating the upper age limit altogether and the exemption for tenured faculty. So, while the original legislation included an exemption for tenured faculty

members, the 1986 amendment phased out the exemption. As of January 1, 1994 the decision about when to retire was transferred from the institution to the individual faculty member.

Before the passage of ADEA, institutions were free to set policies that forced faculty members to retire after they reached a certain age. The higher education community expressed concerns about eliminating mandatory retirement ages for faculty (referred to as "uncapping") primarily for two reasons.

First, they argued that it would restrict institutions' ability to hire new faculty members and add additional financial pressures. Personnel costs are the single largest share of institutional budget expenditures. If older faculty members remain in the workforce, job openings for young faculty would be reduced. Institutional representatives argued that new faculty members are often the source of new ideas and are vital to the scholarly mission of higher education. In addition, eliminating mandatory retirement would impede affirmative action efforts on the part of women and faculty of color. Institutions would also have to sustain higher paid faculty salaries and continue retirement contributions for longer periods (Pratt, 1989).

Second, they argued that an aging professorate would grow increasingly ineffective, but irremovable because of tenure (Hammond & Morgan, Eds. 1991). Projections indicated that there would be an oversupply of tenured older professors because of the number of faculty members hired during the expansion of higher education in the 1950s and the 1960s. The second argument dealt with the complexities that tenure brought into the discussion. Lobbyists argued that if mandatory retirements were abolished or the upper age limit was raised, tenure would be threatened. The difficulty of determining when a faculty member's performance had declined enough to justify terminating employment "for cause" might force universities to conduct frequent evaluations of all faculty members. These anticipated reviews were described by the

higher education lobby as potentially "costly, demoralizing, and inconclusive" (Pratt, 1989, p. 21). Faculty retirement was recognized as different from retirement in other professions primarily because of the process of job evaluation.

Prior to the legislated changes, federal courts heard several cases that challenged the constitutionality of mandatory retirement policies under the due process and equal protection clauses of the Fourteenth Amendment. Most notably in *Massachusetts Board of Retirement v. Murgia* (1976) the U.S. Supreme Court "refused to declare a public employer's policy of mandatory retirement unconstitutional" (Ford, 1978-79, p.162). This case is important because it set a tone of approval of mandatory retirement ages in general by the courts.

In the case, Robert Murgia challenged the constitutionality of a Massachusetts statute that required state police officers to retire at age 50. Murgia passed the required annual physical examination without difficulty. The case was strengthened by the low mandatory retirement age being enforced (*Massachusetts Board of Retirement v. Murgia*, 1976). Recall the original provisions of the ADEA of 1967 prohibited discrimination on the basis of age with respect to individuals between the ages of 40 and 65.

To decide the case, the Supreme Court applied two tests that had been used repeatedly in Fourteenth Amendment cases. The two tests were (a) the strict scrutiny test and (b) the rational basis test. The strict scrutiny test determines whether the statute or policy invades a "fundamental right" or discriminates against a "suspect class." The rational basis test determines whether the classification is rationally related to a legitimate state purpose. The court ruled that age was not a "suspect classification." It further ruled in favor of a "rational basis" since a legitimate state objective was found in protecting the public (Ford, 1978-79). This case was seen as a refusal by the federal courts to entertain challenges to the constitutionality of public

employers' mandatory retirement policies. Further disagreements about the intention of Congress to outlaw mandatory retirement for employees within the protected age group contributed to Congress' decision to amend the ADEA. The elimination of mandatory retirement returned the ultimate retirement decision to the individual (Martin, 1993).

Social security and the elimination of mandatory retirement ages should not be viewed as unrelated, though. In the late 1970s, financial strain on the social security system was beginning to emerge as a policy concern. One popular solution for easing some of the strain on social security from high unemployment combined with high inflation was to eliminate mandatory retirement for a savings of $2.25 billion dollars. This solution was attractive to legislators because it did not incur additional costs for the taxpayers (Martin, 1993).

In addition to ADEA, the Omnibus Budget Reconciliation Act of 1986 (OBRA) and the Older Workers Benefit Protection Act of 1990 (OWBPA) strengthened workers rights with respect to employee benefits plans. The legislation made it clear that "pension benefit accruals and/or contributions cannot be reduced or discontinued because of the attainment of any age" and that "the ADEA is intended to bar age discrimination in employee benefit plans with certain narrow exceptions" (Martin, 1993, p.49).

These legislative mandates led many organizations to invest in incentive early retirement programs. "Incentive early retirement programs are an arrangement between an employer and an employee that provides a tangible inducement or reward for early retirement" (Chronister & Kepple, 1987, p.iii). While these programs existed in higher education before the changes in federal legislation took place, early retirement incentive programs were increasingly viewed as a personnel management strategy in the aftermath (Chronister & Kepple, 1987).

Incentive early retirement programs can be either ad-hoc or formal. General guidelines

may be established for ad-hoc programs, but often they are not because ad-hoc programs are characterized by negotiation on an individual-by-individual basis between the employee and the institution. Ad-hoc incentive early retirement programs offer the institution maximum "flexibility to use limited resources targeted at areas of greatest need" (Chronister & Kepple, 1987, p.11). Ad-hoc programs do raise questions about equity, however, "especially among faculty who express an interest in retiring early, but are unable to obtain an incentive to participate" (Chronister & Kepple, 1987, p.12). On the other hand, formal incentive early retirement programs are based on specific policies, guidelines, and procedures pledging equitable access to early retirement incentive opportunities based on set eligibility criteria. Formal programs provide little room for "negotiation of benefits to meet individual faculty interests beyond what is provided in the plan" (Chronister & Kepple, 1987, p.12). Regardless of whether the plan is ad-hoc or formal, the primary legal compliance stipulation is that the program must be structured so that the retirement decision is voluntary.

Incentive plan options take many forms. Sometimes they are uniquely tailored for an individual and can only be described in hybrid terms. The most common incentive options include (a) severance pay or lump-sum payments, (b) liberalization of the actuarial reduction, (c) annuity enhancements, (d) bridging benefit programs, (e) phased or partial retirement, and (f) other perquisites. Severance pay or lump sum payments are basically a bonus for retiring early. The amount of the payment is typically calculated as a percentage of the employee's current salary. The actuarial reduction is the amount an employee's pension is reduced to "compensate for the lesser amount paid in and the longer period during which benefits will be received" (Patton, 1983, p.45) if the employee retires early. Liberalizing the actuarial reduction decreases the reduction so that the employee receives the full, or nearly full, value of the pension annuity

"as if employment had been continued until the normal retirement age" (Chronister & Kepple, 1987, p.13). Like liberalizing the actuarial reduction, annuity enhancements boost retirement income. Annuity enhancements increase retirement income through an additional annuity that supplements the retiree's original retirement annuity. Bridging benefit programs are a variation of annuity enhancements. These programs include cash supplements paid to early retirees during a specified number of years before their regular retirement. Phased or partial retirement programs allow employees to retire and continue working part-time. In some cases, these programs also include some other financial incentive resulting in a disposable income roughly equivalent to full-time salary. Finally, incentive plan options may include other perquisites such as continued use of office space, administrative support, computer access, library privileges, and health and life insurance coverage (Chronister & Kepple, 1987; Martin, 1993; Patton, 1983).

This section summarized the demographic and legal context for retirement, highlighting issues relevant to higher education. The climate is characterized by the increase in the age of the population in general and in the faculty population specifically coupled with limits on organizational flexibility imposed by the tenure system, the share of expenditures allocated to human resources costs, changes in federal legislation, and options available through incentive early retirement programs. The next section briefly summarizes the literature on retirement in general, highlighting the accepted predictors of wealth, health status, and age.

Retirement in General

The general retirement literature emphasizes the importance of wealth, health, and age on the retirement decision-making process (Mutran, Reitzes, & Fernandez, 1997; Szinovacz & DeViney, 2000). Researchers are now beginning to understand these results in light of the perspective taken for conducting the studies, however. Early retirement studies used economic

utility models to explain the decision-making process. But today, economic, social, and political forces have altered the retirement process, increasing flexibility, and emphasizing that the decision about when to retire should be left up to the individual. As a result, current models of retirement transitions consider predictors that go beyond those included in early economic models (Szinovacz & DeViney, 2000). Being able to afford to retire is still an important consideration, but attitudes towards retirement are becoming increasingly important. Attitudes towards retirement are influenced by (a) social background, (b) expectations of a pension, (c) having an anticipated time for retirement, (d) worker identity, and (e) self-concept factors (Mutran, Reitzes, and Fernandez, 1997). This section reviews literature related to (a) wealth, health, and age; (b) gender and family issues; and (c) the context of work.

Wealth, Health, and Age

From an economic perspective the retirement decision is a financial decision. It is based on a rational choice between continued work and leisure. At the heart of the decision is whether or not expected retirement income is sufficient to meet the individual's needs at the time of retirement and over the remaining life cycle (Hurd, 1990). Put simply: Can the person afford to retire? Several financial characteristics influence the retirement decision-making process in the general workforce. Current earnings, personal wealth, expected Social Security benefits, and expected income from employer sponsored retirement programs or pensions form the economic foundation for the retirement decision. Economic incentives or disincentives also influence individuals' decisions to retire. Economic incentives typically include some additional benefit to encourage individuals to retire such as those discussed in the preceding section; whereas disincentives may be structured to discourage work after a specific age (Quinn, Burkhauser, & Myers, 1990).

Health is also central to the retirement decision, but is declining in significance because older Americans are living longer, healthier lives and because jobs are becoming less physically demanding (Atchley, 1976; Federal Interagency Forum on Aging-Related Statistics, 2000). Deteriorating health increases the probability of retirement (Burkhauser & Quinn, 1983), but the relative importance of health status in individual retirement decisions has been debated because the validity of self-reported health measures has been questioned (Anderson & Burkhauser, 1985; Quinn, Burkhauser, & Myers, 1990). Poor health may hasten an individual's decision to retire or elect to participate in an incentive early retirement program, but probably is dependent upon the severity of the condition and/or timing of the illness. Researchers studying retirement have gotten conflicting results when they have included health status in the model (Bazzoli, 1985; Lozier & Dooris, 1991a,1991b; Monahan & Greene, 1987; Rees & Smith, 1991). Effects for faculty may be mitigated by their longer life expectancy and overall better health when compared with the general population (Gray, 1989).

Palmore's (1971) study based on the 1963 Social Security Survey of the Aged is considered one of the seminal works in retirement literature. Palmore (1971) studied why people retire. Two primary reasons emerged: inability to work and less need for earnings. Of the two reasons, inability to work was the most important. Age was the strongest factor influencing the decision to retire (Palmore, 1971). It may be that as people age, there is a societal expectation that they should retire. Prejudice and discrimination may also play a part (Palmore, 1971). Changes have occurred since the 1970s that call into question the continued validity of these results. Since the study was done, mandatory retirement and the popularity of incentive early retirement programs have radically altered the retirement process (Szinovacz & DeViney, 2000). Age is still consistently linked to the retirement process. But, age is now understood as being

linked to other factors that influence the decision to retire including (a) benefit eligibility, (b) norms about the appropriate timing of retirement, and (c) factors that lead to involuntary retirement (e.g., an incapacitating illness). Analysis of attitudes suggests that people have choices about retirement, but choices are constrained by an opportunity structure. The elements of an opportunity structure consist of (a) ascribed statuses, (b) the occupational situation, (c) wealth and income, (d) marital and family roles, (e) health, (f) community ties, and (g) prior experience with retirement (Ekerdt, DeViney, and Kosloski, 1996). Some of these elements have been researched more than others.

Gender and Family Issues

Prior to the 1980s, retirement research was generally male-oriented primarily because of assumptions regarding women's participation in the labor force (Szinovacz, 1982) and because of stereotypes that most women do not work and that work for those women that do is of secondary importance (Atchley, 1976; Palmore, 1965). An understanding of gender differences in retirement decisions was based on Palmore's (1965) study. Generally:

> Women retire more often than men; women retire for voluntary reasons more often than men; women show few occupational differences in retirement rates as compared with substantial differences among men; married women retire more often than unmarried women while married men retire less often than unmarried men; and retirement is increasing among men but not among women (Atchley, 1976, p.49).

Since the 1980s, though, there has been heightened interest in women's retirement and recognition that women and men probably approach and experience the retirement process differently (Calasanti, 1996; Calasanti, 1993; Szinovacz, 1982; Szinovacz & DeViney, 2000). Szinovacz and DeViney (2000) suggest three ways that women's retirement experiences are different from men's. Women are more likely to have disrupted work histories than men. As a result, women may be forced to delay retirement or rely on their husband's retirement benefits

rather than on their own. Gender role ideology stresses the role of the man as the main provider and suggests that it is problematic for women to continue employment after their husband's retirement. Finally, women experience less retirement anxiety than men because they do not rely as heavily on work relationships for intimacy and social needs as men do (Szinovacz & DeViney, 2000).

Researchers often discuss the influences of gender and marital status together (Campione, 1987; Weaver, 1994). Economic studies distinguish between married women and unmarried women, for example. Wages influence married women's retirement decisions, but unearned income and wealth do not. All financial variables influence retirement decisions for unmarried women (Weaver, 1994). Research suggests that an increasing percentage of women will be unmarried in retirement, in part, because of an increase in the percentage of women projected to be divorced. There is some concern that there will also be an increase in the most economically vulnerable aged women when the baby boom retires (Butrica & Iams, 2000). This trend is exacerbated because women plan for retirement less than men (Perkinz, 1995; Richardson, 1990).

Within the framework of the family, couples' retirement decisions influence one another. In other words, husbands and wives coordinate their retirements so that they occur at the same time (Hurd, 1989). One might expect the presence of dependents to affect retirement decisions, however economic studies generally conclude that the presence of dependents does not affect women's retirement decisions (Weaver, 1994).

The Context of Work

The context of the work environment and informal norms about the work situation influence an individual's decision to retire (Atchley, 1976; Ekerdt, DeViney, & Kosloski, 1996;

Szinovacz & DeViney, 2000). As employees age, their opportunity structure expands to include retirement as a possibility for escaping dissatisfying work situations. Conversely, employees who find their jobs especially gratifying may find it more difficult to retire from their positions (Hanisch & Hulin, 1990, 1991).

In addition, occupational prestige is related to the complexity of the path to retirement. Higher occupational prestige brings with it labor market advantages generally not associated with lower prestige positions. Individuals in higher prestige positions, for example, may have access to post-career positions, second careers, and partial retirement (Ekerdt, DeViney, & Kosloski, 1996).

Retirement in the United States has been studied time and again from about 1950. When the topic of research is the decision to retire and the population of interest is the majority of workers (predominately white males), the results are remarkably similar. Being able to afford retirement is a basic consideration. Age is a mitigating factor in the decision since accumulating age is associated with accumulating additional years of employment and increased pension and social security benefits eligibility. Health impacts the decision also, although its importance is diminishing (Szinovacz & DeViney, 2000).

The labor market is far more diverse today than it was just 2-3 decades ago, however. Economic, social, and political pressures have joined forces to create an environment of uncertainty with respect to retirement as a social institution. Women have entered the workforce in increasing numbers. Legislation has returned the decision about when to retire to the individual and there are many paths to retirement. These complexities require more sophisticated models to understand how people make the decision to retire than the straightforward economic models of the past. Understanding how individuals make the decision to retire requires

recognition of the heterogeneity of retirement intentions and that a complex set of factors influence people as they engage in the retirement decision-making process (Ekerdt, DeViney, & Kosloski, 1996; Szinovacz & DeViney, 2000).

The Impact of Uncapping Mandatory Retirement Ages for Faculty

It is important to focus on the retirement process of faculty separately from other occupations because of the differences in the nature of academic work compared with other occupations and the characteristics of faculty that make them distinct from other professionals (see Finkelstein, 1984 for a characterization of faculty work). As noted in the previous section, retirement plans are formed in the context of the work environment (Ekerdt, DeViney, & Kosloski, 1996). Faculty members may have in some sense a unique combination of control over their circumstances of work and personal investment in the job situation, with an identity tied to their work through their academic discipline, not necessarily to a particular institution.

The elimination of the exemption for tenured faculty members in the 1986 amendments to ADEA spurred a flurry of research activity focused on assessing the impact of eliminating mandatory retirement ages (uncapping) in higher education. Some studies were started from the premise that there would be unprecedented shortages of faculty as faculty members hired to meet the demand of the baby boom generation approached traditional retirement age (Hammond & Morgan, 1991; Holden & Hansen, 1989).

Many of the studies in the faculty retirement literature refer to projections that the number of faculty retirements in 2002-2003 would be between 24 and 44 percent higher than the number of retirements in 1987-88 (Lozier & Dooris 1991a, 1991b). These projections were based on surveys of over 35,000 faculty members at 101 doctoral, research, comprehensive, and general baccalaureate institutions combined with estimates of the number of faculty who were

younger than 55 from National Science Foundation data on the ages of doctoral scientists and engineers. Their retirement projections were based on a comprehensive study of faculty retirement behavior and factors influencing the retirement decision (Lozier & Dooris, 1991a, 1991b).

Others researchers attempted to determine the likelihood that aging faculty would postpone retirement indefinitely in the absence of mandatory retirement. And still others attempted to link the impact of uncapping mandatory retirement ages for faculty and changes to the tenure system.

The seminal work with respect to uncapping mandatory retirement ages is the report of the Committee on Mandatory Retirement in Higher Education (1991) that reviewed the work that had been done to date on the impacts of uncapping. The committee was established by the National Academy of Sciences as requested by Congress to study the consequences of eliminating mandatory retirement for tenured faculty. Members of the committee concluded that the evidence did not support continuing an exemption for tenured faculty members that was included in the 1986 amendments to ADEA and was scheduled to expire on January 1, 1994. In reaching this conclusion, the committee members considered age discrimination, the effects of uncapping faculty retirement, faculty performance and institutional quality, pensions, retirement programs and costs, and retirement incentive programs. The committee recommended that Congress and regulatory agencies assist research institutions in particular to minimize the potential adverse effects of uncapping mandatory retirement ages (Hammond & Morgan, 1991).

The committee had a reasonable amount of research to draw upon in reaching their conclusions. There had been a great deal of discussion regarding the impact of eliminating mandatory retirement ages for tenured faculty. Topics ranged from the impact on faculty

retirement patterns, changes in retirement benefits, and affects on academic tenure (see for example, Holden & Hansen, 1989). The results from these studies were remarkably similar. The overall conclusion was that raising the retirement age from 65 to 70 has relatively small, short-term effects on the retirement timing of tenured faculty members and uncapping mandatory retirement altogether does not alter retirement age by much, but may lead to substantially higher pensions for those faculty who continue to work (Holden & Hansen, 1989).

While the short-term impacts of eliminating mandatory retirement were not considered detrimental to higher education in general, researchers were less certain of the long-term impacts of uncapping and the effects it could have on tenure. There are different perspectives about the impact of eliminating mandatory retirement ages on tenure. Some researchers point to potential unintended consequences and believe that eliminating mandatory retirement ages for tenured faculty will result in an erosion of the tenure system as institutions become more hesitant to offer tenure-track positions to aspiring faculty members (Ruebhausen, 1989). Academic administrators may find the flexibility of hiring faculty part time or on short-term contracts appealing. As faculty members leave the institution to accept another position or retire, their slots may be filled with someone not on the tenure track. If this happens often enough, the tenure system may be eroded in the process.

Others have suggested that it could lead to more flexible employment relationships between institutions and faculty members (Baldwin & Chronister, 2001; Finkin, 1989). The traditional full-time tenure track model has just three levels for promotion built into it: (a) assistant professor, (b) associate professor, and (c) full professor. The academic rank ladder leaves little room for recognition for outstanding contributions. Some academic departments recognize individual's contributions by expanding their title to include other responsibilities. It is

common to see titles such as associate professor and center director, for example. As large numbers of tenured faculty hired to teach the baby boom generation and hired from the baby boom generation begin to reach retirement age, the assumptions of these researchers will be put to the test.

The higher education literature provided little guidance about the major factors affecting faculty retirement decisions, but retirement research literature on the U.S. work force in general did provide some clues about the variables that should be included in analyses on the topic (Lozier & Dooris, 1991a,1991b). As part of their comprehensive study, Lozier and Dooris (1991) conducted a survey of 747 faculty members age 55 and over who had retired from 101 4-year institutions. The response rate was 69%. They provided a rank order of the importance of 18 factors derived from their review of the literature that forms the basis of research on factors influencing individual faculty retirement decisions. Overall financial status and eligibility for full retirement benefits received the highest ratings of importance on average. But, "every factor received ratings at both extremes of the scale" (Lozier & Dooris, 1991a, p.102). One of the strengths of the study is that it is generalizable across institutions, although it excluded 2-year institutions from the analysis.

Another important study documenting the complexity of the retirement decision-making process explored predictors of early retirement among university faculty (Monahan & Greene, 1987). They conducted interviews between January and March 1985 with a stratified sample of equal numbers of retirees and non-retirees (eligible, but not retiring) at one institution. Their research was based on 35 retirees and 37 non-retirees out of a possible 40 in each category. The study lacked generalizability beyond a single institution, however the authors provided valuable constructs for theory building aimed at understanding the factors influencing individual

retirement decisions. They analyzed five categories of predictors including (a) demographic characteristics and health status, (b) financial characteristics, (c) productivity, (d) satisfaction, and (e) institutional status (Monahan & Greene, 1987).

Although no one factor emerged as dominating the retirement decision-making process, finances appear to play an important role. Faculty members who chose to retire early were in poorer health and stood to lose a smaller proportion of their income upon retirement than those who chose not to retire early. In addition, faculty members who chose to retire early were less satisfied with their teaching assignments, rated themselves lower in research productivity, and experienced a poorer sense of fit in their department (Monahan & Green, 1987).

Non-financial Factors Related to Faculty Retirement

The final section in this chapter summarizes findings from the faculty retirement literature related to variables considered in the current study. Some of the items considered have been included in numerous studies, while available literature on others is sparse. Four categories of variables were included primarily based on a review of the two studies above, supplemented by results from other studies. They were (a) employment characteristics, (b) demographic characteristics, (c) activity measures, and (d) satisfaction items.

Employment Characteristics

This section looks at the employment characteristics included in the study. Specifically, it provides a review of literature related to type and control of institution, program area, the number of years faculty have been in their current position, and employment status.

Type and Control of Institution.

Many of the conclusions drawn about the potential impact of eliminating mandatory retirement ages for tenured faculty members were based on a study conducted jointly by the

Consortium on Financing in Higher Education (COFHE) and the Association of American Universities (AAU). COFHE and AAU designed the study, in part, to assess the impact of changes in ADEA, to provide information on the then current faculty retirement environment, and to provide a starting point for exploring future faculty retirement plans. The study consisted of a combination of data collection and policy analysis on early retirement programs and faculty age distributions. This study is often cited when considering differences in faculty retirement patterns by type of institution because the findings revealed greater variability in the average age of retirement among faculty members at independent institutions than for those at public colleges and universities. The study also revealed that the average age of retirement at independent institutions was one to two years greater than for public institutions (Montgomery, 1989). This means that the impact of eliminating mandatory retirement ages for tenured faculty may be greater at independent institutions than at public institutions. Community colleges were not included in the study.

Retirement is just one reason why faculty members leave an institution, however. Research on mobility in general also provides information about retirement decisions based on issues such as opportunity to move, career stage, and institutional context (Dey, Vander Putten, Han, & Coles 1997). Factor analysis and regression were used to focus on (a) the degree to which faculty members thought that they would leave their current jobs in the next three years, and (b) the reasons faculty said would influence their decision to leave (Dey, Vander Putten, Han, & Coles 1997). They found differences in the factors that distinguish mobility decisions for faculty members in research institutions and for faculty members in two-year institutions, respectively (Dey, et. al., 1997).

Type and control of institution are important factors defining the context of the work

environment for faculty. Another important variable defining the context of the work environment for faculty is academic program area. The next section reviews faculty retirement literature related to differences among faculty members by academic program area.

Academic Program Area.

In addition to type and control of institution, the various academic disciplines act as somewhat unique "labor markets," affected in different ways by changing enrollments, doctoral pipeline patterns, gender composition of the faculty, and many other issues. Understanding faculty work may require disaggregation into the "small worlds" of the individual disciplines and the particular contexts of the many strata of institutions (Clark, 1997).

Few researchers have focused in-depth on a particular program area or academic discipline when studying faculty retirement. Part of the reason for this omission is logistical. Constraints in developing an appropriate sampling frame and ensuring adequate sample sizes for analysis generally preclude researchers from studying this issue except at a single institution or at a small group of institutions. Rees and Smith (1991) provide one exception. They focused their research specifically on faculty retirement in the arts and sciences. The study was based on the age distribution of tenured faculty in the arts and sciences and faculty flow for these disciplines in 33 institutions. They found no significant difference in mean retirement age between capped and uncapped institutions and no support for the concern that uncapping would reduce institutional vitality.

They did predict, however, that a few institutions might be confronted with the possibility that many of their faculty members will choose to work past age 70 (Rees & Smith, 1991). This finding suggests that academic administrators need to be aware of the age distributions within specific departments as well as across the institution as a whole.

There is a statistically significant relationship between academic discipline and four factors related to retirement including (a) desirability of more personal/family time, (b) working conditions and policies, (c) state of the economy, and (d) budget cutbacks. Agriculture faculty members were more concerned than respondents in other disciplines about general working conditions and policies about budget cutbacks. Education faculty members were more concerned than respondents in other disciplines about the general state of the economy and about personal and family time. Library science faculty were concerned about working conditions and policies and do not view other employment opportunities as a critical factor in their retirement planning (Lozier & Dooris, 1991b).

Another exception looks at determinants of agricultural economics faculty retirement specifically. Early retirees are contrasted with late retirees. Results indicated years of service, number of children, mental health, health trends, age at initial employment, and age of spouse are positively related to retirement age. For agricultural economics faculty, having an extension appointment was inversely related to retirement age. Involvement in extension or public service varies across disciplines and may be an important consideration for some faculty members. Financial characteristics were also inversely related to retirement age (Broder, White, & Taylor, 1991). This study highlights the need to consider program area when examining factors related to the faculty retirement process.

Employment Status.

Studies have not routinely included employment status as a factor influencing individual retirement decisions. However, incentive plan options take many forms and many phased or partial retirement programs allow employees to retire and continue working part time (Chronister & Kepple, 1987; Martin, 1993; Patton, 1983). The prevalence of these programs suggests

employment status may be related to the individual retirement decision.

Years in Current Position.

Accumulating years of service is related to eligibility for full retirement benefits. Broder, White, and Taylor (1991) found a positive relationship between years of service and retirement age, for example.

Demographic Characteristics

As previously noted, individuals are influenced by a complex set of factors when making a decision about whether or not to retire. In addition to employment characteristics, demographic characteristics such as income, age, gender, marital status, number of dependents, and region may influence a faculty member's decision to retire. This section looks at the demographic factors that may affect retirement decisions of faculty.

Income.

A faculty member's decision to retire early reflects a complex set of interacting factors, no one of which clearly dominates the process. Finances appear to play an important role in the decision. Lower salaried faculty may be more likely to retire. Lower levels of identification and commitment to an organization may lead to a higher probability of retiring. Those most productive in pedagogy and service tend to select early retirement, while those most productive in research do not (Monahan & Greene, 1987). As in the retirement literature in general, the research results are remarkably similar when it comes to the financial aspects of the retirement decision-making process. Money as a factor in the retirement decision matters to nearly everyone, but the effects of less tangible elements of professional satisfaction matter also (Lozier & Dooris, 1991a,1991b; Monahan & Greene, 1987).

As with the general workforce, being able to afford retirement is a basic consideration for

faculty members. Age may be a mitigating factor in the decision since accumulating age is associated with accumulating additional years of employment and increased pension and social security benefits eligibility. The goals of the ADEA amendments included not only protecting older workers from age discrimination, but also increasing participation of older workers in the workforce. But, faculty members tend to retire later than other workers (Quinn & Burkhauser, 1983). How age affects a faculty member's decision to retire is an important variable to consider.

Age.

The average age of faculty increased from 47 to 48 years between the fall of 1987 and the fall of 1992 (Chronister, et. al., 1997). There is uncertainty among faculty about when they will retire. Thirty percent (30%) of full-time and 35% of part-time instructional faculty and staff reported that they do not know the age at which they are likely to retire. However as age increases the percentage reporting they do not know the age at which they were likely to retire decreases (Chronister, et. al., 1997).

Early retirement may offset the effect of uncapping on the increase in the average age at retirement (Carnegie Foundation, 1990). The younger the faculty member, the more likely they will show an interest in early retirement. In other words, if younger faculty members are more likely to accept early retirement incentive options, then including these faculty members in the calculation may artificially lower the average age at retirement. Two indicators may be needed. The average age at retirement for all faculty members and the average age at retirement for faculty who have not participated in an incentive early retirement program.

Gender.

Women are underrepresented among older faculty members relative to men. Seven percent of male faculty members were 65 or older in the fall of 1998 compared with three

percent of women faculty members. Perhaps this is part of the reason why few studies have considered the affects of gender on a faculty member's decision to retire. Lozier and Dooris (1991a,1991b) provide one exception. Working conditions and policies make a difference in the retirement decisions of women. Administrative pressure and interaction with co-workers affect the desirability of continued employment for women faculty (Lozier & Dooris, 1991a, 1991b).

Marital Status.

Three of the 18 factors Lozier and Dooris (1991) included in their study of factors influencing retirement decisions dealt with family issues: (a) desirability of more personal/family time, (b) health of spouse, and (c) timing of spouse's retirement. Lozier and Dooris (1991) did not include marital status specifically in their study.

Desirability of more personal/family time was the third most important factor influencing the retirement decision. Health of spouse was rated twelfth and timing of spouse's retirement received the lowest rating of importance on average (Lozier & Dooris, 1991a).

Monahan and Greene (1987) hypothesized that being currently married would increase the propensity to accept early retirement, however they found marital status is not a significant predictor of retirement. Nonetheless, marital status is included in the current study because the general retirement literature provides a strong case for its inclusion. Within the framework of the family, couples' retirement decisions influence one another. In other words, husbands and wives coordinate their retirements so that they occur at the same time (Hurd, 1989).

Number of Dependents.

Studies have not routinely included number of dependents as a factor influencing individual retirement decisions for faculty. However, hypotheses related to marital status may be applied to number of dependents also. One might expect the presence of dependents to affect

retirement decisions, although, economic studies generally conclude that the presence of dependents does not affect women's retirement decisions (Weaver, 1994). Since the focus of the current study is on the non-financial factors related to the retirement process, however, both marital status and number of dependents are included.

Region.

Researchers have not tested whether or not geographic region influences individual faculty retirement decisions. Part of the reason for this may be that few studies have been national in scope. It is included in the current study as a non-financial factor related to the retirement process to determine if it distinguishes faculty members who have previously retired from another position from those who have not and faculty members with no plans to retire from those who have some plans to retire.

One reason region may be an important variable to consider is that many people associate changing residence with retirement. Although climate is one of the least important criteria influencing moves, educational attainment is a particularly important factor related to migratory behavior among the older population. Well-educated people are more likely than less well-educated people to experience long moves (Atchley, 1976). Since faculty members tend to be better educated than the general public (Finkelstein, 1984), their migratory behavior may also be different. In addition, the population aged 55 or older varies by region and there are different growth rates projected for older Americans living in different regions of the country (Yntema, 1997).

Activity Measures and Satisfaction

Beyond structural characteristics that define the context of the work environment for faculty (i.e., employment characteristics) and demographic characteristics, characteristics of the

position itself may also influence the decision to retire. How faculty members spend their time and their satisfaction with various aspects of the job may influence the decision to retire. This section reviews literature related to characteristics of the faculty member's job including activity measures and satisfaction. Specifically, it provides a review of literature related to (a) research productivity, (b) teaching, and (b) satisfaction.

Research Productivity and Teaching.

Implicit in both of the primary arguments against eliminating mandatory retirement ages for faculty as part of the ADEA is the assumption that aging is related to decreases in research productivity and teaching effectiveness. Bayer and Dutton (1977) examined the empirical relationship between career age and several measures of research and scholarly activity for seven disciplines. Kinney and Smith (1992) conducted a similar analysis of the relationship between age and student evaluations of teaching effectiveness. Both studies concluded that age is a poor predictor.

Research productivity and teaching have been linked to the retirement decision-making process however. Tenured faculty members retire later when their positions consist largely of research, their teaching loads are relatively light, and their students are good (Smith, 1991). Self-perceived recent productivity in teaching, research, and community service were all significantly related to early retirement decisions (Monahan & Greene, 1987). "Those who rated themselves relatively high on teaching and community service were more likely to choose early retirement, while those who rated themselves high on research were more likely not to retire" (Monahan & Greene, 1987, p.50).

Furthermore, differences in mobility decisions of faculty members by type of institution are related to the activities faculty members are engaged in at the respective institutions.

Mobility decisions of faculty at research institutions were positively influenced by research opportunities and negatively influenced by increased teaching loads, while two-year institution faculty mobility decisions were negatively influenced by research opportunities and positively influenced by teaching opportunities (Dey, et. al., 1997). These results suggest that fit matters and that academic administrators can influence faculty productivity, retirement, and other departure plans by understanding the need to balance demands for research and teaching within the context of the institutional mission, taking into account the interests of faculty members.

Projections indicate that by the year 2000, 50% of full-time faculty members will be over the age of 55 (Bland & Bergquist, 1997). NSOPF: 93 data were the source for these projections. While the prediction was off the mark, the authors offered sound suggestions to academic administrators. Academic administrators should seek to understand the ways in which senior faculty can maintain their vitality and avoid burnout (Bland & Bergquist, 1997). Internal and external factors influence faculty productivity and policies and procedures can contribute to the vitality of faculty members, especially those over 50, for the benefit of both individual faculty members and the institution overall (Bland & Bergquist, 1997). In research universities, more flexible academic personnel policies in support of senior faculty development and renewal could help accomplish this goal (Crawley, 1995).

The context of the work environment is an important non-financial factor related to the retirement process. The current study extends the literature by including detailed measures of faculty activity on a national scale. Six measures of faculty activity are included in the current study including (a) the percentage of faculty who taught classes for credit to undergraduates, (b) the average classroom credit hours taught, (c) the average total student credit hours taught, (d) the average for credit class size, (e) recent publications, and (f) career publications.

Faculty retirement studies have included variables designed to measure actual characteristics of the position as well as attitudes about the work environment. Both kinds of variables describe the characteristics of the position since the context of the work environment is defined in some ways by employee's perceptions of it (Graebner, 1980; Hanisch & Hulin, 1990; Lozier & Dooris, 1991b; Monahan & Greene, 1987). Satisfaction items are often used to assess employee's perceptions of the work environment. The next section provides a review of the literature related to satisfaction and the retirement decision for faculty.

Satisfaction.

Dissatisfaction with teaching assignments was a significant predictor of early retirement (Monahan & Greene, 1987). Many full-time instructional faculty and staff willing to take an early retirement option express dissatisfaction with aspects of their work. Fifty-five percent (55%) of faculty express dissatisfaction with the time that they have available for keeping current in their field. Forty-seven percent (47%) express dissatisfaction with their salaries. Thirty-seven percent (37%) express dissatisfaction with their workload (Chronister, Baldwin, & Conley, 1997).

Some have described individual retirement decisions as influenced by a trade-off between increased leisure time and greater wealth. Job satisfaction can influence this decision. An individual who wants to maximize wealth and who still receives substantial satisfaction from continuing to work may postpone retirement (Lewis, 1996). Three measures of satisfaction were included in the current study: (a) satisfaction with instructional duties, (b) satisfaction with other aspects of the job, and (c) satisfaction with the job overall.

Summary

The decision to retire is an individual decision and the significance of personal

interactions, the work environment, and leadership cannot be discounted. The extent to which deans and department heads can recognize and act upon the full range of financial and non-financial variables is of critical importance in influencing personal career and retirement behaviors of faculty members (Lozier & Dooris, 1991).

Most of the studies on factors that affect faculty retirement decisions have focused on a small number of institutions (Monahan & Greene, 1987; Rees & Smith, 1991), institutions of like type (Montgomery, 1989), or on faculty members in only one institution (Dorfman, 2000; Monahan & Greene, 1987). Studies that are national in scope are rare. One recent study was based on a random, national sample of faculty ages 56 and older, but achieved only a 17% response rate and did not provide an explanation of how the list for the sample was obtained (Bahrami, 2001).

There are two exceptions to this pattern. Lozier and Dooris (1991) included faculty from a number of institutions but did not include faculty from community colleges. Dey et. al. (1997) also studied a broad sample but the topic of the study focused more generally on mobility patterns rather than on the retirement decision-making process.

The present study contributes to the body of work on the non-financial factors influencing faculty retirement in several ways. It provides information on a subgroup of faculty that has not been studied before with respect to the retirement decision-making process (i.e., faculty who identified themselves as having previously retired from another position).

Researchers have acknowledged semi-retired faculty as a distinct group of part-time faculty, but little is know about them. Tuckman (1978) analyzed data from a sample of part-time faculty collected by the American Association of University Professors (AAUP) including 107 semi-retired faculty members. While Tuckman's (1978) purpose was to understand who is part-

time in academe, he did analyze select characteristics of the members in each group and highlighted major differences among them. The percentage of women in the semi-retired category was low relative to the other groups, reflecting perhaps the low percentage of older women in academe. About one-half of the semi-retired faculty members had taught full-time, suggesting that many of them were opting for part-time work as they transitioned into retirement.

On the other hand, researchers interested in retirement in general have studied bridge jobs and partial retirement (Feldman, 1994; Honig & Hanoch, 1985; Ruhm, 1990; Weckerle & Shultz, 1999). Yet the majority of research available still fails to recognize these distinctive aspects of the retirement process (Henretta, 1997).

The present study also broadens the scope of inquiry by including community colleges in the model. The study includes variables that have not been analyzed using a nationally representative dataset of faculty members such as marital status, number of dependents, and region. And it is conducted using the most recent source of national data on faculty available.

Chapter Three – Method

This chapter describes the methodology used to conduct the study, which was based on secondary data analysis of the U.S. Department of Education's 1999 National Study of Postsecondary Faculty (NSOPF). The chapter begins by re-stating the purpose, goals, and research questions. The chapter then provides an overview of the population of interest (i.e., faculty and instructional staff age 55 or older), a basic description of the sample selection, weighting, instrumentation, data collection procedures, validity and reliability, and treatment of missing data. The reader is encouraged to consult the forthcoming 1999 NSOPF Methodology Report for more detail about these methods. The chapter then introduces the factors examined in this study and how the factors were measured. Finally, the chapter provides a discussion of the data analysis procedures used in this project.

The purpose of this study was to examine the non-financial factors that affect faculty retirement patterns and plans by investigating (a) differences in those who have retired from one job to take another and those who have not and (b) differences in older faculty members who are not at all likely to retire in the next three years and those who are very likely or somewhat likely to retire.

The goals of the study were to (a) describe the characteristics of faculty and instructional staff who have previously retired from another position, (b) determine if various demographic and employment characteristics distinguish them from their colleagues who are of similar age, but have not retired from another position, (c) describe the characteristics of older faculty members (55 and older) with no plans to retire in the next three years, and (d) determine if various demographic and employment characteristics distinguish them from their colleagues who are of similar age, but are very likely or somewhat likely to retire in the next three years.

This study addressed the following four questions specifically:

1. What are the characteristics of faculty members who have previously retired from another position (in or outside of higher education)?

2. Do employment status, type of institution, institutional control, academic program area, age, years in position, gender, marital status, number of dependents, region, satisfaction, teaching load, research productivity, basic salary of respondent, and spouse or significant other income distinguish faculty members who have retired from another position from those in the same age group who have not retired from another position?

3. What are the characteristics of older faculty members (those 55 and older) who have no plans to retire in the next three years?

4. Do employment status, type of institution, institutional control, academic program area, age, years in position, gender, marital status, number of dependents, region, satisfaction, teaching load, research productivity, basic salary of respondent, and spouse or significant other income distinguish older faculty members who have no plans to retire in the next three years from those in the same age group who do have plans to retire?

Description of the Population

The current study focused on faculty and instructional staff age 55 or older in the United States. The reader is reminded that the term older faculty will be used to refer to this population of interest. Of the 1.1 million (1,074,000) faculty and instructional staff employed by public and private not-for-profit 2-year-and-above postsecondary institutions in the fall of 1998, 30% (319,270) were 55 years old or older (Zimbler, 2001). Thirty-one percent of full-time (31%) and 27% of part-time faculty members were in this age group. Selected characteristics of the population of interest are shown in Table 1.

Table 1
Selected Estimated Characteristics of the Population of Interest (Faculty and Instructional Staff Age 55 or Older)

Characteristic	Frequency	Percentage	Average
Employment Status			
Full-time	192,520	60.3	
Part-time	126,750	39.7	
Institution Type			
4-year	233,706	73.2	
2-year	85,564	26.8	
Gender			
Male	222,531	69.7	
Female	96,739	30.3	
Age			
55–64	242,007	75.8	
65–69	49,168	15.4	
70+	28,096	8.8	
Average Age	319,270		61.2
Years in Current Position			
1–5	73,432	22.9	
6–10	51,083	15.7	
11–20	70,239	21.7	
21–30	79,818	25.4	
31–40	44,698	14.4	
Average Years in Current Position	319,270		16.6
Previously Retired			
Yes	70,112	22.0	
No	249,158	78.0	
Retirement Plans			
No Plans	157,719	49.4	
Some Plans	161,551	50.6	

NOTE: Averages refer to calculated means.
SOURCE: Weighted population estimates and percentages from U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Sixty percent (60%) of older faculty members were employed full time. Most older faculty members were employed in 4-year institutions (73%). Figure 2 shows the percentage distribution of older faculty by type of institution employed in the fall of 1998. Thirty-eight percent (38%) of older faculty were employed in 4-year doctoral institutions, 35% were employed in 4-year non-doctoral institutions, and 27% were employed in 2-year institutions.

Older faculty members were more likely to be male than female. Seventy percent (70%) of older faculty members were male. Thirty percent (30%) of older faculty were female.

Older faculty members were 61 years old on average in the fall of 1998. Figure 3 shows the percentage distribution of older faculty by age category. Age categories were defined based on substantive considerations. In part, age 55 was chosen to delimit the study because other researchers have used age 55 to delimit their studies (Chronister, Baldwin & Conley, 1997; Dey Vander Putten, Han & Coles, 1997; Lozier & Dooris, 1991a, 1991b). In addition, age 55 was selected because there is less certainty among younger faculty members about the age at which they are most likely to retire (Chronister, Baldwin & Conley, 1997). Age 65 was chosen as the lower cutpoint for the middle category because age 65 has historically qualified workers for full social security benefits (Graebner, 1980). Finally, age 70 was selected as the lower cutpoint because 70 was the most common age of mandatory retirement prior to uncapping.

Three quarters (76%) of older faculty members were in the youngest age category (55–64). Fifteen percent (15%) were 65–69 and 9% were age 70 or older. Older faculty members had held their current job 17 years on average.

A method of drawing a representative sample of the faculty population was developed for the 1999 National Study of Postsecondary Faculty. A basic description of the sample selection, weighting, instrumentation, data collection procedures, validity and reliability, treatment of

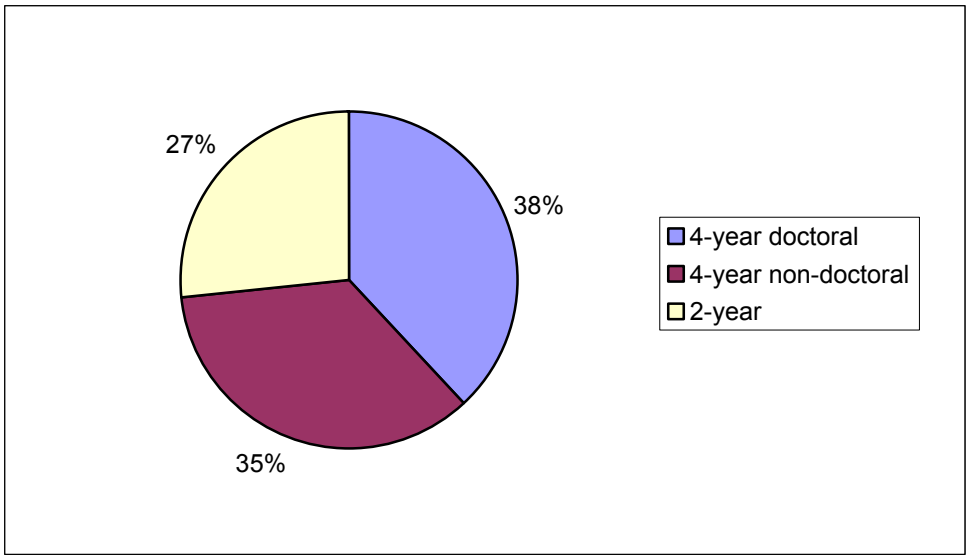

Figure 2. Percentage Distribution of Older Faculty by Type of Institution Employed: Fall 1998

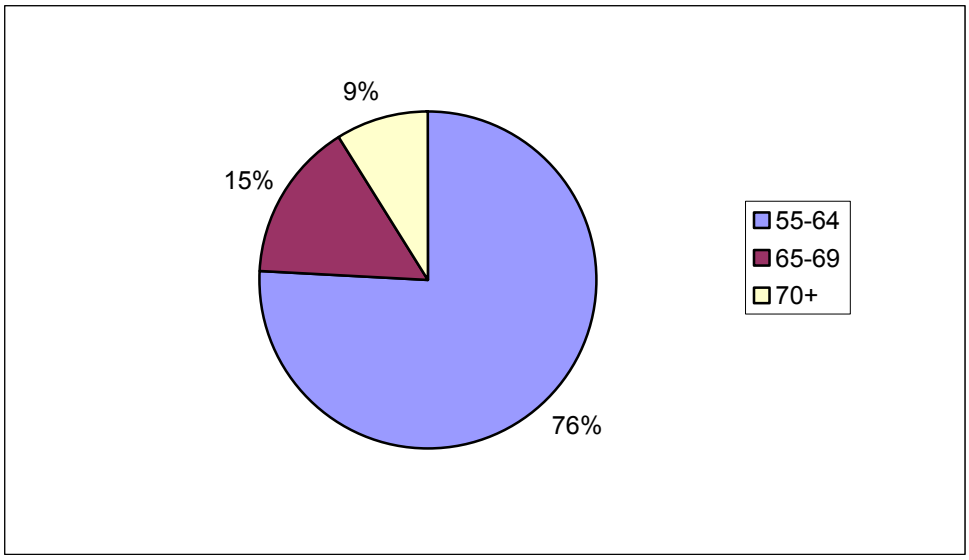

Figure 3. Percentage Distribution of Older Faculty by Age Category: Fall 1998

missing data, and data analysis procedures comprise the remaining sections of this chapter.

Sample Selection

This research requires a sufficient sample of older faculty members at different stages of the retirement process with variation among them on a wide range of individual and employment characteristics. Because NSOPF: 99 was designed to provide nationally representative profiles of faculty and instructional staff in two-year, four-year, doctoral-granting, public and private non-proprietary institutions, the dataset offers a large sample of older faculty members. The NSOPF: 99 dataset contains responses from 18,043 faculty and instructional staff of whom 5,330 were 55 years old or older in the fall of 1998. In the present study, the data set was restricted to those 55 or older because there is less certainty among younger faculty members about the age at which they are most likely to retire (Chronister, Baldwin, & Conley, 1997).

The NSOPF: 99 sample was selected in three stages. The first- and second-stages were stratified, systematic samples. Initially, 960 postsecondary institutions were selected and asked to provide lists of names, contact information, and demographic characteristics of their faculty to establish a sampling frame. "A sampling frame is the complete list of all units from which the sample is drawn" (Bailey, 1982, p. 85). Eight hundred and nineteen of the 960 institutions provided lists of their faculty.

In the second stage of sampling, 28,576 faculty members were selected from the lists. Individual faculty members were the unit of analysis or the "objects of study" (Bailey, 1982, p. 85).

Time and budget constraints were cited as reasons for conducting the third stage of sampling. In the third stage of sampling, a subsample was taken from the non-responding faculty. After the subsample was taken, nonresponse follow-up was conducted only for faculty

and instructional staff who were part of this “active” sample.

As is the case in almost all survey research, some of the sampling units were identified as ineligible. Individuals were mistakenly included on the lists for various reasons including (a) they were not employed at the institution during the fall 1998 semester, (b) they identified themselves as teaching or research assistants, and (c) death. In addition, some of the questionnaires were undeliverable because of insufficient address information. There were 1,532 individuals identified as ineligible.

The final NSOPF: 99 sample included 19,813 faculty and instructional staff. The response rate is calculated using the base after subsampling was completed. The final response rate for NSOPF:99 was 91% (18,043/19,813). Using the original eligible sample, the response rate was 68% (18,043/27,044) (Abraham, Steiger, Montgomery, et. al, forthcoming). Further detail about each of the three sampling stages is given in turn.

The sampling frame for the first stage of sampling was the 1997-98 Integrated Postsecondary Education Data System (IPEDS) Institutional Characteristics (IC) and the 1997 and 1995 IPEDS Fall Staff data files. The frame was limited to those institutions that met the eligibility criteria for NSOPF. To be considered NSOPF eligible, institutions had to be Title IV-participating, two-year or four-year degree granting, public or private, not-for-profit institutions. In addition, institutions had to offer programs designed for high school graduates. They had to be open to persons other than employees of the institution and they had to be located in the 50 states or the District of Columbia. The eligible sampling frame of institutions consisted of 3,396 institutions (Abraham, Steiger, Montgomery, et. al, forthcoming).

Next, the institutions were classified into eight categories based on type of institution, highest degree awarded, and size of faculty:

Stratum 1: Public master's universities and colleges (comprehensive) with at least 800 faculty;

Stratum 2: Public master's universities and colleges (comprehensive) with fewer than 800 faculty;

Stratum 3: Private master's universities and colleges (comprehensive);

Stratum 4: Public baccalaureate colleges, including liberal arts colleges, schools of engineering, nursing, and business, teacher's colleges, and other specialized schools;

Stratum 5: Private baccalaureate colleges, including liberal arts colleges, schools of engineering, nursing, and business, teacher's colleges, Bible colleges and theological seminaries, and other specialized schools;

Stratum 6: Medical schools and medical centers;

Stratum 7: Associates of Arts colleges;

Stratum 8: Research universities and other doctoral institutions.

First-stage sampling was carried out separately within each stratum. The number of sample institutions allocated to each institutional stratum was proportional to the estimated number of faculty members in that stratum derived from the IPEDS Fall Staff data file. Three of the strata had sample sizes either equal or close to their population sizes. All of the institutions in strata 1, 6, and 8 were selected with certainty. The remaining institution selections were allocated across the other five strata according to their share of the total faculty in the U.S. There were 960 institutions selected during the first stage of sampling (Abraham, Steiger, Montgomery, et. al, forthcoming).

Information packets were mailed to the chief academic officers (CAO) of the 960 institutions introducing them to the study (NSOPF). The cover letter explained the purpose of the

study and asked the CAO to designate an individual to serve as institution coordinator for the study (Abraham, Steiger, Montgomery, et. al, forthcoming).

A notification letter was mailed to each designated coordinator on October 5, 1998. The letter introduced the coordinator to the study, described the desired schedule for the study, and described the roles and duties of the institution coordinator (Abraham, Steiger, Montgomery, et. al, forthcoming).

A complete data collection packet was mailed to the institution coordinators on October 23, 1998. The mailing was timed to immediately precede the November 1, 1998 reference date for the fall term. The institution coordinator was asked to provide lists of names, contact information, and demographic characteristics of their faculty and instructional staff as of November 1, 1998 to establish a sampling frame. Detailed instructions were provided to the institution coordinators describing who should be included on the lists of faculty that comprised the sampling frame. The sampling frame consisted of anyone with faculty status, regardless of whether or not they have instructional responsibilities, and all employees with instructional responsibilities, except (a) graduate teaching assistants, (b) military personnel who teach only ROTC courses, and (c) employees of the institution teaching exclusively outside of the U.S. Eight hundred and nineteen institutions ultimately provided lists of their faculty (Abraham, Steiger, Montgomery, et. al, forthcoming).

As institution lists came in, they were compiled into a database. Sample selection was carried out separately for eight batches of institutions. Faculty were grouped into five strata based on their demographic characteristics including (a) Hispanic faculty, (b) African American faculty, (c) Asian and Pacific Islander faculty, (d) full-time female faculty (who were not Hispanic, black, Asian or Pacific Islander), and (e) all other faculty. A sixth stratum was created

for faculty missing demographic data. In addition, within each institution and stratum, faculty members were sorted by academic program area or discipline (Abraham, Steiger, Montgomery, et. al, forthcoming).

During the third stage of sampling a subsample of the nonrespondents was drawn for intensive follow-up. Institutions were grouped into three categories:

Subsample Stratum 1: Within institutions that had 15 or fewer initial faculty selections, all remaining nonrespondents (a total of 431) were retained in the subsample with certainty;

Subsample Stratum 2: Within institutions with more than 15 initial faculty selections, but fewer than 15 respondents at the time of subsampling, enough nonrespondents were selected to bring the subsample size for each institution to 15 (a total of 1,420);

Subsample Stratum 3: Within institutions with more than 15 initial faculty selections and 15 or more respondents at the time of subsampling, subsampling was carried out at a lower rate (a total of 1,078 out of the 6,251 nonrespondents were selected for the subsample within those institutions).

In addition, all nonrespondents from 39 private doctoral institutions (n=430) were retained in the subsample. The total subsample included 3,359 faculty selections (Abraham, Steiger, Montgomery, et. al, forthcoming).

Weighting

NSOPF: 99 used a complex sample design to address two basic data collection problems. The two problems are (a) the lack of a sampling frame and (b) ensuring that there are enough respondents with certain characteristics to allow researchers to analyze various segments of the population (Thomas & Heck, 2001).

While the population of interest is faculty members in the U.S., there is no list of faculty members available from which to draw a simple random sample. In other words, before the sample could be drawn the sampling frame had to be constructed for that purpose. Stratifying the population based on known information with analytical justification (e.g., in this case type and control of institution and size of the faculty population within institutions) is an efficient way to compile a sampling frame without placing unnecessary burden on institutions. It is not cost-effective to ask all institutions to provide lists of their faculty members when only a small percentage of them are selected for the sample relative to the entire faculty population. Imagine collecting lists of more than one million names only to select 20,000 – 30,000 (2-3%) of them for the sample.

The second problem arises because many researchers are interested in analyzing data about specific subpopulations such as women faculty, full-time women faculty, or full-time women faculty in research institutions. Oversampling, or selecting sample units using unequal probabilities of selection is a common technique used to address this problem. In other words, if the goal is to have an adequate number of full-time women faculty members in the sample, then full-time women faculty may be sampled at a higher probability of selection than others in the sample (Thomas & Heck, 2001).

However, taken together these solutions to basic data collection problems pose other problems for researchers interpreting the results. First, using unequal probabilities of selection may produce a set of observations, if taken in its raw form, that misrepresents the population (Thomas & Heck, 2001). A simple example illustrates this point. In a population of 1,000 faculty members in which there are 700 males and 300 females, the distribution is 70% male and 30% female. If a sample of 325 faculty members was drawn and ½ of the women (150) were selected

to ensure adequate representation, then ¼ (175) of the men would be selected. The distribution by gender reflected in the sample (54% male and 46% female) is quite different from the distribution in the population. In other words, there would be a disproportionate number of women faculty members in the sample relative to the total number of women in the faculty population (Thomas & Heck, 2001).

Using sample weights corrects for unequal probabilities of selection and makes the data representative of the target population (Thomas & Heck, 2001). The weight determines how many sampling units (faculty members) each response represents. In its most basic form, the weight is the reciprocal of the probability of selection. In the previous example where the probability of selection for women faculty was .5 the weight would equal two. In other words, each woman faculty member in the sample would represent two women faculty members from the population. On the other hand, since the probability of selection for male faculty members was .25 the weight would equal four. Each male respondent would represent four males from the population. The sum of the weights is equal to the number of faculty in the population.

Weighting for NSOPF:99 consisted of several steps. Again, the reader is encouraged to consult the forthcoming 1999 NSOPF Methodology Report for more detail about these methods. A brief description of the process will be provided here. Generally, the process used to calculate the final weight for each faculty member was based on (a) an institution weight derived from the institutions that provided lists of their faculty members for the study, (b) selection probabilities for the faculty, (c) the probability of retention into the subsample, (d) nonresponse, and (e) deviance from the best estimates of faculty at different types of institutions (Abraham, Steiger, Montgomery, et. al, forthcoming).

A base weight was calculated for both responding and nonresponding institutions. The

base weight was the inverse of the institution's selection probability. Recall that 960 out of a possible 3,396 institutions in eight strata were selected to participate in the study. All of the institutions in three of the strata were selected with certainty. The base weight for these institutions was one. Other institutions were sampled with unequal probabilities of selection by stratum. For example, in the second strata (small public masters) the selection probability was .429752 (104/242) and the base weight was 2.326923 (1/.429752) (Abraham, Steiger, Montgomery, et. al, forthcoming).

Not all of the sampled institutions elected to participate in the study, however. Of the 960 institutions sampled, 819 provided lists (85.3%). The second step in the weighting process adjusted the institution-level base weights to compensate for institution-level nonresponse. Weights for nonresponding institutions were set to zero. The base weight for responding institutions was multiplied by the inverse of the response rate for the stratum. For example, the response rate for the second strata was 88.5% and the institution weight was 2.629292 (*2.326923*(1/.885) = 2.629292).*

Next, the selection probabilities for the six faculty-level strata were taken into account. The forthcoming Methodology Report does not provide the probabilities of selection for each of the demographic subgroups within stratum. The report explains that "the base weight for faculty was the final institution weight times the selection probability for the faculty member" and that the selection probability for faculty members was the product of their initial probability of selection and their probability of being retained in the subsample (Abraham, Steiger, Montgomery, et. al, forthcoming, section 3.7.2).

As with the institution-level weight, the faculty weights were adjusted for nonresponse. The final step in calculating the faculty weights was reconciling the total number of full- and

part-time faculty with the weighted sum of the totals reported by institutions.

Instrumentation

The Faculty Questionnaire was developed jointly by the U.S. Department of Education's National Center for Education Statistics and a Technical Review Panel (TRP) of experts on faculty issues from around the country. The Faculty Questionnaire consisted of seven sections including (a) Nature of Employment, (b) Academic and Professional Background, (c) Institutional Responsibilities and Workload, (d) Job Satisfaction Issues, (e) Compensation, (f) Sociodemographic Characteristics, and (g) Opinions. Faculty and instructional staff were asked to respond based on their activities during the 1998 fall term. A copy of the instrument can be found in Appendix A.

The first section (15 items) of the questionnaire elicited data on the nature of the employment relationship between the faculty member and the institution. The employment relationship between faculty members and higher education institutions is complex. This section was designed to allow researchers to focus on various subpopulations based on these characteristics. For example, respondents were asked whether or not they held faculty status at their institution, whether they were employed full-time or part-time, and whether or not they taught any courses for credit during the 1998 fall term.

Respondents provided detailed information on their academic and professional background in the second section. These 14 items gathered information regarding the experience and credentials of participants. Respondents were asked, for example, how many years they had been teaching in higher education institutions. Respondents were also asked to complete information about each of their four highest degrees. Information requested included the type of degree, the name of the field for each degree, and the name of the institution from which they

received each degree. The codes for type of degree ranged from 1 to 7 including the following response categories:

First professional degree (M.D., D.O., D.D.S., or D.M.D., LL.B., J.D., D.C., or D.C.M., D. Par., Pod.D. or D.P., D.V.M., O.D., M.Div. or H.H.L. or B.D.)

Doctoral degree (Ph.D., Ed.D., etc.)

Masters of Fine Arts, Masters of Social Work (M.F.A., M.S.W.)

Other Master's degree (M.A., M.S., M.B.A., M.Ed., etc.)

Bachelor's degree (B.A., A.B., B.S., etc.)

Associate's degree or equivalent (A.A., A.S., etc.)

Certificate or diploma for completion of undergraduate program (other than Associate's or Bachelor's)

The third section asked respondents about their institutional responsibilities and workload. These 36 items provided data on the number of courses faculty taught and specific information about those courses including the number of students enrolled in each course, the level of students in each course, and the number of times the course met per week. This section also asked respondents about their use of technology in the classes that they taught and the number of hours per week that they spent responding to student e-mail. If respondents indicated that they had websites for any of the classes they taught, then they were asked about the purpose of the website (see Appendix A for a copy of the survey instrument).

Ten items designed to measure faculty members' job satisfaction were included in the fourth section of the instrument, labeled Job Satisfaction Issues. For example, faculty members were asked about their satisfaction with the time that they had available for keeping current in their field, their workload, and their job overall. They were also asked about their satisfaction with the time that they had available for class preparation, the authority they had to make decisions, and their salary. Data were collected using a four point Likert scale where 1 was very dissatisfied and 4 was very satisfied. One item in this section was of particular importance for the

present study. The item asked participants if they had retired from another position before assuming their current job. The response categories were yes or no.

Section E asked respondents to provide detailed compensation data, not only about themselves, but also about their household. The six items were designed to distinguish sources of income, such as basic salary, overload pay and outside consulting income, for example. Respondents were instructed to write in the dollar amount. If the respondent did not receive compensation from a source, then they were instructed to mark [x] the "NA. Not applicable" box.

The sixth section of the instrument collected demographic data from the respondents including basic information such as gender, race/ethnicity, and age. These 11 items also asked about the disability status of respondents and the general type of disability that they had (See Appendix A for a copy of the survey instrument).

The last section of the instrument included 14 items. These items were designed to elicit opinions from faculty members about various aspects of the academic career and the condition of higher education in general. Respondents were asked their opinions about statements regarding the quality of undergraduate students, the ability of the institution to meet the needs of entering students, and prospects for advancement of junior faculty members, for example. These items were asked using a four point Likert scale where 1 was strongly agree and 4 was strongly disagree.

One item on the survey included parts A and B using the same question number. As a result, there are 93 questions numbered on the instrument, but a count of the questions within the sections tallied 94. Many of these items had subparts. The final dataset has 1,204 variables including items coded directly from the survey instrument as well as derived variables that were

created to assist researchers in analyzing the data.

Data Collection Procedures

The Gallup Organization collected data for NSOPF: 99 using mixed mode techniques. A combination of mail (paper and pencil) surveys, web collection, and computer assisted telephone interviewing (CATI) were used to maximize response rates. In the initial mailing, faculty and instructional staff were given the option of completing a paper self-administered questionnaire and returning it by mail or completing the questionnaire via the Internet. Follow-up activities included both telephone prompting to encourage self-administration, and computer assisted telephone interviewing (CATI) (Abraham, Steiger, Montgomery, et. al, forthcoming).

Questionnaires were mailed to faculty in batches, as lists of faculty and instructional staff were received from institutions, processed and sampled (see the Sample Selection Section in this Chapter for more detail). The first wave of questionnaires was mailed on February 4, 1999. The seventh and final wave was mailed on December 1, 1999. The field period extended from February 4, 1999 through March 24, 2000 (Abraham, Steiger, Montgomery, et. al, forthcoming). The reader is reminded that faculty members were asked to respond to the questions based on their activity in the 1998 fall term regardless of when the survey was mailed. As part of their nonresponse bias analysis, Gallup compared responses by early and later responders. They examined the pattern of cumulative mean response by selected strata and date of survey completion for several variables. They found little or no variation in the cumulative mean responses, suggesting that faculty responses early in the field period were similar to faculty responses received late in the field period (Abraham, Steiger, Montgomery, et. al, forthcoming).

Coordinated efforts of nonresponse follow-up were conducted for each wave including a series of mail, e-mail and telephone follow-up. Mailings were sent to the home address of the

sampled faculty member, if available. If a home address was not provided, then the mailings were sent to the individual's campus address. E-mail prompts were sent to all sampled faculty members for whom an e-mail address was provided (38%). Telephone follow-up consisted of initial prompts to complete the mail or Web questionnaire. Finally, a telephone interview was scheduled for sampled faculty members who had still not responded after receiving the mail, e-mail, and telephone prompts (Abraham, Steiger, Montgomery, et. al, forthcoming).

Follow-up mailings included first, a postcard and then, several questionnaire re-mailings. If the sampled faculty member had still not responded after two additional questionnaire follow-up mailings, then the institution coordinator was asked to mail the third questionnaire follow-up mailing. This gave the institution coordinator an opportunity to verify the home address of the sampled faculty member. Or if the institution coordinator had not provided home addresses for faculty and instructional staff on the original list, then they were asked to forward the third questionnaire follow-up mailing to the home address of the sampled faculty member. The web address to access the Internet version of the questionnaire and a personal identification (PIN) code to be used to access the Web questionnaire were included with all of the mailings. The Gallup Organization maintained a toll-free telephone number and a project e-mail account for NSOPF. This contact information was printed on all materials (Abraham, Steiger, Montgomery, et. al, forthcoming).

Interviewers were instructed to offer CATI interviews as part of refusal conversion only after the second telephone prompt for waves 1 through 4. To speed data collection, however, interviewers were instructed to attempt a telephone interview at the time of the first call for waves 5 through 7. The length of the questionnaire was often cited as a reason for nonresponse. As a result, an abbreviated CATI questionnaire was offered to faculty as a routine part of refusal

conversion whenever a nonresponding faculty indicated that the length of the questionnaire was a reason for nonresponse. The abbreviated version of the questionnaire had a negligible impact on the results since all items were imputed (See the section on treatment of missing data in this chapter for a discussion of imputation methods used in NSOPF:99) (Abraham, Steiger, Montgomery, et. al, forthcoming).

Data from the faculty survey are maintained by NCES and distributed to researchers on request. The researcher obtained a copy of the data on CD-ROM. The CD-ROM contains all NSOPF:99 data, documentation for the study, an electronic codebook system (ECB) for accessing the raw data, and the Data Analysis System (DAS). The raw data are provided in flat file format (.DAT), in version 6.08 PC-SAS dataset format (.SD2), and in SPSS-Windows sysfile format (.SAV). In addition, the CD-ROM contains a SAS program including all data steps to create the SAS dataset (including the input statements and transformational statements, as well as all procedure steps used, along with the formats used to create the variable labels). Documentation for the NSOPF:99 data are provided in a subdirectory DOC, including the faculty questionnaire and spreadsheets containing rates of item nonresponse. Frequencies for the NSOPF:99 Faculty data are provided in a subdirectory FREQ for all of the variables generated from the SAS dataset.

Verification Steps

Generally, reliability and validity are assessed for each item on the survey or for a group of questions, rather than for the questionnaire as a whole (Bailey, 1982). However, two primary areas of concern are the generalizability (external validity) and reliability (replication) of the instrument. Because data collected by NCES and other federal agencies are used for research and policy analysis, NCES policy standards require rigorous verification procedures and analysis to

guard against measures of bias in the data. For example, verification steps for NSOPF: 99 included (a) a comparison of sample characteristics for respondents and nonrespondents, (b) a comparison of responses between early and late responders, and (c) examining item nonresponse for every item on the instrument.

NCES requires data collection contractors to provide an analysis of survey nonresponse bias anytime an overall response rate of less than 70 percent is reported for any stratum. For NSOPF: 99, nonresponse analysis was conducted for four strata that had overall response rates of 70 percent or below. They were private research (60.1%), private doctoral (64.6%), private comprehensive (67.4%) and public two-year institutions (68.0%). The Gallup Organization met this requirement by conducting tests for the likelihood of survey nonresponse bias, both overall and within these four strata. The tests included (a) comparing sample frame variables for respondents and nonrespondents, and (b) comparing data received early in the field period to data received at the end of the field period, under the assumption that later respondents may be more reflective of nonrespondents. Based on the test results Gallup concluded, "there is no evidence of any significant nonresponse bias" (Abraham, Steiger, Montgomery, et. al, forthcoming, p.59).

Treatment of Missing Data

In addition to extensive verification steps, NCES requires all non-legitimate missing data be imputed. Data collection contractors typically comply with this requirement by using a combination of (a) editing and (b) imputation. Various editing and imputation strategies were used in NSOPF:99 including (a) inter-item consistency checks, (b) cold deck imputation, (c) hot deck or sequential nearest neighbors imputation, (d) regression type imputation using SAS Proc Impute, (e) within class mean, and (f) within class random frequency assignment (Abraham,

Steiger, Montgomery, et. al, forthcoming). In cold deck imputation, missing values are replaced with available data from the sample frame. Gender, race/ethnicity, and employment status were imputed using this method whenever possible. In hot deck imputation, non-missing values are selected from within an imputation class. An imputation class groups observations together that are likely to have similar responses on particular items. A hot deck imputation method was used for principal field of teaching. The imputation class was based on faculty stratum and instructional duties. A full description of the editing and imputation strategies used in NSOPF:99 is reported in the 1999 NSOPF Methodology Report (Abraham, Steiger, Montgomery, et. al, forthcoming).

However, there were missing data remaining on seven of the variables being considered in the analysis (e.g., legitimate skips, Don't Know, and Not Applicable responses). See Appendix C for the frequencies of missing data on the variables included in the analysis. The researcher used two strategies to handle the remaining missing data including (a) recoding the missing responses to legitimate values and (b) making no change so that the case was dropped from the logistic regression analysis. Logistic Regression uses listwise deletion. If an observation has a missing value for any of the variables being processed, that observation was ignored in all the calculations performed by the procedure. Logistic regression analysis is described in the next section (Data Analysis Procedures).

Before describing the data analysis procedures, each of the seven variables with missing data will be discussed in turn. The seven variables are (a) X03_14, (b) X37_0, (c) X64_41, (d) X01_65, (e) X04_41, (f) X61_41, and (g) q77.

Program Area (X03_14): Faculty members were asked to select both their primary teaching and research disciplines for the fall 1998 term. If faculty members were not teaching

courses for credit they were directed to skip the question. Based on internal consistency checks with items about courses for credit, these values were not imputed. For purposes of this analysis, faculty members without a teaching discipline were included in the other category.

Region (X37_0): Faculty members in U.S. Service Schools and faculty sampled from institutions without a region code assigned were dropped from the logistic regression analysis (n=13).

Taught UG (X64_41): This is a dichotomous variable indicating whether or not faculty members taught undergraduate students in the fall 1998 term. If faculty members legitimately skipped this question because they had no instructional duties for credit during the 1998 fall term they were recoded to indicate they did not teach undergraduates.

Satisfaction with Instructional Duties (X01_65): This variable measured satisfaction with instructional duties. If faculty members had no instructional responsibilities during the 1998 fall term they were dropped from the analysis (n=89).

Classroom Hours (X04_41): Faculty who had no instructional responsibilities for credit during the 1998 fall term were directed to skip the question about the number of hours spent in the classroom for each of their classes. Faculty members who legitimately skipped this item were recoded to reflect they had no classroom credit hours assigned.

Class Size (X61_41): Faculty members who had no instructional responsibilities for credit during the 1998 fall term were directed to skip the question about class size. Faculty members who legitimately skipped this item were recoded to reflect their average class size was zero.

Income of Spouse (Q77): Faculty members who reported they were single, widowed, divorced, or separated were directed to skip the item that asked about their spouse or significant

other income. Faculty members who legitimately skipped this item were recoded to reflect they had $0 in spouse or significant other income. However, one of the legitimate response categories for this item was Don't Know. Faculty members who reported they did not know their spouse or significant other income were dropped from the logistic regression analysis (n=103).

Data Analysis Procedures

A combination of descriptive statistics and logistic regression was used to analyze the data. Frequency distributions, means, and logistic regression models were generated using the Data Analysis System (DAS), SAS, and SUDAAN. The Data Analysis System (DAS) is a software package developed by NCES for use with its surveys. It produces weighted percentage distributions, means, and standard errors taking into account the complex sample design. SAS and the SAS callable SUDAAN routines were used to generate the logistic regression models (Allison, 1999; Research Triangle Institute, 2001). SAS is a statistical analysis software package. SUDAAN is a specialty software package that has routines for analyzing complex survey data.

SUDAAN adjusts the variances based on the sample design. The complex sample design used in NSOPF:99 included both unequal probabilities of selection (oversampling) and clustering of lower level units (faculty) within higher level units (institutions). This sample design calls for corrective strategies including using weighted estimates and specialized software packages or routines to analyze the data (Abraham, Steiger, Montgomery, et. al, forthcoming; Thomas & Heck, 2001). Thomas and Heck (2001) stress that using special software packages such as SUDAAN "is by far the most accurate and preferable" (p.530) method for analyzing these kind of data.

Data analysis was conducted in four stages. First the researcher created a subset of the dataset that included only those variables necessary to perform the analysis to reduce the overall

size of the dataset and increase processing speed (See Appendix B for a list of the variables included in the extract dataset).

Next, the researcher computed unweighted frequency distributions for categorical level variables and univariate statistics including means for continuous level variables to determine if there were enough cases in each of the categories of the dependent variables to conduct the analysis (i.e., faculty who have previously retired from another position and faculty who were 55 or older with no plans to retire in the next three years). These data were also examined for missing values

The researcher produced tables using the DAS to answer the first and third research questions during the third stage of the analysis. To test for differences between estimates, the researcher calculated t-tests. Finally, the researcher generated logistic regression models to answer the second and fourth research questions posed in the study. Logistic regression and its assumptions are described below.

Before conducting the logistic regression analysis, the categorical level variables with more than two categories were recoded into separate variables or dummy coded. Dummy or effect coding is accomplished by recoding a variable into a set of dichotomous variables indicating the presence or absence of a specific category (Grimm & Yarnold, 1995). There were six dummy variables created to indicate respondents' program area and three dummy variables created to indicate respondents' region. After dummy coding there were 28 independent variables and 2 dependent variables included in the analysis (See Appendix D for the coding scheme used for all categorical variables included in the logistic regression analysis). Data generated using logistic regression models answered the second and fourth research questions posed in the study. Logistic regression and its assumptions are described below.

Logistic regression and linear regression share some similarities. As in linear regression, the logistic model relates one or more predictor variables to a dependent variable. In addition, the logistic model produces regression coefficients, predicted values, and residuals. As in linear regression, the predictors can be continuous or noncontinuous. But, in logistic regression the relationship between the predictor and the predicted values is assumed to be nonlinear. Logistic regression enables researchers to analyze the probability of an event or a non-event occurring. This means that the predicted values are interpreted as probabilities. Put simply, in logistic regression the researcher is attempting to predict the probability that an observation belongs to each of two groups (Grimm & Yarnold, 1995).

Logistic regression assumes (a) the dependent variable is dichotomous, (b) outcomes are statistically independent, (c) the model is correctly specified, (d) categories are mutually exclusive and exhaustive, and (e) when testing hypotheses using logistic regression coefficients that the sample be sufficiently large. Model specificity requires that all relevant predictors are included and that no irrelevant predictors are included. In practice, this assumption is rarely met (Grimm & Yarnold, 1995). However, one of the best defenses against violating the specificity assumption is conducting a thorough review of the literature and having a strong theoretical basis for the model.

Logistic regression was the appropriate analytic tool because the primary dependent variable in the analysis was dichotomous. Have you previously retired from another position had two possible response categories: yes or no. In addition, the research question called for a simultaneous analysis of multiple independent variables. The second research question focused on whether type of institution, academic program area, satisfaction, research productivity, income from retirement, region, age, gender, marital status or number of dependents distinguish

faculty members who have retired from another position from those in the same age group who have not retired from another position.

The dependent variable in the fourth research question had three possible outcomes (very likely, somewhat likely, and not at all likely). Two of the categories were collapsed (very likely and somewhat likely) so that faculty members with no plans to retire could be distinguished from those with some plans to retire. The fourth research question asked whether type of institution, academic program area, satisfaction, teaching load, research productivity, income, region, age, gender, marital status or number of dependents distinguish older faculty members who are not at all likely to retire in the next three years from those in the same age group who are somewhat likely or very likely to retire. Since the recoded dependent variable was also dichotomous, logistic regression was the appropriate analytic tool to use to answer the fourth research question as well.

Traditionally, researchers report the number of cases in the analysis, one of two measures computed from the sample likelihood (i.e., Log Likelihood (LL) or Deviance (-2LL)), and the percent of cases correctly classified. The logistic regression coefficients or the maximum likelihood (ml) parameter estimates are interpreted in terms of odds (Grimm & Yarnold, 1995).

The predicted probabilities from the logistic regression model were used to predict group memberships for each case (i.e., the likelihood the faculty member would have previously retired from another position based on the known values of the independent variables in the equation). The raw coefficients of the predictor variables were also interpreted. The raw coefficients (b_1) represent the change in the natural logarithm of the odds ratio. A positive predictor coefficient means that the predicted odds increase as the predictor values increase, while a negative coefficient indicates that the predicted odds decrease as the predictor increases. A coefficient of

zero means that the predicted odds are the same.

Summary

The present study was designed to investigate the non-financial factors that affect retirement decisions. The methodology described in this chapter was deemed sufficient to respond to the research questions posed in the study.

Chapter Four – Findings

This chapter presents findings from the research. It has four main sections corresponding to each of the four research questions posed in the study. The chapter concludes with a summary that leads to a discussion of the findings provided in Chapter Five, the final chapter.

Non-financial Characteristics of Selected Faculty Groups

This section provides the results of the data analysis required to answer the four research questions posed in the study. Since the purpose of the study was to examine non-financial factors related to the retirement process of selected faculty groups, two faculty groups were selected. The first two research questions correspond to the first group: faculty who have previously retired from another position. Research questions three and four correspond to the second group: faculty who have no plans to retire in the next three years.

The purpose of the divisions that follow is to guide the reader through the findings from the analysis conducted to answer each of the four research questions. First, descriptive statistics are used to answer the question: What are the characteristics of older faculty members (those 55 and older) who have previously retired from another position? Next, findings from the logistic regression analysis used to answer the second research question are provided. The objective in estimating the model was to determine if non-financial factors related to the retirement process distinguished faculty who had previously retired from another position from those who had not done so.

The process was then repeated for the second group: faculty with no plans to retire in the next three years. First, descriptive statistics are used to answer the question: What are the characteristics of older faculty members (those 55 and older) with no plans to retire in the next three years? And finally, findings from the logistic regression analysis used to answer the fourth

research question are provided. The objective in estimating the second logistic regression model was to determine if non-financial factors related to the retirement process distinguished faculty who had no plans to retire from faculty who had some plans to retire in the next three years.

Previously Retired Faculty

In the fall of 1998, 22% of older faculty members, or approximately 70,000 individuals nationwide, indicated that they had retired from another position. About three-quarters (74%) of previously retired faculty members (PREF) were employed part time by their institutions in the fall of 1998. While a higher percentage of PREF were employed in 4-year institutions (66%) than in 2-year institutions (34%), public 2-year institutions (33%) had the largest share of previously retired faculty members when compared with other types of institutions (see Appendix E for t-tests of significance). Sixteen percent of PREF were employed in public comprehensive institutions, 10% were employed in private comprehensive and public research institutions, respectively. Fewer than 10 percent of PREF were employed in all other types of institutions with the exception of private liberal arts institutions where a significant difference was not observed (Table 2).

Table 3 shows the distribution of older faculty who have previously retired from another position by program area and type of institution. Seventeen percent of PREF reported their primary teaching discipline was in the humanities, 16% in education, and 12% in the social sciences. While two percent of PREF reported their primary discipline was in the life sciences, about ten percent of PREF reported a primary discipline in natural, physical sciences and math (10%), and engineering and computer sciences (9%), respectively.

But it appears that PREF program areas are distributed differently within 4-year and 2-year institutions. For example, within 4-year institutions, 29% of PREF reported their primary

Table 2

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Previously Retired Status, Employment Status, and Type and Control of Institution: Fall 1998

Employment status, and type and control of institutiton[1]	Previously Retired From Another Position			
	YES		NO	
	Percentage	Standard Error	Percentage	Standard Error
Full-time	26.2	1.84	69.9	1.22
Part-time	73.8	1.84	30.1	1.22
4-year	65.5	2.03	75.4	1.08
2-year	34.5	2.03	24.6	1.08
Public	68.3	2.42	71.0	1.67
Private	31.7	2.42	29.0	1.67
Public Research	9.8	1.36	21.8	1.92
Private Research	5.5	1.94	6.9	1.39
Public Doctoral, including medical	7.4	1.15	8.8	1.05
Private Doctoral, including medical	3.4	0.77	3.9	0.62
Public Comprehensive	15.7	1.82	14.9	0.84
Private Comprehensive	9.8	1.46	7.1	0.56
Private Liberal Arts	8.3	1.25	7.1	0.73
Public 2-year	33.3	2.04	23.3	1.08
Other	6.7	1.14	6.2	0.89

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 3

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Previously Retired Status, Program Area and Type of Institution: Fall 1998

	Previously Retired From Another Position			
	YES		NO	
Program area and type of institutiton[1]	Percentage	Standard Error	Percentage	Standard Error
Business	8.5	1.11	7.6	0.57
Education	16.2	1.67	8.0	0.62
Engineering and computer sciences	9.3	1.24	7.0	0.54
Fine arts	5.4	0.93	6.2	0.54
Health sciences	10.0	1.13	10.9	0.78
Human services	4.4	0.71	4.3	0.45
Humanities	17.4	1.58	19.3	0.88
Life sciences	2.4	0.60	6.9	0.50
Natural, physical sciences and math	9.8	0.98	11.7	0.76
Social sciences	12.0	1.43	14.6	0.80
Vocational education	4.6	0.75	3.5	0.55
4-year institutions	65.5	2.03	75.4	1.08
Business, law, and communications	13.5	1.97	9.7	0.84
Health sciences	12.1	1.56	11.9	0.97
Humanities	14.2	1.86	17.8	0.92
Natural sciences and engineering	18.1	1.94	23.1	1.04
Social sciences and education	29.2	2.50	19.9	1.03
Occupationally specific programs	2.1	0.53	2.0	0.42
All other programs	10.7	1.48	15.6	1.01
2-year institutions	34.5	2.03	24.6	1.08
Business, law, and communications	9.1	1.53	12.9	1.55
Health sciences	6.0	1.35	7.8	0.98
Humanities	23.4	2.97	23.7	2.12
Natural sciences and engineering	24.5	2.54	24.8	2.26
Social sciences and education	15.6	2.79	13.4	1.53
Occupationally specific programs	6.9	1.45	5.5	0.94
All other programs	14.5	2.41	11.9	1.31

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

teaching discipline was in social sciences and education, compared with 16% in 2-year institutions. On the other hand, within 2-year institutions, 24% of PREF reported their primary teaching discipline was in natural sciences and engineering compared with 18% in 4-year institutions. It is important to note that the classification of disciplines within program areas masks some of the differences between disciplines and influences the distribution of the percentages. However, the point is to illustrate generally in what academic areas previously retired faculty members teach.

More than one-half (55%) of previously retired faculty members were between the ages of 55 and 64. One-quarter were 65–69 and one-fifth (21%) were 70 years old or older (Figure 4). Previously retired faculty indicated that they had been in their positions 11 years on average (Table 4).

Similar to the older faculty population in general, a higher percentage of previously retired faculty were male (71%) than female (29%). The majority of PREF were married (79%), although a sizable percentage (15%) were separated, divorced, or widowed. Previously retired faculty members had .8 dependents, on average (Table 4).

Forty-two percent of PREF reported a basic salary from their institution of less than $10,000 (Table 5). This is consistent with the finding that three-quarters of PREF were employed part-time by their institutions. PREF reported an average basic salary from their institution of $26,800. Since the majority of previously retired faculty members indicated they were married, a sizable portion of their total household income may be attributed to spouse or significant other income. The average income reported from a spouse or significant other was $37,610 (Table 5).

Six measures of faculty activity were selected to describe what previously retired faculty

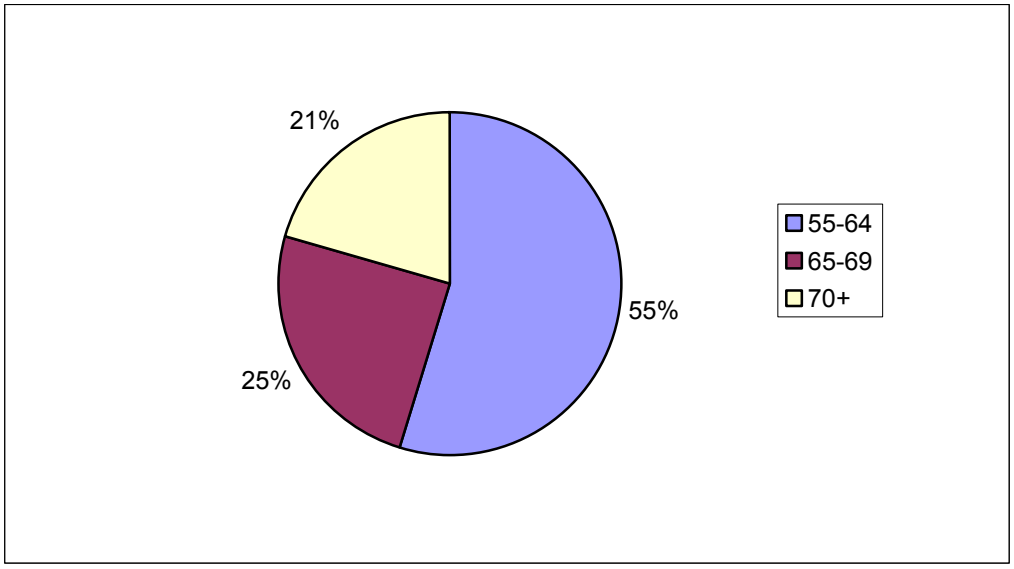

Figure 4. Percentage Distribution of Previously Retired Faculty Members by Age Category: Fall 1998

Table 4
Faculty and Instructional Staff Age 55 or Older by Previously Retired Status and Selected Demographic Characteristics: Fall 1998

Selected demographic characteristics of faculty in institutions[1]	Previously Retired From Another Position			
	YES		NO	
	Percentage	Standard Error	Percentage	Standard Error
Age				
55–64	54.8	2.05	81.7	0.97
65–69	24.6	1.64	12.8	0.73
70 or older	20.6	1.75	5.4	0.68
Average Age	64.3	0.27	60.4	0.13
Years in Current Position				
1–5	43.6	2.11	17.0	0.85
6–10	21.3	1.53	14.1	0.85
11–20	16.9	1.65	23.0	0.98
21–30	9.3	1.17	29.9	1.01
31–40	8.2	1.27	15.9	0.83
Average Years in Current Position	10.6	0.46	18.3	0.27
Gender				
Male	71.3	1.86	69.2	0.99
Female	28.7	1.86	30.8	0.99
Marital Status				
Single, never married	5.4	0.76	8.1	0.63
Married	78.8	1.54	75.8	1.03
Living in marriage-like relationship	0.9	0.30	1.4	0.19
Separated, divorced, or widowed	14.9	1.34	14.7	0.84
Marital Status Collapsed				
Attached	79.8	1.50	77.2	1.00
Unattached	20.2	1.50	22.8	1.00
Number of Dependents				
0	46.1	1.93	48.6	1.08
1–2	48.5	1.91	43.1	1.05
> 2	5.3	0.79	8.3	0.57
Average Number of Dependents	0.8	0.04	0.9	0.02

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District
NOTE: Percentages may not total to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 5

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Previously Retired Status, Region and Income: Fall 1998

	Previously Retired From Another Position			
	YES		NO	
Region and income	Percentage	Standard Error	Percentage	Standard Error
Region				
Northeast	36.9	2.62	43.0	2.14
Southeast	22.7	2.16	20.3	1.66
Plains	7.6	1.25	8.4	1.20
West	32.8	2.51	28.3	1.90
Basic salary from institution[1]				
Less than $10,000	41.8	2.18	17.6	1.06
$10,000-$24,999	21.9	1.62	8.6	0.75
$25,000-$39,999	10.3	1.06	10.9	0.87
$40,000-$54,999	8.5	1.04	19.9	0.82
$55,000-$69,999	9.2	1.25	17.9	0.83
$70,000-$84,999	2.5	0.60	11.0	0.63
$85,000-$99,999	1.5	0.62	5.9	0.51
$100,000-$114,999	2.0	0.67	3.2	0.36
$115,000-$129,999	0.9	0.28	1.8	0.28
$130,000 or more	1.4	0.43	3.2	0.39
Average basic salary	$26,800	$1,285	$50,816	$971
Average spouse or significant other gross income	$37,610	$1,596	$42,225	$857

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

NOTE: Percentages may not total to 100 because of rounding. Averages

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

members do. The measures include (a) the percentage of PREF who taught classes for credit to undergraduates, (b) the average classroom credit hours taught, (c) the average total student credit hours taught, (d) the average for credit class size, (e) recent publications, and (f) career publications.

Previously retired faculty members teach undergraduates. Most (66%) reported teaching classes for credit to undergraduates in the fall of 1998. They reported teaching 9 classroom credit hours on average, 240 student credit hours on average, with 24 students in their classes on average (Table 6). Previously retired faculty members were also actively engaged in research. On average, they reported having two recent publications and 26 publications over the course of their careers.

Previously retired faculty members were overwhelmingly satisfied with their instructional duties (93%) and their job overall (91%). However, 14% of PREF expressed dissatisfaction with other aspects of their job (Table 7).

Taken together, these descriptive statistics portray the characteristics of previously retired faculty members and answer the first research question posed in this study. Employment characteristics, demographic characteristics, activity measures, and satisfaction items paint a portrait of this selected group of faculty members. The next section provides the results of the logistic regression model estimated to determine if these non-financial factors distinguish previously retired faculty from those in the same age group who have not previously retired from another position.

Logistic Regression Analysis

A logistic regression model was estimated to answer the second research question posed in the study. Do employment status, type of institution, institutional control, academic program

Table 6

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Previously Retired Status and Selected Characteristics of Faculty Activity: Fall 1998

Faculty activity	Previously Retired From Another Position			
	YES		NO	
	Percentage	Standard Error	Percentage	Standard Error
Taught classes for credit to undergraduates	66.0	2.21	71.8	1.16
Average classroom credit hours	8.8	0.40	9.8	0.28
Average student credit hours	240.5	21.79	292.7	10.82
Average for credit class size	24.2	0.75	29.6	0.69
Average Recent publications	2.0	0.26	3.6	0.19
Average Career publications	25.5	2.16	38.6	1.57

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 7

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Previously Retired Status and Level of Satisfaction with Various Aspects of the Job: Fall 1998

	Previously Retired From Another Position			
	YES		NO	
Level of satisfaction	Percentage	Standard Error	Percentage	Standard Error
Satisfaction with instructional duties				
Dissatisfied	7.5	0.91	7.6	0.58
Satisfied	92.5	0.91	92.4	0.58
Satisfaction with other aspects of job				
Dissatisfied	14.5	1.31	18.0	0.78
Satisfied	85.5	1.31	82.0	0.78
Satisfaction with job overall				
Dissatisfied	9.0	1.15	13.1	0.77
Satisfied	91.1	1.15	86.9	0.77

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

NOTE: Percentages may not total to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

area, age, years in position, gender, marital status, number of dependents, region, satisfaction, teaching load, research productivity, basic salary of respondent, and spouse or significant other income distinguish faculty members who have retired from another position from those in the same age group who have not retired from another position? The objective of the logistic regression analysis was to determine if non-financial factors related to the retirement process distinguish previously retired faculty from faculty who have not previously retired in the same age group. Findings from the logistic regression analysis are given in this section.

DesJardins (2001) explains, "the dependent variable in a logistic regression model is the logarithm of the odds of the occurrence of a particular outcome or event" (p.2). Mathematically:

$$\log \frac{P_i}{1 - P_i} = a + BX_i \qquad (1)$$

In this case, the outcome or event of interest is being retired from another position. P_i is the probability that a faculty member has retired from another position and $1 - P_i$ is the probability that the faculty member has *not* previously retired from another position. The non-financial characteristics form a set of independent variables, X_i, and a and B are the intercept and the estimated coefficients of each of the independent variables included in the model, respectively. Notice that the outcome is estimated in log-form. In other words, the equation predicts the *log-odds* of being previously retired from another position, *not* the probability of being previously retired from another position. Likewise, the estimated coefficients represent the change in the log-odds as the values of the predictor variables change incrementally, not the change in the probability of being previously retired.

The odds-ratio provides a more intuitive interpretation of one-unit changes in the independent variables, however. The odds-ratio is derived by taking the log of both sides of the equation (DesJardins, 2001). In this case, the odds ratio represents how the odds of being

previously retired changes given a unit change in the independent variable, holding other variables constant. The standard logistic regression output in SAS and SUDAAN routinely includes odds-ratios in addition to the beta coefficients for each of the independent variables in the model.

DesJardins (2001) also provides guidance for interpreting odds-ratios when logistic regression coefficients are negative. He recommends taking the inverse of the odds-ratios in this situation "to put the odds-ratios for negatively-related coefficients on the same metric as the odds-ratios produced when estimated coefficients are positive" (DesJardins, 2001, p.4). Several of the beta coefficients in the logistic regression analyses conducted to answer the research questions posed in this study were negative. In these instances, the inverse odds-ratio was calculated and added to the presentation of results in an attempt to make the interpretation more intuitive for the reader.

Table 8 shows the results of the logistic regression model distinguishing previously retired faculty members from those who have not previously retired. There were 5,021 cases representing 308,430 older faculty members retained in the model. The Cox & Snell Pseudo R^2 provides an indication of the strength of the relationship between the outcome variable and the independent variables ($R^2 = .24$). Goodness of fit is reflected by the change in –2 log likelihood (1398, 28). Only statistically significant findings for the independent variables are interpreted.

Program Area.

The coefficient estimate for "social science and education" is .52. This coefficient estimate indicates that faculty who teach in social sciences and education have log-odds of being retired from another position that are .52 units higher than faculty members who teach natural sciences and engineering (the reference category). The odds-ratio corresponding to the social

Table 8
Results of Logistics Regression Analysis of Previously Retired Faculty

Independent Variable	Beta Coefficient	Standard Error	t-test β=0	p-value	Odds Ratio	Inverse Odds Ratio
Intercept	–10.81	0.79	–13.63	0.0000 ***	0.00	
4-year	–0.02	0.14	–0.11	0.9105	0.98	1.02
(2-year)						
Public	0.08	0.13	0.58	0.5598	1.08	
(Private)						
Business, law, and communications	–0.05	0.21	–0.23	0.8170	0.95	1.05
Health sciences	0.19	0.22	0.84	0.3992	1.21	
Humanities	–0.05	0.20	–0.26	0.7924	0.95	1.05
Social sciences and education	0.52	0.17	2.99	0.0028 **	1.68	
Occupationally specific programs	0.42	0.27	1.54	0.1238	1.52	
All other program areas	–0.11	0.20	–0.54	0.5900	0.90	1.11
(Natural sciences and engineering)						
Southeast	0.32	0.15	2.17	0.0299 *	1.38	
Plains	0.16	0.20	0.80	0.4247	1.17	
West	0.32	0.14	2.23	0.0258 *	1.38	
(Northeast)						
Part-time	1.18	0.15	7.61	0.0000 ***	3.24	
(Full-time)						
Years in current position at institution	–0.07	0.01	–10.80	0.0000 ***	0.94	1.06

Table 8 (continued)
Results of Logistics Regression Analysis of Previously Retired Faculty

Independent Variable	Beta Coefficient	Standard Error	t-test β=0	p-value	Odds Ratio	Inverse Odds Ratio
Taught classes for credit to ug	0.11	0.15	0.74	0.4595	1.12	
Total classroom credit hours	–0.01	0.01	–0.87	0.3865	0.99	1.01
Total student credit hours	0.00	0.00	0.97	0.3323	1.00	
Average for credit class size	–0.01	0.00	–2.17	0.0297 *	0.99	1.01
Recent publications	–0.01	0.01	–0.80	0.4243	0.99	1.01
Career publications	–0.00	0.00	–0.93	0.3528	1.00	1.00
Job satisfaction: Instructional duties	0.23	0.23	1.00	0.3187	1.26	
Job satisfaction: Other aspects of job	–0.47	0.21	–2.26	0.0239 *	0.62	1.61
Satisfaction with job overall	–0.06	0.24	–0.23	0.8146	0.94	1.06
Age	0.15	0.01	12.48	0.0000 ***	1.16	
Male	0.52	0.14	3.72	0.0002 ***	1.68	
(Female)						
Attached	0.09	0.16	0.55	0.5839	1.09	
(Unattached)						
Number of dependents	0.09	0.05	1.70	0.0889	1.10	
Basic salary	–0.00	0.00	–1.47	0.1405	1.00	1.00
Spouse or significant other income	0.00	0.00	0.37	0.7099	1.00	
Number of cases in the analysis	5,021	308,430				
Pseudo R^2 (Cox & Snell)	0.242983					
Approximate Chi-Square (-2Log Likelihood)=1398 with 28 df (p=.0000)						

*** p < 0.001 ** p < 0.01 * p < 0.05

sciences and engineering coefficient is 1.68. This statistic has a more intuitive interpretation. The odds of being a previously retired faculty member are about 1.68 times (or 68%) higher for social sciences and education faculty than for natural sciences and engineering faculty (see DesJardins, 2001; Grimm & Yarnold, 1995; Hosmer & Lemeshow, 2000 for discussions of how to interpret logistic regression results).

Region.

Two of the coefficients for dummy variables coded to indicate the faculty members' region of employment were significant. The coefficient for both southeast and west was .32. Interpreting these coefficients and the corresponding odds-ratios relative to the reference category (northeast) indicates that the odds of being a previously retired faculty member were 1.38 times (or 38%) higher for faculty members employed in institutions in the southeast and the west than for faculty members employed in institutions in the northeast ($p < .05$).

Employment Status.

The odds of being previously retired were more than 3 times greater for older faculty members who were employed part time than for those who were employed full time. The beta coefficient was 1.18 and was highly significant ($p < .0001$).

Years in Current Position.

The beta coefficient for "years in current position" is –0.07. This coefficient estimate indicates that increases in the number of years older faculty members have held their current position decreases the chances that they have retired from another position. The odds-ratio associated with this result is .94. Since the beta coefficient was negative (–0.07), the inverse odds-ratio was calculated to make the interpretation more intuitive for the reader. For each additional year an older faculty member has held their current position, the odds of being

previously retired changes by a factor of .94, holding the other variables constant in the model. The inverse of the odds-ratio is 1.06, indicating that other things being equal, each additional year an older faculty member has held their current position reduces the odds that they have retired from another position by about 6%.

Average Class Size.

Only one of the six faculty activity measures had a statistically significant beta coefficient in the model. The beta coefficient for "average for credit class size" is –0.01. This coefficient estimate indicates that increases in class size decrease the chances that older faculty members have retired from another position. The odds-ratio associated with this result is .99. The inverse odds-ratio was 1.01. This result may be interpreted to mean that each additional student in credit classes on average changes the odds of being previously retired by .99. In other words, other things being equal, each additional student reduces the odds of faculty members being retired from another position by about 1%, meaning a faculty member is not likely to take another position to teach large classes.

Satisfaction.

The beta coefficient (–0.47) for the item measuring job satisfaction with other aspects of the job (excluding instructional duties) was also statistically significant ($p = .0239$). It is necessary to interpret this finding relative to the coding for this variable, however. This variable was coded 1=Dissatisfied, 2=Satisfied. The odds of being previously retired were more than 61% higher for older faculty members who were satisfied with other aspects of their job than for those who were dissatisfied.

Age.

The beta coefficient for age is 0.15. This coefficient estimate indicates that increases in

the age of older faculty members increases the chances that they have retired from another position. The odds-ratio associated with this result is 1.16. Each additional year of age increases the odds that they have retired from another position by about 16%.

Gender.

Finally, the beta coefficient for males is .52. This coefficient estimate indicates that male faculty members have log-odds of being retired from another position that are .52 units higher than female faculty. The odds-ratio corresponding to the beta coefficient for males is 1.68. The odds of being a previously retired faculty member are about 1.68 times (or 68%) higher for male faculty than for female faculty.

Faculty with No Plans to Retire

Findings for the third research question are provided in this section. What are the characteristics of older faculty members (55 and older) who have no plans to retire in the next three years? The same set of descriptive statistics used to describe previously retired faculty members are used to answer this question including (a) employment characteristics, (b) demographic characteristics, (c) activity measures, and (d) satisfaction items. Taken together these data paint a portrait of the second group of faculty selected for consideration in the study.

Older faculty members were split about half-and-half regarding their plans for retirement in the next three years. A statistical difference was not observed in the percentage of faculty members who indicated they had no plans to retire in the next three years (49%) and the percentage who indicated they had some plans for retirement (51%). In the fall of 1998, approximately 158,000 older faculty members nationwide indicated that they had no retirement plans.

Most faculty with no plans to retire were employed full time (62%) and most (74%) were

employed in 4-year institutions. While 25% of faculty members with no plans to retire were employed in public 2-year institutions, 29% were employed in research institutions. About one-half of faculty members with no plans to retire were employed in three types of institutions: public 2-year (25%), public research (20%), and private research institutions (9%) (Table 9).

But, about twice as many faculty with no plans to retire were employed in public institutions (68%) than in private ones (32%). Fifty-nine percent of faculty with no plans to retire were employed in three types of institutions— public 2-year (25%), public research (20%), and public comprehensive institutions (13%). Less than 10% of faculty members with no plans to retire were employed in private doctoral (7%), private comprehensive (8%), and private liberal arts institutions (8%), respectively (Table 9).

Table 10 shows the distribution of older faculty with no plans to retire in the next three years by program area and type of institution. One-fifth (20%) of faculty with no plans to retire reported their primary teaching discipline was in the humanities. Sixteen percent were in the social sciences. While just four percent of faculty with no plans to retire reported their primary discipline was in human services or vocational education, faculty members were approximately evenly distributed among the remaining program areas (7%–10%, respectively).

However, faculty members with no plans to retire appear to have different primary teaching disciplines in 4-year and 2-year institutions. For example, a higher percentage of humanities faculty in 2-year institutions (26%) than in 4-year institutions (18%) indicated that they had no plans to retire in the next three years; whereas a higher percentage of faculty in social sciences and education in 4-year institutions (21%) than in 2-year institutions (14%) reported having no retirement plans.

Faculty members with no plans to retire in the next three years were 60 years old on

Table 9

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Presence or Absence of Retirement Plans in the Next Three Years, Employment Status and Type and Control of Institution: Fall 1998

Employment status, and type and control of institutiton[1]	Retirement Plans			
	No Plans		Some Plans	
	Percentage	Standard Error	Percentage	Standard Error
Full-time	61.6	1.58	59.0	1.46
Part-time	38.4	1.58	41.0	1.46
4-year	74.1	1.41	72.3	1.24
2-year	25.9	1.41	27.7	1.24
Public	67.7	2.06	73.1	1.59
Private	32.3	2.06	27.0	1.59
Public Research	20.4	2.04	18.0	1.70
Private Research	8.5	1.95	4.7	0.97
Public Doctoral, including medical	7.4	1.05	9.6	1.14
Private Doctoral, including medical	3.9	0.65	3.6	0.65
Public Comprehensive	13.3	0.86	16.8	1.19
Private Comprehensive	8.4	0.79	7.1	0.75
Private Liberal Arts	7.7	0.88	7.1	0.90
Public 2-year	24.8	1.42	26.2	1.22
Other	5.7	0.83	6.8	1.04

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

NOTE: Percentages may not total to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 10

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Presence or Absence of Retirement Plans in the Next Three Years, Program Area and Type of Institution: Fall 1998

	Retirement Plans			
	No Plans		Some Plans	
Program area and type of institutiton[1]	Percentage	Standard Error	Percentage	Standard Error
Business	7.4	0.65	8.3	0.79
Education	7.5	0.64	12.0	1.03
Engineering and computer sciences	7.4	0.69	7.7	0.73
Fine arts	6.6	0.77	5.4	0.54
Health sciences	9.9	0.91	11.4	0.89
Human services	3.9	0.49	4.7	0.52
Humanities	20.1	1.15	17.7	1.00
Life sciences	6.6	0.69	5.2	0.44
Natural, physical sciences and math	10.6	0.89	12.0	0.93
Social sciences	15.9	0.96	12.2	1.08
Vocational education	4.4	0.79	3.4	0.47
4-year institutions	74.1	1.41	72.3	1.24
Business, law, and communications	9.8	0.85	11.1	1.31
Health sciences	11.2	1.15	12.6	1.13
Humanities	18.0	1.21	16.2	1.15
Natural sciences and engineering	21.1	1.23	23.2	1.40
Social sciences and education	21.4	1.32	22.0	1.47
Occupationally specific programs	2.6	0.53	1.5	0.45
All other programs	15.9	1.35	13.4	0.96
2-year institutions	25.9	1.41	27.7	1.24
Business, law, and communications	11.1	1.42	12.5	1.84
Health sciences	6.2	1.11	8.3	1.24
Humanities	25.9	2.73	21.5	2.04
Natural sciences and engineering	25.5	2.69	24.0	2.14
Social sciences and education	14.1	1.69	14.1	2.20
Occupationally specific programs	4.3	0.98	7.3	1.20
All other programs	13.0	1.71	12.3	1.57

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

NOTE: Percentages may not total to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

average in the fall of 1998 (Table 11). More than three-quarters (86%) of faculty with no plans to retire were between the ages of 55 and 64. Ten percent were 65–69 and 4% were 70 years old or older (Figure 5). Faculty with no plans to retire indicated that they had been in their positions 15 years on average.

Consistent with findings presented in previous sections, a higher percentage of older faculty with no plans to retire were male (70%) than female (30%). The majority of faculty members with no plans to retire were married (76%), although a sizable percentage (15%) were separated, divorced, or widowed. On average, faculty with no plans to retire had one dependent (Table 11).

Forty-three percent of faculty with no plans to retire worked in institutions in the Northeast region of the United States. Twenty-eight percent were employed in institutions in the West, 21% in the southeast, and 8% were employed in institutions in the plains states (Table 12).

Faculty with no plans to retire reported an average basic salary from their institution of $46,323. Since the majority of faculty members indicated they were married, a sizable portion of their total household income may be attributed to spouse or significant other income. The average income faculty with no plans to retire reported from a spouse or significant other was $42,045 (Table 12).

Six measures of faculty activity were selected to describe what faculty members with no plans to retire do. The measures include (a) the percentage who taught classes for credit to undergraduates, (b) the average classroom credit hours taught, (c) the average total student credit hours taught, (d) the average for credit class size, (e) recent publications, and (f) career publications.

Faculty members with no plans to retire teach undergraduates. Most (70%) reported

Table 11

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Presence or Absence of Retirement Plans in the Next Three Years, and Selected Demographic Characteristics: Fall 1998

Selected demographic characteristics of faculty in institutions[1]	Retirement Plans			
	No Plans		Some Plans	
	Percentage	Standard Error	Percentage	Standard Error
Age				
55–64	85.7	1.22	66.2	1.32
65–69	9.9	0.92	20.8	1.00
70 or older	4.5	0.90	13.0	1.02
Average Age	59.5	0.17	62.9	0.16
Years in Current Position				
1–5	24.2	1.20	21.6	1.19
6–10	19.0	1.23	12.5	0.85
11–20	22.3	1.19	21.1	1.21
21–30	24.9	1.21	25.8	1.09
31–40	9.6	0.95	19.0	1.06
Average Years in current position	15.2	0.35	18.0	0.34
Gender				
Male	70.3	1.19	69.1	1.34
Female	29.7	1.19	30.9	1.34
Marital Status				
Single, never married	7.3	0.68	7.7	0.76
Married	76.0	1.23	77.0	1.20
Living in marriage-like relationship	1.4	0.26	1.3	0.21
Separated, divorced, or widowed	15.4	1.01	14.1	0.99
Marital Status Collapsed				
Attached	77.3	1.20	78.2	1.21
Unattached	22.7	1.20	21.8	1.21
Number of Dependents				
0	44.5	1.31	51.6	1.32
1–2	45.0	1.33	43.6	1.28
> 2	10.5	0.70	4.8	0.70
Average Number of Dependents	1.0	0.03	0.7	0.03

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.
NOTE: Percentages may not total to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

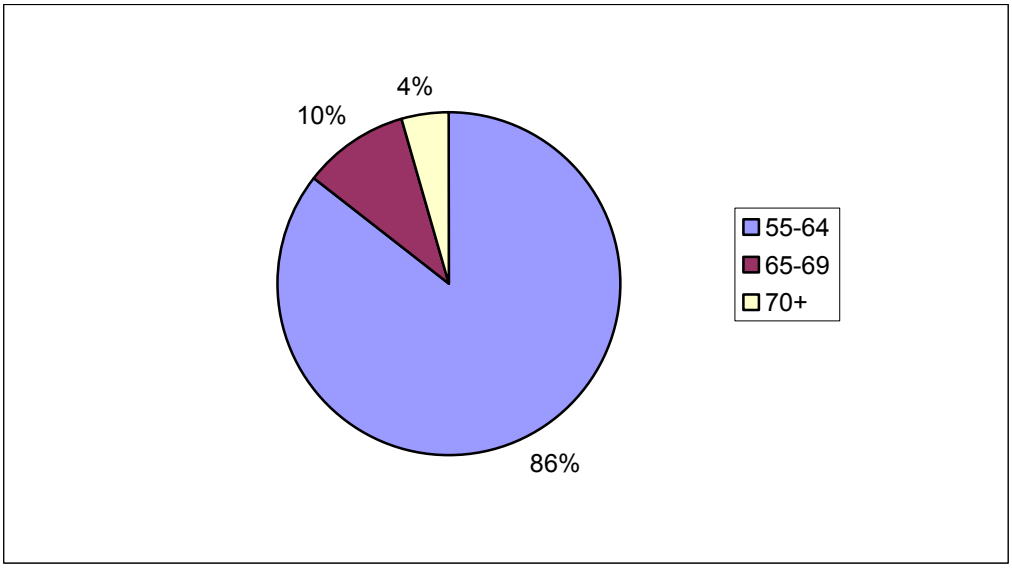

Figure 5. Percentage Distribution of Faculty Members with no Plans to Retire in the Next Three Years by Age Category: Fall 1998

Table 12

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Presence or Absence of Retirement Plans in the Next Three Years, Region, and Income: Fall 1998

	Retirement Plans			
	No Plans		Some Plans	
Region and income	Percentage	Standard Error	Percentage	Standard Error
Region				
Northeast	43.0	2.41	40.4	2.08
Southeast	20.5	1.79	21.2	1.71
Plains	8.4	1.22	8.0	1.13
West	28.2	2.01	30.3	2.01
Basic salary from institution[1]				
Less than $10,000	22.1	1.38	23.5	1.33
$10,000-$24,999	11.8	1.06	11.1	0.85
$25,000-$39,999	11.1	1.02	10.4	0.97
$40,000-$54,999	18.4	0.98	16.5	0.92
$55,000-$69,999	14.1	0.84	18.0	1.04
$70,000-$84,999	9.1	0.74	9.3	0.68
$85,000-$99,999	5.0	0.58	5.0	0.60
$100,000-$114,999	3.3	0.45	2.6	0.41
$115,000-$129,999	1.9	0.38	1.4	0.23
$130,000 or more	3.2	0.45	2.4	0.40
Average basic salary	$46,323	$1,223	$44,882	$1,057
Average spouse or significant other gross income	$42,045	$1,130	$40,365	$1,045

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

NOTE: Percentages may not total to 100 because of rounding. Averages refer to calculated means.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

teaching classes for credit to undergraduates in the fall of 1998. They reported teaching loads of 10 classroom credit hours on average, 272 student credit hours on average, with 28 students in their classes on average (Table 13). Faculty members with no plans to retire were also actively engaged in research. On average, they reported having four recent publications and 40 publications over the course of their careers.

Faculty members with no plans to retire were overwhelmingly satisfied with their instructional duties (93%), although they were somewhat less satisfied with their job overall (88%). About one-fifth (19%) of faculty members with no plans to retire in the next three years expressed dissatisfaction with other aspects of their job (Table 14).

Logistic Regression Analysis

A logistic regression model was estimated to answer the fourth research question posed in the study. Do employment status, type of institution, institutional control, academic program area, age, years in position, gender, marital status, number of dependents, region, satisfaction, teaching load, research productivity, basic salary of respondent, and spouse or significant other income distinguish older faculty members who have no plans to retire in the next three years from those in the same age group who do have plans to retire? The objective of the logistic regression analysis was to determine if non-financial factors related to the retirement process distinguish faculty members with no plans to retire from faculty who have some plans to retire in the same age group. Findings from the logistic regression analysis are given in this section.

Referring again to equation 1:

$$\log \frac{P_i}{1 - P_i} = a + BX_i \qquad (1)$$

In this case, the outcome or event of interest is having no plans to retire. P_i is the probability that a faculty member has no plans to retire in the next three years and $1 - P_i$ is the

Table 13

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Presence or Absence of Retirement Plans in the Next Three Years, and Selected Characteristics of Faculty Activity: Fall 1998

	Retirement Plans			
	No Plans		Some Plans	
Faculty activity	Percentage	Standard Error	Percentage	Standard Error
Taught classes for credit to undergraduates	70.0	1.52	71.0	1.25
Average classroom credit hours	9.6	0.27	9.6	0.37
Average student credit hours	271.8	12.75	291.8	14.68
Average for credit class size	27.6	0.63	29.4	0.97
Average recent publications[0]	3.9	0.25	2.6	0.16
Average career publications[0]	40.3	2.11	31.3	1.40

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

NOTE: Averages refer to calculated means.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 14

Percentage Distribution of Faculty and Instructional Staff Age 55 or Older by Presence or Absence of Retirement Plans in the Next Three Years, and Level of Satisfaction with Various Aspects of the Job: Fall 1998

	Retirement Plans			
	No Plans		Some Plans	
Level of satisfaction	Percentage	Standard Error	Percentage	Standard Error
Satisfaction with instructional duties				
Dissatisfied	7.2	0.81	7.9	0.60
Satisfied	92.8	0.81	92.1	0.60
Satisfaction with other aspects of job				
Dissatisfied	19.3	1.02	15.2	0.89
Satisfied	80.7	1.02	84.8	0.89
Satisfaction with job overall				
Dissatisfied	12.1	0.82	12.2	0.96
Satisfied	87.9	0.82	87.8	0.96

[1]All public and private, not-for-profit Title IV degree-granting institutions in the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

probability that the faculty member has some plans to retire. The non-financial characteristics form a set of independent variables, X_i, and a and B are the intercept and the estimated coefficients of each of the independent variables included in the model.

Table 15 shows the results of the logistic regression model distinguishing faculty members with no plans to retire from faculty members who had some retirement plans. There were 5,021 cases representing 308,430 older faculty members retained in the model. The Cox & Snell Pseudo R^2 provides an indication of the strength of the relationship between the outcome variable and the independent variables ($R^2 = .15$). Goodness of fit is reflected by the change in –2 log likelihood (788, 28). Only statistically significant findings for the independent variables are interpreted.

Control of Institution.

The negative coefficient for public institutions (–0.36) was significant ($p = 0.0006$). The inverse odds-ratio (1.43) indicates that the odds of having no plans to retire were about 43% lower for older faculty employed by public institutions than for older faculty employed in private institutions.

Program Area.

Two of the coefficients for dummy variables coded to indicate the faculty members' program area were significant. The coefficient for humanities faculty was .35. The coefficient for all other program areas was .31. Each of these coefficients and the corresponding odds-ratios are interpreted relative to the reference group, the omitted category in the dummy coding (natural sciences and engineering). The odds of having no plans to retire were 1.43 times (or 43%) higher for humanities faculty than for natural sciences and engineering faculty. The odds of having no plans to retire were 1.37 times (or 37%) higher for faculty in all other program areas than for

Table 15

Results of Logistics Regression Analysis of Faculty with No Plans to Retire

Independent Variable	Beta Coefficient	Standard Error	t-test β=0	p-value	Odds Ratio	Inverse Odds Ratio
Intercept	8.55	0.78	10.90	0.0000 ***	5165.51	
4-year	0.04	0.11	0.37	0.7130	1.04	0.96
(2-year)						
Public	–0.36	0.10	–3.45	0.0006 ***	0.70	1.43
(Private)						
Business, law, and communications	–0.10	0.17	–0.56	0.5783	0.91	1.10
Health sciences	–0.17	0.15	–1.12	0.2612	0.85	1.18
Humanities	0.35	0.14	2.59	0.0095 **	1.43	
Social sciences and education	0.06	0.14	0.45	0.6542	1.06	
Occupationally specific programs	–0.18	0.24	–0.73	0.4659	0.84	1.19
All other program areas	0.31	0.16	2.00	0.0460 *	1.37	
(Natural sciences and engineering)						
Southeast	–0.11	0.11	–1.04	0.2993	0.89	1.12
Plains	0.00	0.15	0.02	0.9838	1.00	
West	–0.11	0.10	–1.01	0.3102	0.90	1.11
(Northeast)						
Part-time	0.11	0.13	0.90	0.3674	1.12	
(Full-time)						
Years in current position at institution	–0.02	0.01	–3.64	0.0003 ***	0.98	1.02

Table 15 (continued)

Results of Logistics Regression Analysis of Faculty with No Plans to Retire

Independent Variable	Beta Coefficient	Standard Error	t-test β=0	P-value	Odds Ratio	Inverse Odds Ratio
Taught classes for credit to ug	0.06	0.12	0.50	0.6164	1.06	
Total classroom credit hours	0.01	0.01	1.10	0.2728	1.01	
Total student credit hours	–0.00	0.00	–0.98	0.3293	1.00	1.00
Average for credit class size	0.00	0.00	0.02	0.9876	1.00	1.00
Recent publications	0.01	0.01	2.02	0.0431 *	1.01	
Career publications	0.00	0.00	3.82	0.0001 ***	1.00	
Job satisfaction: Instructional duties	–0.35	0.15	–2.29	0.0219 *	0.70	1.43
Job satisfaction: Other aspects of job	0.41	0.16	2.57	0.0103 *	1.50	
Satisfaction with job overall	–0.41	0.17	–2.41	0.0158 *	0.66	1.52
Age	–0.14	0.01	–11.24	0.0000 ***	0.87	1.15
Male	0.19	0.10	1.83	0.0666	1.21	
(Female)						
Attached	–0.24	0.12	–1.96	0.0495 *	0.79	1.27
(Unattached)						
Number of dependents	0.16	0.04	3.79	0.0002 ***	1.17	
Basic salary	0.00	0.00	0.27	0.7837	1.00	
Spouse or significant other income	0.00	0.00	0.48	0.6323	1.00	
Number of cases in the analysis	5,021	308,430				
Pseudo R^2 (Cox & Snell)	0.145274					
Approximate Chi-Square (-2Log Likelihood)=788 with 28 df (p=.0000)						

*** p < 0.001 ** p < 0.01 * p < 0.05

faculty who taught natural sciences and engineering.

Years in Current Position.

The beta coefficient for "years in current position" is –0.02. This coefficient estimate indicates that increases in the number of years older faculty members have held their current position decreases the chances that they have no plans to retire in the next three years. The odds-ratio associated with this result is .98. Since the beta coefficient was negative (–0.02), the inverse odds-ratio was calculated to make the interpretation more intuitive for the reader. For each additional year an older faculty member has held their current position, the odds of having no plans to retire changes by a factor of .98, holding the other variables constant in the model. The inverse of the odds-ratio is 1.02, indicating that other things being equal, each additional year an older faculty member has held their current position reduces the odds that they have no plans to retire by about 2%.

Research Productivity.

Two of the six faculty activity measures had statistically significant beta coefficients in the model. Both of these measures were related to research productivity. No significant differences were observed for the instructional activity measures. The beta coefficient for "recent publications" is 0.01. This coefficient estimate indicates that increases in recent publications on average increases the chances that older faculty members have no plans to retire in the next three years. The odds-ratio associated with this result is 1.01. Other things being equal, each additional recent publication older faculty members have on average increases the odds of having no plans to retire by about 1%.

Although the beta coefficient for "career publications" is statistically significant, its value is 0.00, which means that the odds ratio is 1.00. In other words, holding the other independent

variables constant, the probability that faculty have no plans to retire and the probability that faculty have some plans to retire are the same regardless of the number of career publications.

Satisfaction.

All of the independent variables included in the model to measure satisfaction produced significant beta coefficients at the $p < .05$ level. Two of the coefficients were negative. The beta coefficient for the item measuring job satisfaction with instructional duties was –.35. The beta coefficient for the item measuring satisfaction with the job overall was –.41. It is necessary to interpret these findings relative to the coding for these variables, however. The satisfaction items were coded 1=Dissatisfied, 2=Satisfied. The odds of having no retirement plans were 43% higher for older faculty members who were satisfied with their instructional duties than for those who were dissatisfied. Likewise, the odds of having no retirement plans were 52% higher for older faculty members who were satisfied with their jobs overall than for those who were dissatisfied. However, the beta coefficient for the item measuring satisfaction with other aspects of the job (.41) (excluding instructional duties) indicated that the odds of having no plans to retire in the next three years were 50% lower for those who were satisfied with other aspects of their job than for those who were dissatisfied.

Age.

The beta coefficient for age is –0.14. This coefficient estimate indicates that increases in the age of older faculty members decreases the chances that they have no plans to retire in the next three years. The odds-ratio associated with this result is .87. Each additional year of age decreases the odds that faculty will have no retirement plans by about 15%.

Marital Status.

Being attached (either married or living in a marriage-like relationship) decreases the

odds that faculty members have no plans to retire by about 27%. The beta coefficient is negative (–0.24). The odds-ratio is .79 and the inverse odds-ratio is 1.27.

Number of Dependents.

Finally, the beta coefficient for number of dependents is .16. This coefficient estimate indicates that increases in the number of dependents increases the chances that older faculty members will have no plans to retire in the next three years. The odds-ratio associated with this result is 1.17. Each additional dependent on average increases the odds that faculty will have no retirement plans by about 17%.

Chapter Five – Discussion

This study was designed to examine the non-financial factors related to the retirement process for selected faculty groups. Key components of the design included selecting faculty groups for analysis and identifying the non-financial factors related to the retirement process. Two faculty groups were selected: (a) faculty who had previously retired from another position and (b) faculty members with no plans to retire in the next three years. The non-financial factors were identified through a review of the literature and included (a) employment characteristics, (b) demographic characteristics, (c) activity measures, and (d) satisfaction items. A combination of descriptive statistics and logistic regression analysis were used to answer the four research questions posed in the study— two each for each of the two faculty groups. The purpose of this chapter is to discuss the results within the context of the literature and to identify some potential considerations related to associated policy issues. The chapter concludes with some ideas for future research.

The purpose of this study was to examine non-financial factors related to the retirement process of selected faculty groups. Results are generalizable across institutions because rigorous procedures were applied to a representative sample of respondents of the faculty population nationwide. There are seven major findings.

1. Previously retired faculty members may be a substantial pool of qualified, productive talent intrinsically motivated to be part of an academic environment on a part-time basis because their financial status is not solely dependent on basic salary from the institution.
2. The results of the current study indicate further complexities related to describing the average age at retirement. Additional indicators distinguishing age at retirement from a career position versus age at retirement from all paid employment may also be needed to

fully describe the issue.

3. Employment status, years in current position, program area, age, gender, geographic region, average class size, and satisfaction with other aspects of the job (excluding instructional duties) were distinguishing characteristics of previously retired faculty members.
4. A sizeable portion of older faculty has not yet reached traditional retirement age.
5. The impact of uncapping mandatory retirement ages for tenured faculty may not have yet been fully realized— even eight years after the legislation took effect.
6. The evidence does not support objections from the higher education community in opposition to uncapping. While institutions may have to continue retirement contributions for longer periods, faculty with no plans to retire reported an average basic salary from their institution of only $46,323. However, the reader is reminded that both full- and part-time salaries were included in the average. Neither do faculty activity measures support the claim that older faculty members are ineffective. On the contrary, they reported teaching loads consisting of 10 classroom credit hours, 272 student credit hours, and 28 students in their classes on average. Faculty members with no plans to retire were also actively engaged in research. On average, they reported having four recent publications and 40 publications over the course of their careers.
7. Control of institution, program area, years in current position, age, marital status, number of dependents, recent publications, career publications, and satisfaction were distinguishing characteristics of faculty members with no plans to retire in the next three years.

Many who have studied faculty retirement before have focused on the impact of changes

in federal legislation and the elimination of mandatory retirement ages for tenured faculty members. This study focused on the non-financial factors related to the retirement process for two selected faculty groups. The two faculty groups selected were (a) faculty who had previously retired from another position and (b) faculty members with no plans to retire in the next three years. The non-financial factors included were (a) employment characteristics, (b) demographic characteristics, (c) activity measures, and (d) satisfaction items. Major findings highlight the complexities of both the retirement process and the academic labor market.

The first and third research questions focused on describing the characteristics of the two faculty groups selected for the study. The first research question focused on older faculty who had previously retired from another position. The third research question focused on older faculty with no plans to retire in the next three years. Each of the two groups are discussed in turn.

Results indicate that a substantial number of faculty members nationwide have previously retired from another position and may make up a sizable percentage of the part-time academic labor force. Three-quarters (74%) of previously retired faculty members were employed part time. Tuckman (1978) identified these individuals as one component of the part-time academic labor force, dubbing them the semi-retired, but little if any research has been conducted since that time to explore the characteristics of these faculty members or to determine how they approach decision-making about retirement. This study contributes to the body of literature on faculty issues in general by providing descriptive data on previously retired, or semi-retired faculty.

Results were consistent with Tuckman's (1978) earlier findings. The percentage of women in the semi-retired category was low relative to the other groups, reflecting perhaps the

low percentage of older women in academe (Tuckman, 1978). Twenty years later, a higher percentage of older faculty were male than female, both in the faculty population in general and in the population of previously retired faculty, specifically.

Previously retired faculty members were employed in all types of institutions, but were more concentrated in public institutions. Although a higher percentage of previously retired faculty were employed in 4-year institutions, public 2-year institutions had the largest share overall relative to other institution types. They were employed across academic disciplines, however the percentage distribution by program area varied by type of institution. For example, within 4-year institutions, 29% of PREF reported their primary teaching discipline was in social sciences and education, compared with 16% in 2-year institutions. On the other hand, within 2-year institutions, 24% of PREF reported their primary teaching discipline was in natural sciences and engineering compared with 18% in 4-year institutions. These results support the conclusion suggested by other researchers that type and control of institution and program area create unique labor markets within higher education (Clark, 1997; Dey, Vander Putten, Han, & Coles, 1997; Rees & Smith, 1991).

Faculty members may have in some sense a unique combination of control over their circumstances of work and personal investment in the job situation, with an identity tied to their work through their academic discipline, not necessarily to a particular institution. Clark (1997) has suggested that understanding faculty work may require disaggregation into the "small worlds" of the individual disciplines and the particular contexts of the many strata of institutions. Likewise, understanding faculty retirement may require disaggregation to identify the influence of unique "labor markets" on the retirement decision-making process. Findings from the current research support this proposition. The unique labor markets of the academic disciplines may

affect the demand for older faculty members who have retired from another position, for example.

Previously retired faculty members were older on average than the older faculty population in general. PREF were 64 years old on average compared with an average age of 61 for the older faculty population. One-fifth (21%) of previously retired faculty members were 70 years old or older. The Carnegie Foundation (1990) found that early retirement might offset the effect of uncapping on the increase in the average age at retirement. They suggested two indicators might be needed including (a) the average age at retirement for all faculty members and (b) the average age at retirement for faculty members who have not participated in an incentive early retirement program. The results of the current study indicate further complexities related to describing the average age at retirement. Additional indicators distinguishing age at retirement from a career position versus age at retirement from all paid employment may also be needed to fully describe the issue.

Most previously retired faculty members teach undergraduates (66%). In the fall of 1998, PREF were teaching 9 credit hours with an average of 24 students per class. They were overwhelmingly satisfied with their instructional duties (93%) and their job overall (91%). They expressed lower levels of satisfaction with other aspects of their job (excluding instructional duties), however. They were engaged in research producing two recent publications on average and an average of 26 publications over the course of their careers. These findings are consistent with earlier studies that examined career age and research and scholarly activity (Bayer & Dutton, 1977) and career age and student evaluations of teaching effectiveness (Kinney & Smith, 1992). Previously retired faculty members may be a substantial pool of qualified, productive talent intrinsically motivated to be part of an academic environment on a part-time basis because

their financial status is not solely dependent on basic salary from the institution.

The third research question focused on older faculty with no plans to retire in the next three years. Understanding the characteristics of older faculty members who have no plans to retire is central to understanding the impact of uncapping mandatory retirement ages for tenured faculty members as part of the ADEA amendments. The findings contribute to the literature by providing recent national data on the characteristics of older faculty (those 55 and older) with no plans to retire in the next three years. The study contributes significantly to the literature by providing national data on this group of faculty for the first time since uncapping took effect January 1, 1994. The previous cycle of NSOPF was conducted in academic year 1992-93. The current cycle of NSOPF was conducted in academic year 1998-99.

But, there may be substantial generational or cohort effects inherent in these data. In other words, as groups of faculty reach a certain age they will not have experienced the same social and legal context as the cohorts either preceding or following them. Using cross-sectional data is a limitation in studying this issue, then. Longitudinal data would be more appropriate to assess the impact of eliminating mandatory retirement ages for tenured faculty; however, longitudinal data are effectively cost-prohibitive (Bayer & Dutton, 1977). Effectively monitoring the characteristics of older faculty who have no plans to retire may offer the best information available for academic administrators, planners, and policy makers.

About one-half of older faculty members indicated they had no plans to retire in the next three years (49%) and most faculty members who had no plans to retire were employed full time by their institutions (62%). These results should be interpreted relative to age, however. Faculty members with no plans to retire in the next three years were 60 years old on average in the fall of 1998. They were younger on average than both older faculty in general and faculty who had

retired from another position. Older faculty members were 61 years old on average and previously retired faculty were 64 years old on average, respectively. These results indicate (a) a sizeable portion of older faculty have not yet reached traditional retirement age and (b) the impact of uncapping mandatory retirement ages for tenured faculty may not have yet been fully realized— even eight years after the legislation took effect.

Indeed, Rees and Smith (1991) predicted that a few institutions might be confronted with the possibility that many of their faculty members will choose to work past age 70, especially those actively engaged in research. Findings from the current study suggest academic administrators still need to be aware of the age distributions within specific departments as well as across the institution as a whole. But, the findings also suggest academic administrators should be aware of faculty members' plans for retirement. Developing such awareness requires multiple strategies. Academic administrators should develop retirement planning programs that go beyond filling out forms to allocate employer and employee contributions to retirement accounts.

About three-quarters (74%) of faculty with no plans to retire were employed in 4-year institutions, but about twice as many faculty with no plans to retire were employed in public institutions (68%) than in private ones (32%). Fifty-nine percent of faculty members who had no plans to retire were employed in three types of institutions— public 2-year (25%), public research (20%), and public comprehensive institutions (13%). Given the findings of the Committee on Mandatory Retirement in Higher Education (1991), we might expect a larger share of faculty not at all likely to retire to be employed in private research institutions. This is not the case, however. For example, a higher percentage of faculty members who reported that they were not at all likely to retire were employed in public research institutions (20%) than

private research institutions (9%).

Consistent with findings presented in previous sections, a higher percentage of older faculty with no plans to retire were male (70%) than female (30%). The majority of faculty members with no plans to retire were married (76%), although a sizable percentage (15%) were separated, divorced, or widowed. On average, faculty with no plans to retire had one dependent.

Faculty with no plans to retire reported an average basic salary from their institution of $46,323. One of the arguments of the higher education community in opposition to uncapping was that institutions would have to sustain higher paid faculty salaries and continue retirement contributions for longer periods (Pratt, 1989). The results from the current study do not lend support to this argument. However, the reader is reminded that both full- and part-time salaries were included in the average.

Neither do they support the second argument, which was that an aging professorate would grow increasingly ineffective, but irremovable because of tenure (Hammond & Morgan, Eds. 1991) when faculty activity measures are taken into consideration. Most faculty members with no plans to retire teach undergraduates. Seventy percent reported teaching classes for credit to undergraduates in the fall of 1998. They reported teaching loads consisting of 10 classroom credit hours, 272 student credit hours, and 28 students in their classes on average. Faculty members with no plans to retire were also actively engaged in research. On average, they reported having four recent publications and 40 publications over the course of their careers.

The second and fourth research questions focused on determining if non-financial factors related to the retirement process distinguished (a) previously retired faculty from faculty who have not previously retired and (b) faculty with no plans to retire in the next three years from faculty members with some plans to retire in the same age group. Logistic regression analysis

was used to address these questions. The results indicated the answer is yes and no.

For previously retired faculty members, age and years in current position at the institution were clearly distinguishing characteristics. In general, attaining older age is associated with an increased likelihood of being retired from another position, in part perhaps because they are still working. Likewise, fewer years in the current position is associated with an increased likelihood of being previously retired. Being employed part time, male, in certain regions of the country, and teaching in social sciences and education were also distinguishing characteristics of previously retired faculty members.

Another way the current study contributes significantly to the literature is by including geographic region in the models. Researchers have not tested whether or not geographic region influences individual faculty retirement decisions. Part of the reason for this may be that few studies have been national in scope. The odds of being a previously retired faculty member were 38% higher for faculty members employed in institutions in the southeast and the west than for faculty members employed in institutions in the northeast. These data suggest that the semi-retired labor pool may be different for institutions in different geographic regions.

Only one of the activity measures (average class size) was found to distinguish between PREF and non-PREF— and its influence was small. Similarly, only one of the satisfaction items was found to distinguish PREF from non-PREF. The odds of being previously retired were more than 61% higher for older faculty members who were satisfied with other aspects of the job (excluding instructional duties) than for those who were dissatisfied. Older faculty members in general express high levels of satisfaction with their jobs.

The fourth and final research question focused on determining if non-financial factors related to the retirement process distinguish older faculty with no plans to retire in the next three

years from faculty in the same age group who had some plans to retire. Again, the results indicated the answer is yes and no. Clearly, age and years in current position at the institution are factors that affect the retirement decision-making process. Both of these variables are highly significant ($p < .0001$) and the results are in the expected direction. Each additional year of age decreases the odds that faculty will have no retirement plans by about 15%. Similarly, each additional year an older faculty member has held their current position reduces the odds that they have no plans to retire by about 2%.

Control of institution, program area, marital status, number of dependents, recent publications, career publications, and satisfaction were also distinguishing characteristics for faculty members with no plans to retire in the next three years and faculty with some plans to retire. None of the instructional activity measures were significant predictors of having no retirement plans.

Although a higher percentage of faculty members who reported that they had no retirement plans were employed in public research institutions (20%) than private research institutions (9%), the odds of having no plans to retire were about 43% lower for older faculty employed by public institutions than for those employed in private institutions. The results from the logistic regression analysis are consistent with the findings of the Committee on Mandatory Retirement in Higher Education (1991).

Family characteristics are significant in distinguishing between faculty members who have no plans to retire and those who have some retirement plans. Being attached (either married or living in a marriage-like relationship) decreases the odds that faculty members have no plans to retire by about 27%. Each additional dependent on average increases the odds that faculty will have no retirement plans by about 17%. These findings highlight the importance of interpreting

results from studies with limited generalizability with caution. A prior study, for example, failed to detect significance for marital status as a predictor of early retirement among university faculty (Monahan & Greene, 1987).

Findings related to faculty activity measures and levels of satisfaction corroborate and contradict earlier studies. Tenured faculty members retire later when their positions consist largely of research, their teaching loads are relatively light, and their students are good (Smith, 1991). Being actively engaged in research and having high levels of satisfaction distinguished faculty member with no plans to retire from faculty members who had some retirement plans. Specifically, increases in recent publications on average increases the chances that older faculty members have no plans to retire in the next three years.

Furthermore, the odds of having no retirement plans were 43% higher for older faculty members who were satisfied with their instructional duties than for those who were dissatisfied. Likewise, the odds of having no retirement plans were 52% higher for older faculty members who were satisfied with the job overall than for those who were dissatisfied. However, the odds of having no plans to retire in the next three years were 50% lower for those who were satisfied with other aspects of their job than for those who were dissatisfied.

When interpreting these results it is important to remember that retirement is negotiated between the employer and the employee within the social context and the legal boundaries that constrain it (Atchley, 1976). The ADEA amendments of 1986 marked a fundamental shift of power in the negotiation process when as of January 1, 1994 the decision about when to retire was transferred from the institution to the individual faculty member (Martin, 1993). Numerous studies emerged to assess the impact of uncapping. These studies form the basis for what is known about factors related to the retirement decision-making process for faculty. During this

period, early retirement incentive programs were increasingly viewed as a personnel management strategy in recovering some of this loss in decision-making power on the part of institutions (Chronister & Kepple, 1987).

The current climate is characterized by an increase in the age of the population in general and in the faculty population specifically coupled with an economic downturn and limits on organizational flexibility exaggerated by the tenure system and the share of expenditures allocated to human resources costs. The social context is constrained by legal boundaries erected by federal legislation and budgetary limitations on options that can be offered through incentive early retirement programs. While not addressing specific policy issues directly, these data may inform policy discussions related to faculty retirement in general. The next section explores some of these policy issues.

Policy Issues

Policy has many meanings, but generally refers to a principal or plan pursued by government, an organization, or an individual and involves a specific course of action that attempts to address an issue of concern (Theodoulou, & Cahn, 1995). Determining an appropriate course of action is no simple task, however. The task is even more difficult because policy makers at the institutional, state, and federal levels may adhere to different principals, be concerned about different issues and may have plans that call for different courses of action. This section explores some potential considerations related to policy issues regarding faculty retirement.

One of the seminal policy questions facing institutions and academic administrators today is: What is the appropriate mix of employees for a department in today's academic labor market? This study's findings indicate that the answer may be more complex than first glance would

suggest. Predictive models should be multivariate in nature and take into consideration individual circumstances. In sum, institutions should study unique labor markets created by institutional strata and academic disciplines to determine the appropriate and most effective mix of faculty in an academic department.

Competing interests characterize policy development. In discussing policy implications, it is also important to recognize primary competing interests. In the case of faculty retirement, two competing interests at the institutional level could be the institution's business interest in re-inventing itself with a desire to clear out "dead wood" unproductive faculty members contrasted with human resources developmental interests that would focus on the "gold mine" of talent and experience or the vitality of senior faculty members that Bland and Bergquist dub as having snow on the roof, but fire in the furnace (1997).

Policymakers at the institution level may want to examine their internal policies on retirement and/or introduce new policies regarding retirement that address the particular HR needs at the institution. They may need to integrate guidelines for separation into their comprehensive policies on academic staffing and retirement. Retirement is a natural phase of the employment relationship. Policies should provide frameworks for coping with transition and consider the needs of the individual and the organization. Specific guidelines may include procedures for retiring and continuing to work at the institution on a part-time basis allowing retirees to maintain a professional affiliation with the institution. Previously retired faculty members may be a substantial pool of qualified, productive talent intrinsically motivated to be part of an academic environment on a part-time basis because their financial status is not solely dependent on basic salary from the institution. Institutions may need to take steps to create an environment where the semi-retired talents are recognized, developed, and appreciated.

Policies should recognize retirement as a process. They should be flexible and should not focus on one and only one decision point. The path to retirement is not necessarily linear. Institutions should develop and implement programs that provide opportunities for faculty members to think about the transition to retirement. Retirement planning should be more than filling out a form during benefits orientation.

State and federal level policymakers may be interested in reviewing legislation with an eye toward understanding the repercussions of retiring from one position and accepting another at different ages. For example, portability of state-sponsored retirement programs may be called into question. Policymakers may wish to re-visit tax laws, penalties, and loopholes associated with retiring, but continuing to work. The current study may serve to educate policymakers regarding the complexity of the retirement decision, including (a) the existence of both financial and non-financial characteristics that influence the retirement decision-making process, (b) differences among the non-financial characteristics that influence the retirement decision-making process, (c) the complexities of the retirement process, and (d) the characteristics of selected faculty groups at different stages in the retirement process.

The current study may also give policymakers better insight into the relationship between quality and employment status (i.e., full-time versus part-time employment by the institution) and it may inform the part-time faculty policy debate. Much of this debate centers on the quality of instruction delivered by part-time faculty and their qualifications. Knowing the percentage of part-time faculty who have previously retired from another position provides an indication of the level of experience these faculty members bring to the classroom.

HR managers and academic administrators need data on faculty members at different stages of the pre-retirement process. Particularly, data are needed that distinguish those who

retire at younger ages from those who do not and the characteristics of faculty that may postpone retirement. Data are needed because higher education planners need better ways to predict what types of faculty may retire early or postpone retirement in the future. Institutions should implement more sophisticated mechanisms for categorizing employment relationships with the institution.

Better planning implies that there will be more open, honest conversations between academic administrators and faculty about their plans for the future. These conversations can only occur in an environment characterized by a high degree of trust. Academic administrators should consider having conversations with faculty about their retirement plans as part of their annual performance evaluation. It may also be necessary to systematically monitor faculty retirement plans and the factors that influenced retiring faculty members' retirement decisions at a sufficient level of aggregation to inform planning while protecting the confidentiality of individuals, however.

Future Research

While the current study employed quantitative techniques to examine the non-financial factors related to retirement for selected faculty groups, future studies may examine subpopulations (e.g., female faculty, minority faculty, faculty in specific disciplines, etc.) or identify other faculty groups at different stages of the retirement process (e.g., faculty who have set a date for retirement, faculty participating in phased retirement plans, etc.). Future studies may also employ qualitative techniques to gain a better understanding of retirement patterns at one institution, several institutions that share similar characteristics, or a group of institutions that represent differences by institutional type. For example, interviews at one institution across specific departments could explain how different factors, (both financial and non-financial

characteristics) impact individual faculty members' decisions to retire, postpone retirement, or accept bridge employment, by academic discipline.

In addition, as the age of the population increases it may also be interesting to assess the climate of the institution for older faculty members. How do older faculty members perceive their situation? Are older faculty members viewed as obstacles to change and progress? Finally, this study may encourage other researchers to focus on faculty retirement as a process and to seek to develop profiles of faculty members who are at various stages of the process.

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Appendix A

NSOPF:99 Faculty Questionnaire

Appendix B

List of Variables

X04_82	Age: Below or above 55 years
X06_0	Type of institution
X07_0	Institution control
X03-14	Program area
X37_0	Region
Q5	Employment status
X01_7	Years in current position at inst
X64_41	Taught classes for credit to ug
X04_41	Total classroom credit hours
X05_41	Productivity, teaching: Total student credit hours
X61_41	Average for credit class size
X01_29	Productivity, non-teaching: Recent publications
X07_29	Productivity, non-teaching: Career publications
X01_65	Job satisfaction: Instructional duties
X01_66	Job satisfaction: Other aspects of job
Q66J	Satisfaction with job overall
X01_82	Age
Q81	Gender
Q87	Marital status
Q80	Number of dependents
Q76A	Basic salary
Q77	Spouse or significant other income
Q72	Retired from another position
Q67E	Plans to retire

Appendix C

Frequencies

Table C1

Number of Faculty and instructional staff age 55 or older by whether or not the have previously retired from another position: Fall 1998

Variable	Label	Categorical level variables			
		Yes		No	
		#	%	#	%
		n=1,006		n=4,324	
X06_0	**Type of institution**				
1	4-year	662	65.8	3,326	76.9
0	2-year	344	34.2	998	23.1
X07_0	**Institution control**				
1	Public	708	70.4	3,149	72.8
0	Private	298	29.6	1,175	27.2
X03_14	**Program area**				
1	Business, law, and communications	118	11.7	412	9.5
2	Health sciences	108	10.7	498	11.5
3	Humanities	164	16.3	769	17.8
4	Natural sciences and engineering	211	21.0	978	22.6
5	Social sciences and education	222	22.1	815	18.8
6	Occupational specific programs	41	4.1	101	2.3
7	Other	110	10.9	628	14.5
.	{Missing}	32	3.2	123	2.8
X37_0	**Region**				
1	Northeast	363	36.1	1,835	42.4
2	Southeast	246	24.5	946	21.9
3	Plains	75	7.5	372	8.6
4	West	318	31.6	1,162	26.9
.	{Missing}	4	0.4	9	0.2
Q5	**Employment status**				

Table C1 (continued)

Number of Faculty and instructional staff age 55 or older by whether or not the have previously retired from another position: Fall 1998

Variable	Label	Categorical level variables			
		Yes		No	
		#	%	#	%
		n=1,006		n=4,324	
X64_41	**Taught classes for credit to ug**				
1	No	116	11.5	514	11.9
0	Yes	703	69.9	3,119	72.1
.	{Missing}	187	18.6	691	16.0
X01_65	**Job satisfaction: Instructional duties**				
1	Dissatisfied	82	8.2	356	8.2
0	Satisfied	908	90.3	3,895	90.1
.	{Missing}	16	1.6	73	1.7
X01_66	**Job satisfaction: Other aspects of job**				
1	Dissatisfied	149	14.8	797	18.4
0	Satisfied	857	85.2	3,527	81.6
Q66J	**Satisfaction with job overall**				
1	Dissatisfied	91	9.0	578	13.4
0	Satisfied	915	91.0	3,746	86.6
Q81	**Gender**				
1	Male	716	71.2	2,834	65.5
0	Female	290	28.8	1,490	34.5
Q87	**Marital status**				
1	Attached	788	78.3	3,306	76.5
0	Unattached	218	21.7	1,018	23.5

Table C2

Number of Faculty and instructional staff age 55 or older by whether or not the have previously retired from another position: Fall 1998

Variable	Label	Continuous level variables			
		Yes		No	
		Mean	s.d.	Mean	s.d.
		n=1,006		n=4,324	
X01_7	**Years in current position at inst**				
c	continuous	10.55567	10.37584	18.85638	10.84234
X04_41	**Total classroom credit hours**				
c	continuous	9.592186	12.38274	10.11203	10.33217
.	{Missing}	{Missing=187}		{Missing}=691	
X61_41	**Average for credit class size**				
c	continuous	24.98168	18.75491	29.54555	24.70519
.	{Missing}	{Missing=187}		{Missing=691}	
X01_29	**Productivity, non-teaching: Recent publications**				
c	continuous	2.195825	7.553881	3.903099	9.632555
X07_29	**Productivity, non-teaching: Career publications**				
c	continuous	25.33002	51.58086	38.97109	60.07654
X01_82	**Age**				
c	continuous	64.03877	5.941463	60.13506	4.602173
Q80	**Number of dependents**				
c	continuous	0.860835	1.081972	0.862165	1.108069
Q76A	**Basic salary**				
c	continuous	29524.27	34134.61	55270.73	35259.1
Q77	**Spouse or significant other income**				
c	continuous	30532.34	33033.09	36428.86	35599.93
.	{Missing}	{Missing=229}		{Missing=1049}	

Table C3

Number of Faculty and instructional staff age 55 or older by presence or absence of plans to retire in the next three years: Fall 1998

Variable		Label	Categorical level variables			
			Yes		No	
			#	%	#	%
			n=2,654		n=2,676	
X06_0		**Type of institution**				
	1	4-year	2,017	76.0	1,971	73.7
	0	2-year	637	24.0	705	26.3
X07_0		**Institution control**				
	1	Public	1,855	69.9	2,002	74.8
	0	Private	799	30.1	674	25.2
X03_14		**Program area**				
	1	Business, law, and communications	264	9.9	266	9.9
	2	Health sciences	285	10.7	321	12.0
	3	Humanities	485	18.3	448	16.7
	4	Natural sciences and engineering	590	22.2	599	22.4
	5	Social sciences and education	527	19.9	510	19.1
	6	Occupational specific programs	72	2.7	70	2.6
	7	Other	368	13.9	370	13.8
	.	{Missing}	63	2.4	92	3.4
X37_0		**Region**				
	1	Northeast	1,122	42.3	1,076	40.2
	2	Southeast	600	22.6	592	22.1
	3	Plains	216	8.1	231	8.6
	4	West	711	26.8	769	28.7
	.	{Missing}	5	0.2	8	0.3
Q5		**Employment status**				
	1	Part-time	695	26.2	811	30.3
	0	Full-time	1,959	73.8	1,865	69.7

Table C3 (continued)

Number of Faculty and instructional staff age 55 or older by presence or absence of plans to retire in the next three years: Fall 1998

Variable	Label	Categorical level variables			
		Yes		No	
		#	%	#	%
		n=2,654		n=2,676	
X64_41	**Taught classes for credit to ug**				
1	No	347	13.1	283	10.6
0	Yes	1,912	72.0	1,910	71.4
.	{Missing}	395	14.9	483	18.0
X01_65	**Job satisfaction: Instructional duties**				
1	Dissatisfied	208	7.8	230	8.6
0	Satisfied	2,408	90.7	2,395	89.5
.	{Missing}	38	1.4	51	1.9
X01_66	**Job satisfaction: Other aspects of job**				
1	Dissatisfied	518	19.5	428	16.0
0	Satisfied	2,136	80.5	2,248	84.0
Q66J	**Satisfaction with job overall**				
1	Dissatisfied	335	12.6	334	12.5
0	Satisfied	2,319	87.4	2,342	87.5
Q81	**Gender**				
1	Male	1,759	66.3	1,791	66.9
0	Female	895	33.7	885	33.1
Q87	**Marital status**				
1	Attached	2,026	76.3	2,068	77.3
0	Unattached	628	23.7	608	22.7

Table C4

Number of Faculty and instructional staff age 55 or older by presence or absence of plans to retire in the next three years: Fall 1998

Variable	Label	Continuous level variables			
		Yes		No	
		Mean	s.d.	Mean	s.d.
		n=2,654		n=2,676	
X01_7	**Years in current position at inst**				
c	continuous	15.63791	10.59548	18.92788	11.60672
X04_41	**Total classroom credit hours**				
c	continuous	10.0031	11.13666	10.0301	10.3163
.	{Missing}	{Missing=395}		{Missing=483}	
X61_41	**Average for credit class size**				
c	continuous	28.46304	22.92549	28.95622	24.64531
.	{Missing}	{Missing=395}		{Missing=483}	
X01_29	**Productivity, non-teaching: Recent publications**				
c	continuous	4.146194	10.22007	3.020179	8.249495
X07_29	**Productivity, non-teaching: Career publications**				
c	continuous	39.45441	61.54576	33.3636	55.80207
X01_82	**Age**				
c	continuous	59.06594	4.313543	62.66293	5.219373
Q80	**Number of dependents**				
c	continuous	0.995102	1.200411	0.729821	0.979731
Q76A	**Basic salary**				
c	continuous	51289.25	37023.39	49540.5	35890.48
Q77	**Spouse or significant other income**				
c	continuous	36848.92	36121.14	33797.1	34216.53
.	{Missing}	{Missing=661}		{Missing=617}	

Appendix D

Coding Scheme

Table D1

Coding scheme for categorical level variables included in the logistic regression model distinguishing faculty and instruction staff age 55 or older by whether or not they have previously retired from another position: Fall 1998

Variable		Label	Previously Retired			
			Yes		No	
			#	%	#	%
			n=1,006		n=4,324	
X06_0		**Type of institution**				
	1	4-year	662	65.8	3,326	76.9
	0	2-year	344	34.2	998	23.1
X07_0		**Institution control**				
	1	Public	708	70.4	3,149	72.8
	0	Private	298	29.6	1,175	27.2
BUSINESS		**Business, law, and communications**				
	1	Yes	118	11.7	412	9.5
	0	No	888	88.3	3,912	90.5
HEALTH		**Health sciences**				
	1	Yes	108	10.7	498	11.5
	0	No	898	89.3	3,826	88.5
HUMANITI		**Humanities**				
	1	Yes	164	16.3	769	17.8
	0	No	842	83.7	3,555	82.2
SOC_ED		**Social sciences and education**				
	1	Yes	222	22.1	815	18.8
	0	No	784	77.9	3,509	81.2
VOC_ED		**Occupational specific programs**				
	1	Yes	41	4.1	101	2.3
	0	No	965	95.9	4,223	97.7
OTHER		**Other**				
	1	Yes	110	10.9	628	14.5
	0	No	896	89.1	3,696	85.5
Omitted category: Natural sciences and engineering						
SOUTHEA		**Southeast**				
	1	Yes	246	24.5	946	21.9
	0	No	760	75.5	3,378	78.1
PLAINS		**Plains**				
	1	Yes	75	7.5	372	8.6
	0	No	931	92.5	3,952	91.4
WEST		**Southwest, Rocky Mountain, Far West**				
	1	Yes	318	31.6	1162	26.9
	0	No	688	68.4	3,162	73.1

Table D1 (continued)

Coding scheme for categorical level variables included in the logistic regression model distinguishing faculty and instruction staff age 55 or older by whether or not they have previously retired from another position: Fall 1998

Variable		Label	Previously Retired			
			Yes		No	
			#	%	#	%
			n=1,006		n=4,324	
Omitted category: Northeast						
Q5		**Employment status**				
	1	Part-time	662	65.8	844	19.5
	0	Full-time	344	34.2	3,480	80.5
X64_41		**Taught classes for credit to ug**				
	1	No	116	11.5	514	11.9
	0	Yes	703	69.9	3,119	72.1
	.	{Missing}	187	18.6	691	16.0
X01_65		**Job satisfaction: Instructional duties**				
	1	Dissatisfied	82	8.2	356	8.2
	0	Satisfied	908	90.3	3,895	90.1
	.	{Missing}	16	1.6	73	1.7
X01_66		**Job satisfaction: Other aspects of job**				
	1	Dissatisfied	149	14.8	797	18.4
	0	Satisfied	857	85.2	3,527	81.6
Q66J		**Satisfaction with job overall**				
	1	Dissatisfied	91	9.0	578	13.4
	0	Satisfied	915	91.0	3,746	86.6
Q81		**Gender**				
	1	Male	716	71.2	2,834	65.5

Table D2

Coding scheme for categorical level variables included in the logistic regression model distinguishing faculty and instructional staff age 55 or older by presence or absence of plans to retire in the next three years: Fall 1998

Variable		Label	No Plans to Retire			
			Yes		No	
			#	%	#	%
			n=2,654		n=2,676	
X06_0		**Type of institution**				
	1	4-year	2,017	76.0	1,971	73.7
	0	2-year	637	24.0	705	26.3
X07_0		**Institution control**				
	1	Public	1,855	69.9	2,002	74.8
	0	Private	799	30.1	674	25.2
BUSINESS		**Business, law, and communications**				
	1	Yes	264	9.9	266	9.9
	0	No	2,390	90.1	2,410	90.1
HEALTH		**Health sciences**				
	1	Yes	285	10.7	321	12.0
	0	No	2,369	89.3	2,355	88.0
HUMANITI		**Humanities**				
	1	Yes	485	18.3	448	16.7
	0	No	2,169	81.7	2,228	83.3
SOC_ED		**Social sciences and education**				
	1	Yes	527	19.9	510	19.1
	0	No	2,127	80.1	2,166	80.9
VOC_ED		**Occupational specific programs**				
	1	Yes	72	2.7	70	2.6
	0	No	2,582	97.3	2,606	97.4
OTHER		**Other**				
	1	Yes	368	13.9	370	13.8
	0	No	2,286	86.1	2,306	86.2
Omitted category: Natural sciences and engineering						
SOUTHEA		**Southeast**				
	1	Yes	600	22.6	592	22.1
	0	No	2,054	77.4	2,084	77.9
PLAINS		**Plains**				
	1	Yes	216	8.1	231	8.6
	0	No	2,438	91.9	2,445	91.4
WEST		**Southwest, Rocky Mountain, Far West**				
	1	Yes	711	26.8	769	28.7

Table D2 (continued)

Coding scheme for categorical level variables included in the logistic regression model distinguishing faculty and instructional staff age 55 or older by presence or absence of plans to retire in the next three years: Fall 1998

Variable		Label	No Plans to Retire			
			Yes		No	
			#	%	#	%
			n=2,654		n=2,676	
Omitted category: Northeast						
Q5		**Employment status**				
	1	Part-time	695	26.2	811	30.3
	0	Full-time	1,959	73.8	1,865	69.7
X64_41		**Taught classes for credit to ug**				
	1	No	347	13.1	283	10.6
	0	Yes	1,912	72.0	1,910	71.4
	.	{Missing}	395	14.9	483	18.0
X01_65		**Job satisfaction: Instructional duties**				
	1	Dissatisfied	208	7.8	230	8.6
	0	Satisfied	2,408	90.7	2,395	89.5
	.	{Missing}	38	1.4	51	1.9
X01_66		**Job satisfaction: Other aspects of job**				
	1	Dissatisfied	518	19.5	428	16.0
	0	Satisfied	2,136	80.5	2,248	84.0
Q66J		**Satisfaction with job overall**				
	1	Dissatisfied	335	12.6	334	12.5
	0	Satisfied	2,319	87.4	2,342	87.5
Q81		**Gender**				
	1	Male	1,759	66.3	1,791	66.9

Appendix E

T-Tests

Table E1

T-Tests for Comparison in Publications Incorporating the Bonferroni Technique: Tables of Previously Retired Faculty.

Table of Comparison	Estimate1	Estimate2	Standard Error 1	Standard Error 2	Calcualted t value	Number of Comparisons	Bonferroni z value	Statistical Significance
table 2	73.8	75	1.84	0	0.652173913	1	1.96	FALSE
	65.5	34.5	2.03	2.03	10.79818237	1	1.96	TRUE
	33.25	9.82	2.04	1.36	9.556342351	8	2.74	TRUE
	33.25	5.51	2.04	1.94	9.853745502	8	2.74	TRUE
	33.25	7.41	2.04	1.15	11.03417396	8	2.74	TRUE
	33.25	3.42	2.04	0.77	13.680464	8	2.74	TRUE
	33.25	15.74	2.04	1.82	6.404859382	8	2.74	TRUE
	33.25	9.82	2.04	1.46	9.339777315	8	2.74	TRUE
	33.25	8.33	2.04	1.25	10.41584316	8	2.74	TRUE
	33.25	6.71	2.04	1.14	11.35682354	8	2.74	TRUE
	5.51	10	1.94	0	2.31443299	1	1.96	TRUE
	7.41	10	1.15	0	2.252173913	1	1.96	TRUE
	3.42	10	0.77	0	8.545454545	1	1.96	TRUE
	8.33	10	1.25	0	1.336	1	1.96	FALSE
	6.71	10	1.14	0	2.885964912	1	1.96	TRUE
table 3	2.4	9.8	0.6	0.98	6.439897602	2	2.24	TRUE
	2.4	9.3	0.6	1.24	5.008950673	2	2.24	TRUE
	29.19	15.63	2.5	2.79	3.619656896	1	1.96	TRUE
	24.45	18.12	2.54	1.94	1.980524746	1	1.96	TRUE
table 4	54.8	50	2.05	0	2.341463415	1	1.96	TRUE
	24.6	25	1.64	0	0.243902439	1	1.96	FALSE
	20.6	20	1.75	0	0.342857143	1	1.96	FALSE
	71.3	28.7	1.86	1.86	16.19502628	1	1.96	TRUE
	78.8	50	1.5	0	19.2	1	1.96	TRUE
table 6	66	50	2.21	0	7.239819005	1	1.96	TRUE

Table E2

T-Tests for Comparison in Publications Incorporating the Bonferroni Technique: Tables of Faculty with No Plans to Retire.

Table of Comparison	Estimate1	Estimate2	Standard Error 1	Standard Error 2	Calcualted t value	Number of Comparisons	Bonferroni z value	Statistical Significance
No Plans						1		
table 1	49.4	50.6	1	1	0.848528137	1	1.96	FALSE
table 8	61.6	50	1.58	0	7.341772152	1	1.96	TRUE
	74.1	75	1.41	0	0.638297872	1	1.96	FALSE
	64.6	67.7	4.12	2.06	0.672991333	1	1.96	FALSE
	8.5	10	1.95	0	0.769230769	1	1.96	FALSE
	7.4	10	1.05	0	2.476190476	1	1.96	TRUE
	3.9	10	0.65	0	9.384615385	1	1.96	TRUE
	8.4	10	0.79	0	2.025316456	1	1.96	TRUE
	7.7	10	0.88	0	2.613636364	1	1.96	TRUE
table 9	25.9	18	2.73	1.21	2.645560563	1	1.96	TRUE
	21.4	14.1	1.32	1.69	3.404197628	1	1.96	TRUE
table 10	85.7	75	1.22	0	8.770491803	1	1.96	TRUE
	70.3	29.7	1.19	1.19	24.12481959	1	1.96	TRUE
table 12	70	50	1.52	0	13.15789474	1	1.96	TRUE
table 13	92.8	87.9	0.81	0.82	4.251236841	1	1.96	TRUE
	19.3	20	1.02	0	0.68627451	1	1.96	FALSE

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