

FACULTY SALARY INEQUALITY IN U.S. BUSINESS SCHOOLS:
A MIXED METHODS ANALYSIS

By

Trina M. Camilletti Callie

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As members of the Dissertation Committee, we certify that we have read the dissertation prepared by Trina M. Camilletti Callie entitled Faculty Salary Inequality: A Mixed Methods Study of U.S. Business Schools and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

Dr. John J. Cheslock Date: 08/17/2006

Dr. Gary Rhoades Date: 08/17/2006

Dr. Jenny J. Lee Date: 08/17/2006

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copies of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

Dissertation Director: Dr. John J. Cheslock Date: 08/17/2006

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ABSTRACT

Through a mixed methods approach, this study provides a greater understanding of salary inequality in U.S. business schools and how it changed between 1998 to 2004. The quantitative research examines full-time faculty using individual-level salary data from both a constant sample of 307 institutions and a larger 2004 sample of 464 schools, allowing for in-depth examination of inequality including within institutions. The qualitative research used interviews with business school deans to uncover decisions that, in the aggregate, can impact faculty salary inequality.

Quantitative analysis of faculty salary utilized descriptive statistics as well as several inequality measures, along with regression analyses, to reveal the level and structure of inequality and the contributions of within-institution and between-institution inequality. Salary inequality increased between 1998 and 2004. However, contrary to previous research, salary inequality isn't attributed to superstar salaries; the growth in salary inequality is attributable to negative real growth in the lower tail of the salary distribution. Analysis between institutions reveals that the highest paying 10% of institutions are pulling away, increasing stratification between the most prestigious institutions and the others. Although private school faculty earn more than their public counterparts, salary inequality among faculty at public institutions increased more rapidly. Institutional characteristics including Carnegie classification, MBA ranking, degrees offered, accreditation, faculty size, tuition and fees, state appropriations per student and endowment per student contribute to differences in salary inequality between

institutions. Within institutions, unionization and higher MBA ranking correspond to lower salary inequality; whereas research/doctoral, public institutions, and larger faculty size correspond to more salary inequality. Differences also exist in the inequality source: upper tail or lower tail.

While the primary interview theme is the rule of the market, deans do make individual decisions based on their own competitive marketplace. The qualitative inquiry revealed four decision categories that can affect salary inequality, including: hiring strategies, environmental influences—colleges and fields, compensation challenges and market response strategies, all which may collectively increase or decrease faculty salary inequality. Interview analysis revealed additional questions that need to be answered using quantitative data, from changes in faculty composition, to compression/inversion, and salary inequality differences across fields.

CHAPTER 1

INTRODUCTION

Introduction

Faculty salaries make up the single largest item in most university¹ and college annual budgets (Hearn, 1999). However, there is no one-size-fits-all approach to salary setting and compensation structures. Variation among faculty members' salaries has long been a feature of higher education. As Linda Bell, former chair of the American Association of University Professors' (AAUP) committee on the economic status of the profession puts it, "Although some among us are faring well, most of all, we are faring differently," (Bell, 2001). The literature indicates numerous characteristics driving faculty salary differences: type of institution, including both control and Carnegie classification (Rhee, 1997; Hearn, 1999; Alexander, 2001; Zoghi, 2001), field (Hamermesh, 1988; Lillydahl & Singell, 1992; Hearn, 1999; Ehrenberg et al, forthcoming), unionization (Barbezat 1989; Rhee, 1997; Monks, 2000), gender (England, 1982; Michael et al, 1989; Bellas, 1997), and race (Rhee, 1997; Monks & Robinson, 2000). However, much less is known about the overall level of inequality² across faculty salaries and how it has changed in recent years. The available evidence, although limited, suggests that important changes have taken place in faculty salary inequality.

Several possible factors have been suggested as explanations for these changes. Ehrenberg (2003) suggests that the growing inequality in wealth across institutions may

¹ University, institution, and school are used interchangeably within this paper.

² Inequality is defined as the numerical representation of the differences in salary within a given population; Cowell, 1995.

explain why salaries are increasingly differentiated across schools. It has been suggested by Bell (2001) and Monks (2003) that increasing differences at the same school result from salary setting strategies such as “focused excellence” (Likins, 2002), “selective investment” (Wilson, 2001) and the “winner-take-all” approach (Frank & Cook, 1995) in which departments and individuals with high profiles and of higher quality receive more resources and higher compensation. These types of salary setting strategies lead to increasing salary inequality both across and within institutions. However, the extent to which these types of salary strategies are being used, as opposed to practices consistent with the egalitarian ideal of higher education, remains to be fully studied.

This study seeks to understand overall salary inequality along with the strategies and forces that influence it. This study looks not only at how inequality has changed over time, but also at institutional characteristics that contribute to changing salary patterns. Inequality both within and between institutions will be examined separately. This study also details the decisions business school deans make that can impact salary inequality. This chapter outlines the study by defining the problem and purpose of the study, its significance to the field of higher education, and the guiding conceptual framework.

Organization of the Study

This study is organized into six chapters. Chapter 1 provides an introduction to the study, including the problem, its purpose, and how this study contributes to the higher education field. Chapter 2 provides a review of the literature related to faculty labor markets and salary inequality across multiple characteristics, concluding with a presentation of the conceptual framework used in this study. Chapter 3 details the

research design, including methodology, population samples, data sources, and data analysis. Chapter 4 presents the quantitative findings of this study, including a discussion of overall faculty salary inequality, differences in inequality across institutional characteristics, and the contributions of within and between institutional inequalities. Chapter 5 presents the qualitative findings of this study, including forces and strategies that are influencing faculty salary inequality. Finally, Chapter 6 presents the conclusions drawn from this study and recommendations for further research.

Background

As Chapter 2 will elaborate, the overall labor market in the United States has experienced increased wage inequality over the past 30 years (Card & Dinardo, 2002; Deere, 2001). However, much less is known about faculty labor markets, which may be quite different from the broader labor force. There are several reasons why these two labor markets might differ. First, faculty members in all fields have roughly the same job—teaching students and producing and publishing research. Faculty tend to be highly educated, with most holding advanced degrees—94.3% have a master’s degree or doctorate (National Center for Education Statistics, 2003). The majority of faculty are employed by public institutions—69.3% (National Center for Education Statistics, 2003). And, finally, the tenure system in higher education significantly changes the employment arrangement. Nonetheless, there are several factors that link the general labor force to faculty that may contribute to salary inequality amongst faculty, such as increased value of technology and science (Slaughter & Rhoades, 2004), increasing unionization (Rhoades, 1998), and the pseudo-corporatization of higher education, with an increasing

propensity of institutions of higher education to engage in academic capitalism, linking higher education institutions to the new economy (Slaughter & Rhoades, 2004). In addition, as many institutions compete with private sector employers for highly trained PhDs, the state of salary inequality in the general labor market is a relevant factor. Therefore, understanding faculty salary inequality may provide some insights into whether and how closely faculty labor markets mirror the general labor market.

More importantly, the level of inequality in faculty salaries may have important implications for faculty morale, recruiting, and the distribution of faculty across disciplines and institutions. According to Hamermesh (1988), there are two extreme approaches that can be used for faculty salary setting: the market approach or the equality approach, neither of which are realistic. The market approach would dictate that faculty are compensated solely on the worth of their service in the external market, a strategy that higher education funding sources would be loathe to support, and that would run counter to the notion of the academic work life and its associated freedoms. The equality approach, a form of the equal pay principle, would compensate all faculty the same, yet unless all institutions of higher education adopted this approach, it would leave those who did vulnerable to losing their best faculty to higher paying institutions while retaining the average workers (Hamermesh, 1988). One could argue that some inequality is desirable in that it allows for differential compensation for differential quality amongst faculty. Concepts of fairness and distributive justice are related to how faculty members view and react to differences in compensation, suggesting that the process of distribution is as important to individuals as the amount of the distribution itself (Greenberg, 1982).

Within the faculty community, there are fairly consistent standards of what is valued in the salary allocation system. Typically these standards include merit related to research productivity and seniority. Wage dispersion or inequality, when related to these standards, is less likely to produce dissatisfaction (Pfeffer & Langton, 1993).

The counterargument for inequality makes several important points about the undesirability of salary inequality among faculty. First, the “winner-take-all markets have increased the disparity between the rich and poor,” (Burgan, 2005, p. 3). Other deleterious effects on faculty include demoralization, increased resentment among long-term professors, and an erosion of loyalty to the institution (Burgan, 2005). Salary inequality also affects higher education as a whole, with the distribution of academic talent being partially dictated by compensation practices and the battle of institutions of higher education to maximize prestige or, the unspoken, to avoid losing prestige. Stratification within higher education is a long-standing tradition, with institutions and students occupying various positions within the hierarchy (Trow, 1984; Hearn, 1991). Even faculty are stratified—by compensation (Alexander, 2001; Bellas, 1997). However, to the extent that the “winner-take-all market” (Frank & Cook, 1995) narrows the distribution of outstanding faculty to an ever smaller set of winning schools who can engage in faculty hiring practices known as “superstars and rookies of the year,” (Burgan, 2005, p. 1), the American notion of higher education as a vehicle to enhancing both individual and societal benefit may be threatened. This threat stems, in part, from the fact that the most talented students are increasingly concentrated in a small set of elite institutions (Frank & Cook, 1995). If the most talented students go to the most

prestigious institutions, which have the greatest concentration of top quality faculty, then increasingly, the inequality between the top schools and the rest will grow (Trow, 1984). This gap has ramifications both for institutions and society in general, as top students eschew state universities close to home in favor of attending more selective, frequently private institutions (Frank & Cook, 1995). The American higher education system has long been viewed as a vehicle for greater occupational attainment, with the individual's attainment and economic rewards partially related to the types of institutions attended. Yet if the best students congregate in the elite institutions and minority students and students of lower socioeconomic status disproportionately attend less prestigious schools, inequality across groups of students will continue to grow (Hearn, 1991). As Ehrenberg states, "To the extent that faculty quality now differs more across institutions, where students go to college is likely to matter even more in the future than it has in the past," (Ehrenberg, 2003, p. 278)

One final impact of salary inequality is the changing number of faculty and distribution by faculty type. As entry level faculty salaries have risen rapidly (Hamermesh, 1988; LeClair, 2003), many departments have cannibalized open faculty positions, often combining two positions in order to generate a larger faculty salary to replace faculty lost to other jobs or retirement. In many cases, this has led to a decrease in the number of faculty positions within a given department, increased class sizes, and decreased class offerings (Callie, 2003). Faculty type has also changed somewhat, as often times a superstar's salary is generated by replacing full-time faculty with adjuncts,

freeing up monies for the hire (The National Commission on the Cost of Higher Education, 1988; Baldwin & Chronister, 2001; Gappa & Leslie, 1993).

In order to fully understand the patterns of salary inequality in higher education, a look at the changes and pressures that might influence inequality, both now and in the future, is necessary. One change that has received a fair amount of discussion is the marketization of higher education (Couturier & Scurry, 2005), referred to as academic capitalism (Slaughter & Rhoades, 2004; Slaughter & Leslie, 1997). Academic capitalism is leading to stratification within institutions between disciplines that have connections to the external marketplace and those who do not. One result of this stratification is growing inequality across fields. Institutions increasingly have to decide which disciplines to devote scarce resources to and those that generate money and prestige are frequent recipients (Volk et al, 2001). Faculty who can generate large amounts of federal research funds are increasingly valuable to cash-strapped institutions, since when they leave, they take much-needed funds with them (Slaughter, 2001). The “star” system, combined with increasing academic entrepreneurialism, pits one group of professors against another in the struggle for resources. Besides contributing to discipline-based salary inequality, academic capitalism indirectly contributes to gender inequality, since women are disproportionately found in fields without significant outside market opportunities.

The growth in sponsored research and the growing cost of science also contributes to differences by field (Couturier & Scurry, 2005; Ehrenberg & Rizzo, 2004). Fields which generate considerable research funding are gaining in resources, salary and in new

positions (Hackman, 1985; Alexander, 2001; Finkelstein, 1998). Faculty who are in student-producing fields are not faring well in resource allocation or in new hires (Slaughter, 1993; Finkelstein, 1998).

Another change is the increasing availability of information for consumers (parents and students), combined with an every growing desire for prestige maximization (Ehrenberg & Rizzo, 2004). This has led institutions to employ a number of tactics, including ramping up technology infrastructure, engaging in a “war of amenities,” and competing for star professors in an attempt to bolster departmental and college quality—all in the name of improved rankings (Couturier & Scurry, 2005). More and more institutions are competing to rise to the top of the institutional hierarchy. The space at the top is limited, however, and the top 20 have remarkable staying power, having accumulated alumni loyalty and large endowments (Lovett, 2005). Now, more than ever, individual research stars have large external market opportunities, combined with the culture of the “counteroffer,” leading to increasing salary differentials as departments pursue strategies to keep these individuals at all costs (Pratt, 2003).

Changes have also occurred in today’s college students, increasingly seen as consumers of academic knowledge and products, ever savvier in their choice of academic disciplines. Aware of post-graduation prospects, they are migrating to professional colleges and pre-professional programs, primarily at the expense of the liberal arts curriculum (Slaughter, 2001; Pratt, 2003). This migration leads to increasing demands for faculty in those programs, programs which are typically higher paying and male-dominated. Combined with faculty shortages in some disciplines, e.g. business (LeClair,

2004), this increased demand will lead to higher salaries for those faculty in short supply and high demand, something that labor market theory would predict.

Another contributing factor to salary inequality across fields is the growing trend of certain graduate programs to charge differential tuition (Slaughter, 2001). Differential tuition is usually charged in fields with high demand and strong post-graduation employment prospects. One of the benefits of differential tuition is that increased revenue allows colleges to hire or retain faculty with the additional revenue, a strategy pursued by numerous business schools in the 1990s and early 2000s.

There are many more subtle changes in higher education that have “corporatized” the environment. From the university president, viewed as CEO, to the increasing view of faculty as workers for whose performance presidents are responsible—faculty as the managed professional (Rhoades, 1998; Slaughter & Rhoades, 2004), environmental changes are leading to a deterioration of the desirability of faculty work life. It is possible that these changes will lead faculty to demand monetary compensation as a compensating wage differential. These differentials will be most acute in fields in which faculty have significant external job opportunities; something again that favors men over women and whites over non-whites.

There are also significant pressures within higher education that may have potential impact on faculty and their compensation. One major pressure is the increased financial obligations of states, such as entitlement programs like Medicaid, and the growing costs of healthcare, corrections, and infrastructure (Hovey, 1999; Ehrenberg & Rizzo, 2004). The changing nature of the state’s commitment to its institutions of higher

education, along with an inability to fund them at higher levels (even if their philosophical commitment desired), will further exacerbate the current salary inequalities between public and private institutions. Since the majority of students are educated at public institutions, this has significant ramifications. According to Ehrenberg, "...if the quality of the public declines, then we're really hurting American education in general," (Smallwood, 2001, p. A18).

Study Rationale, Purpose, and Research Questions

In order to understand salary inequality, it is necessary to study the current state of inequality and how it has changed over the past several years. As Hamermesh (1988) points out, faculty become accustomed to inequality; it is when the level of inequality changes that faculty become "irritated." In addition to understanding overall inequality, this study addresses where the inequality exists, be it between institutions across a variety of institutional characteristics, or within institutions. This study also provides insight into salary-setting strategies which may have contributed to patterns of salary inequality.

This study is unique in two ways. First, it studies all full-time faculty in a given business school for a constant (panel) sample of institutions. This approach allows for deep exploration of the topic of faculty salary inequality in business schools. In addition, the size of the population studied provides very strong internal validity. Second, it takes a mixed methods approach, combining longitudinal, national data on business school faculty salaries and qualitative interviews with business school deans. This approach was designed to improve the understanding of the current state of inequality and possible connections with business school compensation practices.

This study used the U.S. business school as the organizational unit of analysis, a field which provided an interesting environment in which to study salary inequality. Business schools possess several unique characteristics, including relative closeness to both internal and external labor markets, an increase in the popularity of business degrees, and a decline in the number of PhDs granted annually in business fields (National Center for Education Statistics, 2003), resulting in a shortage of business school faculty.

The research design has three overarching purposes. The primary purpose is to describe the current level of faculty salary inequality and how it has changed over time, specifically between 1997-1998 and 2003-2004³. This study details how faculty salaries differ across institutions as well as how faculty salaries differ within the same school. Second, this study examines how a range of institutional characteristics contributes to changing salary inequality, for example variations by control (public or private), Carnegie classification, unionization, and quality (as measured by business school rankings). Third, this research investigates the challenges and compensation choices that may have led to these patterns of salary inequality, through qualitative data collected from interviews with a sample of business school deans.

As discussed in the review of the literature in Chapter 2, while there are a few important studies that have been conducted on salary inequality across institutions (Ehrenberg, 2004b; Monks, 2003), by control (Alexander, 2001; Zoghi, 2001), and by field (Hamermesh, 1988; Bellas, 1997; Hearn, 1999; Ehrenberg et al, forthcoming), no

³ For the remainder of this study, 1998 will be used to represent the academic year 1997-1998; 2004 will be used to represent the academic year 2003-2004.

large-scale research has been conducted on salary inequality using a longitudinal sample of the same institutions with individual faculty-level salary information. Thus, the evidence on faculty salary issues is far from complete, given data limitations faced in previous research. This study will substantially expand on previous work utilizing two new sources of data, guided by one primary research question and four sub-questions:

A. What is the level and structure of faculty salary inequality in U.S. business schools and how has it changed in the recent past, between 1998 to 2004?

1. What is the overall level and structure of faculty salary inequality? How does the level and structure of faculty salary inequality differ for specific types of institutions, including public/private, Carnegie classification, and unionization?
2. How does between-institution inequality contribute to overall faculty salary inequality? What institutional characteristics contribute to between-institution inequality?
3. How does within-institution inequality contribute to overall faculty salary inequality? What institutional characteristics contribute to within-institution inequality?
4. What are the salary-setting strategies and forces affecting these salary inequalities?
 - a. What types of faculty do business schools hire and how do they set their compensation?
 - b. What strategies and tactics do business schools use in allocating annual raises and salary adjustments?

- c. What strategies do business schools use when faculty attempt to leverage the external labor market?
- d. How are business schools utilizing total salary packages to compete for faculty?
- e. Do salary policies reflect a more general college-level strategy?
- f. Does college culture or particular environmental forces play a role in salary setting?
- g. What are the biggest challenges business schools face in faculty compensation?

Conceptual Framework

The academic department in this study is conceptualized as the intersection between the larger discipline and the local institution (Clark, 1987a). This framework will be expanded upon in Chapter 2; however, it is necessary to understand the difference between the department and the discipline, and why the terms department and field (an analogous term to discipline) are used seemingly interchangeably in certain parts of this study.

Faculty members are part of a duality with memberships in both an institution and a discipline (Clark, 1987a). The discipline serves as the macro, the external organization, which serves to bring academicians with specialized scopes together on a national scale. The department is the micro, the internal organization, which serves to cluster similar disciplinarians together at the operating level of the institution (Clark, 1987a). The department becomes the local setting wherein faculty conduct their research and

teaching; however, it is often the power of the discipline that guides the type of research in which they engage. Faculty members vary in the extent to which they identify more nationally with the discipline or locally with the institution (Gouldner, 1957). In many cases, a department will have clusters of a single discipline; for example, a finance department. In other cases a department might group together numerous subfields, such as a biology department with subfields including microbiology, immunology, and molecular and cell biology, all distinct specializations.

In this study, faculty salary data is organized by institution and field, a fact necessitated by how the Association to Advance Collegiate Schools of Business (AACSB) collects faculty salary data, using 29 pre-selected field codes. Using field, a national organizing unit, to study faculty salary ensures comparability across institutions with distinct departmental organizational structures. The department comes into play in the qualitative portion of the study through analyzing business school salary setting strategies. As the internal organizational unit of a business school, deans use the department as the boundary condition for setting local salaries, while remaining cognizant of national, disciplinary, and market compensation patterns. Therefore, the design of this study required the use of both field and department.

Significance of the Study

As previously discussed, the primary intent of this study is to describe the current level of faculty salary inequality and how it has changed over time, between 1998 and 2004, to detail how faculty salaries differ across institutions as well as how faculty salaries differ within the same school, to uncover the differences by institutional

characteristics, such as type, Carnegie classification, and unionization, and, finally, to understand, from the business school dean's perspective, the challenges faced and choices made in setting faculty salaries that potentially contribute to salary inequality.

The benefits of this study are threefold:

First and foremost, the richness of the quantitative data used in this study allows the knowledge of faculty salary inequality to be expanded in several directions, detailing how faculty salaries differ across institutions as well as how faculty salaries differ within the same school. While much is known about faculty salary on multiple dimensions, the few studies that have examined faculty salary inequality have primarily used data sets containing the average salary for each institution, which prevented analysis of differences across faculty at the same institution. The small amount of research that did utilize individual faculty-level data did not follow the same institutions over time and did not contain enough faculty members at the same institution to thoroughly examine within-institution inequality. This study also provides insight into the strategies that might have led to faculty salary inequality, in some cases presenting findings that are contrary to previous research.

Second, this study will provide an understanding of faculty salary policies, the strategies being utilized, and the biggest challenges facing business school deans in terms of faculty compensation.

Finally, access to this unique sample of national-level business school faculty salary data, at the individual level, previously unavailable to any researchers, allowed for contributions to the higher education literature on the dynamics and changes over time in

national, institutional, and departmental business faculty salary markets. The quantitative data describes salary inequality and its changes in the recent past. Through augmentation with rich interview data from deans, the study adds technicolor and depth to the literature. This qualitative work suggests explanations that may explain the changes in inequality over time. Additionally, this qualitative work suggests a variety of additional quantitative studies that would extend the knowledge of this area.

Summary

This chapter presented the framework for this study by establishing the background information on faculty labor markets, basic inequality principles, and changes and pressures that may influence faculty salary inequality. This background information provided essential context for the purpose, rationale and significance of this study—the study of growing inequality in faculty salaries in business schools.

CHAPTER 2

REVIEW OF THE RELEVANT LITERATURE

Introduction

Faculty labor markets are unique in many respects and operate under a number of unique circumstances that merit discussion. Before reviewing the literature on faculty salary inequality, it is helpful to discuss briefly both general labor market trends, and faculty labor market trends. Thus, in the following section, background information is provided first on how salary inequality has changed for the workforce at large, followed by a characterization of faculty labor markets in higher education. Then an overview is presented of how faculty salary inequality differs across institutional type, followed by a discussion of faculty salary inequalities across fields and a brief discussion of faculty salary inequality by unionization. Next, research on the under-researched topic of within field salary inequality is reviewed along with the effects of wage dispersion. Finally, an outline of the conceptual framework which guides the data interpretation will be developed.

Labor Markets in the United States

Over the past 30 years, wage inequality in the U.S. has increased substantially (Card & Dinardo, 2002; Deere, 2001). Two primary explanations have been suggested for this increase: changes in institutions and policies and the Skill-Biased Technological Change (SBTC) hypothesis (Lee et al, 2005). Research has explored policy and institutional changes such as a decline in the real value of the minimum wage, lower rates

of unionization, and expanded economic deregulation as contributing to the increase (DiNardo, Fortin & Lemieux, 1996; Fortin & Lemieux, 1997). SBTC is typically associated with the introduction of personal computers and related information technologies and asserts that the economy has undergone a fundamental shift in the types of workers required, increasingly valuing skilled workers by paying them higher wages relative to unskilled workers (Card & DiNardo, 2002; Bound & Johnson, 1992; Berman, Bound & Griliches, 1994). However, it is important to note that while widely cited, this hypothesis has a number of critics who claim that the effects of SBTC are most prevalent prior to 1983 (Baltagi & Rich, 2005) and that SBTC fails to capture aspects of inequality related to the closing of the gender gap, the stability of the racial wage gap, and the dramatic rise in education-related wage gaps for younger versus older workers (Card & DiNardo, 2002). Given the unique nature of faculty labor markets, to be discussed shortly, it is likely that some of these explanations, while relevant to the labor market at large may not be as applicable in a university setting, a setting with highly educated faculty members. Nonetheless, several of these factors may contribute to salary inequality amongst faculty, such as increased value of technology and science (Slaughter & Rhoades, 2004), increased unionization by faculty (Rhoades, 1998), and the pseudo-corporatization of higher education, with an increasing propensity of institutions of higher education to engage in academic capitalism, linking higher education institutions to the new economy (Slaughter & Rhoades, 2004). In addition, as many institutions compete with private sector employers for highly trained PhDs, the state of salary inequality in the general labor market may be a relevant factor.

Several recent studies have analyzed increasing wage inequality, seeking to understand the nature of the changes and the shape of the U.S. wage structure. Changes in wage inequality are attributed to both increases at the very top end of the wage distribution (Lemieux, 2006) and to divergent trends between the upper portion (or tail) and the lower portion (or tail) of the salary distribution. These patterns of divergence, termed “polarization,” occurred as employment is divided into high-wage and low-wage jobs (Autor, Katz & Kearney, 2006). While inequality increased across wage distributions with relative uniformity in the early 1980s, the period from 1987 to 2003 saw the upper tail increase steadily relative to the median salary with a corresponding flattening and compression of the lower tail relative to the median (Autor, Katz & Kearney, 2005). The increase in wage inequality has been largely attributed to increasing wage dispersion within industries rather than between industries (Wheeler, 2005).

Faculty Labor Markets

While typical labor market theories may be applied to the academic marketplace, the labor market characteristics of higher education are distinct in many respects. Some distinctions include: (1) the notion of academic work life, (2) the role of the academic department, (3) faculty production time, and, (4) the constraint of the academic life on career development.

The first distinction is the notion of academic work life—academic freedom, security of tenure, substantial autonomy, long vacations, and paid sabbaticals (Dillon & Marsh, 1981). These benefits are often cited as compensating wage differentials and explanations for why academics command lower salaries than similarly trained

nonacademics. In 1980, the difference between faculty and nonacademicians in the same field with similar degrees was 23.9% (Dillon & Marsh, 1981). A 2001 salary report from *Academe* stated that the average faculty member earned 26% less than the average highly educated professional. Professors earn 42% less than comparable external professional employment (Bell, 1998). Research looking at doctorate recipients in science, engineering, and humanities found that higher education salaries in 1987 were 91% of comparable positions in government and 80% of those in business (Rees, 1993). Humanities PhDs were much more likely to be employed in the academic sector—73%—versus science and engineering, 31% of whom were employed within higher education (Rees, 1993). The most recent *Survey of Earned Doctorates* (2003) puts these fields at 83% and 22%, respectively, employed within higher education.

A second distinction is that, in many cases, the department or college reigns supreme to the institution. Faculty are typically hired into departments, not institutions, so the labor market for their field determines salary (Amey & VanDerLinden, 2002). Departments usually possess reasonable independence with respect to setting wage and salary policies and departments vary within a given university not only in terms of the level of faculty salary, but also in terms of the amount of salary dispersion both within and across ranks (Pfeffer & Langton, 1988). This distinction bears directly on “within field” salary inequalities as different departments, even within a given college, pursue different salary strategies and policies, relative to their own disciplinary internal and external labor markets.

A third distinction is that the time needed to generate a faculty member is unusually long, leaving institutions with a fundamental asymmetry between the boom and bust phases in the academic labor market (Dresch, 1983). For example, with a median registered time from baccalaureate degree to doctorate of 7.9 years in business fields, faculty cannot be generated quickly enough to meet current growth in the academic labor market (Survey of Earned Doctorates, 2003).

Another distinction is the increasingly public nature of individual faculty information. Technology has made academic public records increasingly easy to access—both faculty research and compensation [particularly for public institutions (Tolbert, 1986)], leading to strong visibility of the individual faculty member, more individualized reputations, and, correspondingly, higher individual market values. Most studies confirm the existence of a national marketplace for faculty, which values research-oriented behaviors over teaching and service (Amey & VanDerLinden, 2002; Gomez-Mejia & Balkin, 1992). Research citations have been found to be a positive and significant determinant of earnings, with the marginal value of a citation differing across disciplines (Diamond, 1986; Gomez-Mejia & Balkin, 1992). However, an earlier study found contradictory evidence that teaching is the strongest determinant of faculty salary increments (Koch & Chizmar, 1973).

Finally, whereas private labor markets often have internal career development opportunities, e.g., corporations with promotions and transfers, academic labor markets have only the rank structure of assistant, associate, and full professor. Therefore, in order to gain financially, faculty must look to external faculty labor markets which favor

mobile faculty, or at least those who can threaten to leave (Gomez-Mejia & Balkin, 1992; Shuster, 1970). This market also favors faculty in specialized, high demand fields (Amey & VanDerLinden, 2002).

Faculty labor markets are generally studied from the perspective of three overall pay theories. First, scholars recognize that the wealth of the institution influences faculty compensation (McCormack, 2005; Zoghi, 2003; Ehrenberg, 2002). Second, traditional theories of supply and demand and market competition play a role; and, third, institutional forces, such as unionization, can influence faculty salary setting (Barbezat, 1989; Gomez-Mejia & Balkin, 1984). This third perspective sees institutions as using salary setting as a way to reinforce internal behavioral norms (Fairweather, 1995).

Numerous other studies have confirmed multiple determinants of faculty compensation, including tuition levels, overlapping labor markets (both internal and external), market pressures, cost of living, workload, discipline, rank, and personal characteristics such as gender, race/ethnicity, and years of experience (Lamb & Moates, 1999).

Salary Inequality: Institutional Type

Within and across institutional types, salary inequalities exist—both within departments and within ranks. This section examines two different categories of institutional type variables: control (public versus private) and Carnegie classification—doctorate-granting (Research/Doctoral-Extensive and -Intensive, formerly known as Research 1 and 2, Doctoral 1 and 2), masters (comprehensive), baccalaureate, and associates college (community, junior and technical colleges awarding no bachelor's

degrees, with few exceptions). It is important to note that the Carnegie classifications changed in 2000, reducing the number of overall categories and making direct comparisons to earlier studies somewhat difficult. This section describes salary inequalities across these variables, in addition to briefly discussing how accreditation impacts salary inequality.

Salary differences by institutional type are well-documented. Faculty at private institutions earn appreciably more than their public school faculty peers and average faculty salaries have grown more rapidly in privates than in publics, by a difference of 66% growth versus 52% growth over the time period 1985-1996 (Hearn, 1999). These salary differences between public and private school faculty also exist across multiple Carnegie classifications (Alexander, 2001). Not only do private school faculty earn more, but the salary premium has grown between 1980 and 1998 (Figure 1). For full professors at Research 1 universities, the salary premium for full professors grew from \$1,300 in 1980 to \$21,700 in 1998. For associate professors, the premium grew from \$900 to \$8,000 over the same time, while assistant professors' premium changed from \$900 in 1980 to \$6,700 in 1998. Similar disparities existed at both Research 2 and Doctoral 1 and 2 institutions (Table 1).

Public university professors have been categorized as “far[ing] badly.” Between 1975 and 1994, faculty salaries at the more competitive private institutions grew 25% more compared to equally competitive public schools (Zoghi, 2001). In 1975, these two faculties earned roughly the same amount. For the most part, public university faculty work longer hours, teach larger classes and more undergraduate students, and spend more

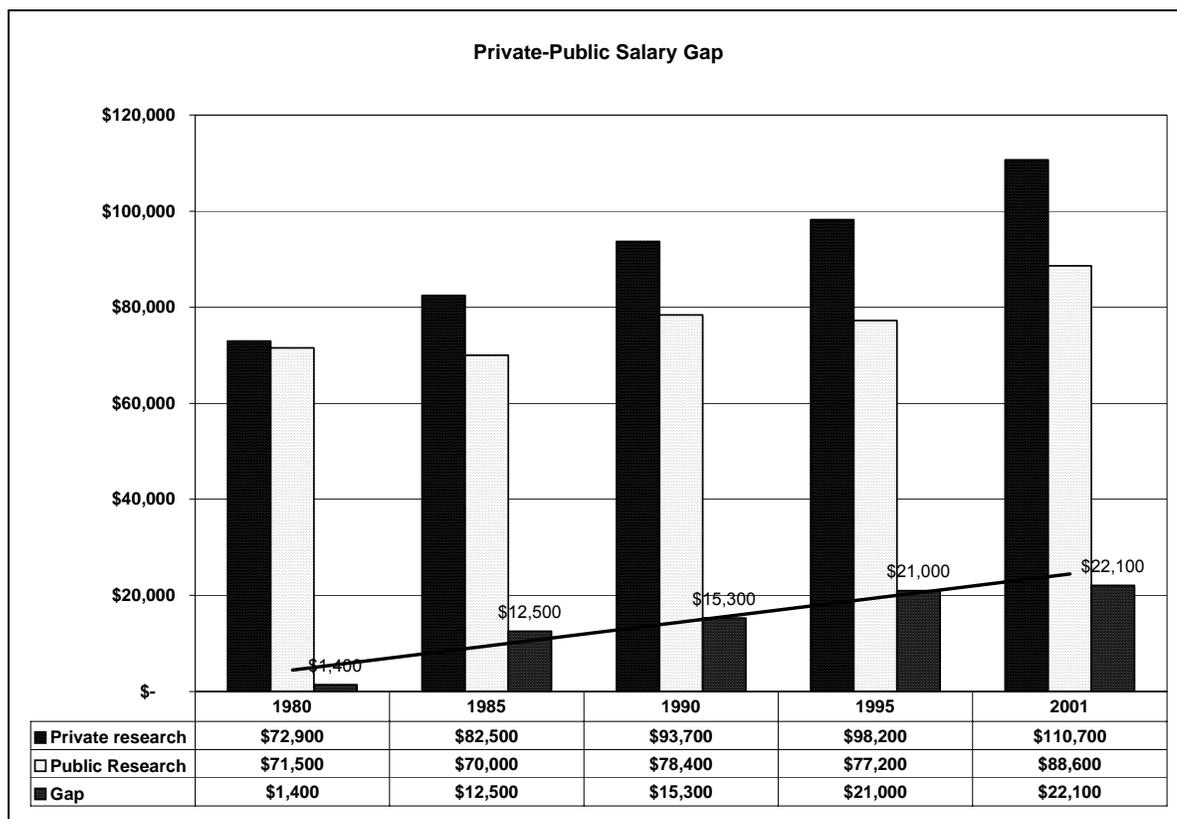


Figure 1: Private-Public Faculty Salary Gap. This data covers institutions classified as Research Universities I by the Carnegie Foundation for the Advancement of Teaching and have been inflation-adjusted to 2000 constant dollars. Source: F. King Alexander, 2001; *Chronicle of Higher Education* analysis of AAUP salary data.

time teaching and less time doing outside consulting than their private university peers (Zoghi, 2001). Much of the wage gap can be attributed to increased financial pressures, framed as “state fixed effects” which result in financial conditions that restrict a public university’s ability to increase faculty salaries. The remainder of the private-public salary difference relates to quality, with private institutions more likely to be among the highest ranked institutions than public ones, and because the financial returns to working

at a top-ranked institution are larger at private institutions and smaller at public schools (Zoghi, 2001).

The two most recent articles on public versus private inequality echo these findings. The financial disparity between the two types of institutions has grown in recent years, with full professors at privates earning \$122,158 in 2003, while peers at public made 77% of that, or \$94,606. Five years ago, publics made 80% of privates (Fogg, 2004). In 2004, publics fared the worst yet; the inability of public institutions to muster enough resources to keep up was cited as the primary culprit (McCormack, 2005). Growing inequality in the differences in endowment per student (with elite privates gaining more in endowment wealth) and increasing differences in state appropriations per student (with the public/private gap in real expenditures per full-time equivalent student widening, beginning in 1979) are also attributed to the growing inequality across public and private institutions (Ehrenberg, 2002, 2003).

Inequality is also partially attributable to a premium faculty receive for working at a research university compared to other Carnegie classifications (Monks, 2003; Bell, 2000, 2001). Research faculty earn 31% more than liberal arts faculty, 29% more than comprehensive faculty, and 16% more than doctoral faculty. There is also a premium associated with working at a private research and doctoral institution as compared to a public one. Surprisingly, however, public comprehensive faculty earn more than private comprehensive faculty (Monks, 2003). Similar, but smaller, effects were found using 1993 data, with faculty working at research institutions earning 15% more than

comprehensives; doctoral institution faculty earning 5% more than comprehensives; and, private faculty earning 7% more than their public peers (Rhee, 1997).

Table 1

Faculty Salary Differentials Between Private and Public Institutions

Carnegie Classification-- Rank	1980 Gap	1998 Gap
Research 2—Full Professor	\$2,900	\$12,300
Research 2—Associate Professor	\$0	\$7,400
Research 2—Assistant Professor	\$530	\$5,200
Doctoral 1—Full Professor	\$2,400	\$11,800
Doctoral 1—Associate Professor	\$400	\$7,200
Doctoral 1—Assistant Professor	\$700	\$6,300
Doctoral 2—Full Professor	\$800	\$6,200
Doctoral 2—Associate Professor	\$500	\$3,800
Doctoral 2—Assistant Professor	\$0	\$2,800

Source: F. King Alexander, 2001; analysis of AAUP salary data as published in *Chronicle of Higher Education*.

Business school faculty salaries differ by institutional type as well as accreditation status (as accredited by the Association to Advance Collegiate Schools of Business, or AACSB). The difference in salary for a full professor in 2004 between public and private business schools was \$22,900. The public-private differential was much smaller at the associate level, at \$8,800. For assistant professors, this differential was nearly the same, at \$8,700. Differences in accreditation status produce even larger differentials at the full professor level, associate level, and assistant level—\$33,300, \$19,900, and \$24,300, respectively (LeClair, 2004).

In summary, institutional variables impact the level of faculty salary inequality across institutional types. These salary inequalities are affected by whether the institution

is public or private, where it fits within the Carnegie classification system of institutions, and even whether or not it is accredited within its professional field.

Salary Inequality: Field

Faculty salary inequality exists not only across institutions, but across fields. Even within the same institution, faculty working in different fields earn markedly different salaries. This section will detail both the differences between fields as well as outline some of the common sources of the inequality, including impartial market forces, quality, field growth rate, seniority distributions, race, and gender.

Faculty salary differentials across fields are large and have been growing for some time (Bellas, 1997; Hearn, 1999; Ehrenberg, 2004a; Ehrenberg et al, forthcoming). These differences have commonly been attributed to impartial market forces, specifically, the supply of qualified workers relative to the demand. Among full professors in large, mainly public institutions, the salary difference across fields was \$25,000 in 1987-1988 (Hamermesh, 1988). The coefficients of variation indicated a high degree of inequality among 18 major fields, with recent growth in real academic salaries occurring disproportionately in fields that were already among the highest paid. In 1988, the average law professor earned 60% more than the average fine arts professor. Comparisons between full professors of engineering and education produced high levels of inequality, with a \$20,000 difference between the two (Hearn, 1999), while the average business professor earned 27% more than the average professor of foreign languages (Hamermesh, 1988). Part of the reason for increased business faculty pay is that business schools are seeing an overall increase in enrollment, but have been

experiencing a shortage of faculty, accompanied by unprecedented hiring (Mangan, 2003; LeClair, 2003, 2004). Between the years of 1994 and 2000, there has been a 19% drop in the number of students pursuing business doctorates (Mangan, 2003).

Research using 1970s data produced similar findings, showing that disciplines with relatively high salaries in the 1970s, such as business, law, and computer science, received disproportionately larger percentage salary increases over a 20-year period (Lillydahl & Singell, 1992). Coincidentally, these fields were all rapid growth fields. The same study showed that faculty salaries in slow growth fields had lower salaries in the 1970s, such as fine arts and languages, and, received lower percentage salary increases during the same time. Some of this growing inequality is thought to come from administrators using “economic rents” from immobile faculty, typically senior and unwilling to move, and allocating them to retain faculty in the rapid growth fields (Lillydahl & Singell, 1992).

These patterns of inequality have continued, with the most recent salary surveys by AAUP showing that law professors are the highest paid faculty for the seventh year in a row, with an average salary of \$111,909 (Smallwood, 2005). Drawing on the 2002-2003 AAUP report, Mangan (2003) writes that law professors earned nearly three times that of library science. Engineering and business were the other two disciplines in which the average salary exceeds \$80,000 (Smallwood, 2005). Among the lowest paid disciplines were English, visual and performing arts, and recreation studies, in which salaries averaged less than \$57,000.

A shortage of business PhDs in 2002, along with intense competition among business schools to improve their ranking by purchasing “star” faculty members, has led to business schools paying out big salaries to attract new hires. The fastest growing salaries are in fields where nonacademic jobs command high pay, a trend predicted by labor market theory (Mangan, 2003).

Faculty salary differentials not only exist, but they have grown over time, specifically in the period between 1985-1986 and 2001-2002 (Ehrenberg et al, forthcoming). The average salary of full professors in economics relative to full professors in English grew from 114% in 1985-1986 to 128% in 2001-2002. Salary differentials by field were much larger at the assistant professor level, with a comparable change from 133% to 149%. Using the difference between the 25th and 75th percentiles of salary, Ehrenberg et al (forthcoming) found that the difference in relative salary advantage of assistant professors in economics versus English was over 31%, with a spread of 29% for full professors. The four reasons cited for these field differences are: (1) differences in relative quality across departments; (2) ease of having salary differentials across disciplines, especially when they are housed in different colleges; (3) differences in collective bargaining agreements; and (4) differences in outside, nonacademic sector employment between fields (Ehrenberg et al, forthcoming). One final observation, which is interesting in light of all the salary inequality, is that the overall faculty salary structure, e.g., low versus high, influences how much disparity exists. For example, in a low salary institution, paying to attract and retain people in the

fields with outside opportunities will lead to larger salary differentials than would the same strategy in a high salary institution (Ehrenberg et al, forthcoming).

Salary trend studies have also been conducted across different business fields, comparing average business faculty salaries to all major fields. The average faculty salary in business administration/management fields for public institutions was 16.3% higher than the average in all fields in 1995-1996 and 20.9% higher in 1998-1999 (Howe, 1999a). Average faculty salary for private schools for the same group and time period was 19.5% and 19.8% higher, respectively. Over the three-year period from 1995-1996 to 1998-1999, this faculty group received annual salary increases of 2.5% (public) and 1.7% (private), above the cost of living. Accounting faculty fared even better, in comparison to all major fields. The average public accounting faculty salary was 22.9% higher than the all major average in 1995-1996 and 24.9% in 1998-1999. This difference was 14.5% and 15.7%, respectively, for private faculty. Average annual increases were 1.6% above the consumer price index (CPI) for public institutions, and 2.3% above CPI for privates (Howe, 1999b).

Even within business schools, significant differences exist across departments. Using 2004 data, a \$24,000 difference existed across business fields for full professors, with economics having the lowest average salary of \$100,300 and finance and banking representing the highest, at \$124,300 (LeClair, 2004). This differential grew over a four-year period, beginning in 2000, when the difference between the two disciplines was \$20,000 (AACSB, 2001). However, the percentage growth between the fields was fairly close, with economics salaries growing 11.3% over the four years and finance and

banking growing 11.8%. This illustrates the annuity feature of salaries, where the practice of using percentage increases in salary leads to more rapid salary growth in higher paying fields and causes absolute wage gaps to widen, even under a system of standardized increases. Another factor which impacts salary differentials are differences in seniority distributions (Hearn, 1999). In some fields, a more senior faculty implies higher average salaries. However, in rapid growth fields such as finance, assistant professors can often out earn senior faculty in their field (LeClair, 2003).

Field differences have also been studied from a critical perspective, using gender and racial differences as the basis for salary inequality. According to this perspective, the disciplinary differences have important ramifications for the earnings gap, particularly since the highest paying fields have the lowest representation of women and the lowest paying fields have the highest representation of women (Bellas, 1997). General labor market research found that the higher percentage of women in a field, the higher the depressive effect on the average pay (England, 1982; Michael et al, 1989). Bellas' (1997) findings support this, with lower paying fields having relatively high concentrations of women, poorer labor market conditions, and lower human capital scores.

Race also plays a role in faculty salary as seen in the types of fields in which non-white racial groups are more often employed. Asians are more likely than all other racial groups to be in engineering, math, and computer science—16% versus 6% for other racial groups (Rhee, 1997), or in natural sciences (Monks & Robinson, 2000). Black faculty are more likely than whites to be in education and Hispanics are more likely to be

in modern languages than whites. Monks & Robinson (2000) also found that citizenship status plays a role in salary, with naturalized citizens and noncitizens receiving a significant earnings penalty when compared to a U.S.-born citizen. Given that 89% of all Asian males are either naturalized or noncitizens, compared to only 6% to 10% of whites, it may be that racial differences are inadvertently proxying for citizenship.

Salary Inequality: Unionization

Another category of salary inequality is unionization, where faculty salaries are determined by a collective bargaining agreement. Studies consistently find that unionized faculty earn a slight premium over non-unionized faculty. Union premiums differ by study depending upon how long the institution has been unionized. These premiums are from 2% to 3% on the low end (Barbezat, 1989; Rhee, 1997) with Monks (2000) noting a premium to unionized faculty of between 7 to 14%. Finally, unionized faculty have greater satisfaction with pay (Gomez-Mejia & Balkin, 1984).

Salary Inequality: Within Fields

A much less documented, but growing area of salary inequality exists within fields. Salary inequality within a field is typically measured using variation or dispersion, that is, the distribution of faculty salary compared to the mean. In addition to dispersion, two distinct phenomena occur within certain fields: salary compression, defined as when employees with more organizational seniority and experience receive salaries barely higher than those received by new hires; and, salary inversion, a more serious form of salary compression, whereby faculty in lower ranking positions receive higher direct compensation (Amey & VanDerLinden, 2002).

Business schools are an often-cited example of both of these phenomena. Inversion of salary rates is occurring within business disciplines, with rising salaries of new hires driving experienced faculty to move to different institutions in search of pay raises of their own (LeClair, 2004). In some business fields, when a faculty member retires, the new hire—typically an assistant professor—commands one and a half times the salary and benefits of the retiring member (LeClair, 2003). Salary compression is also occurring in most business fields, with the average new doctorate in business in 2004 earning \$5,800 more than an incumbent assistant professor (LeClair, 2004).

Greater dispersion of salaries is also occurring within departments as they pursue different strategies for attracting and retaining faculty (Scott & Bereman, 1992; Callie, 2003). Analyzing salaries for business school faculty at not only the University of Arizona but also the top five public business schools, data revealed great disparity both across rank and within fields. For example, in a study of over 500 full-time faculty members, at the 75th percentile, full professor salaries were \$151,000; at the 25th percentile, \$106,000. For assistant professors, this difference was much smaller, with the 75th percentile salary at \$110,500 and the 25th at \$89,000. The most striking dispersion occurred within fields, irrespective of rank. The 10th to 90th percentile range for management was \$73,100, \$36,400 for finance, \$41,200 for accounting, and \$93,500 for management information systems (Callie, 2003). These data suggest that very different strategies are at work within the same business schools, whereby some departments try to maintain relative equality while others pursue and pay for “star” faculty members. The 2003 study provides some of the impetus to look at this phenomenon nationwide.

In summary, there is almost no large-scale research that has investigated trends in salary inequality within fields and over time. However, what is known is that there are very different strategies at work both across and within academic fields in determining faculty compensation; and, that salary compression and inversion are phenomena occurring in certain academic fields.

Wage Dispersion

The effects of wage dispersion (or salary inequality) within an academic department are not to be minimized. Wage dispersion impacts job satisfaction, scholarly productivity, and research collaboration (Pfeffer & Langton, 1993). Evidence suggests that wage dispersion is negatively related to satisfaction, with an individual faculty member's satisfaction affected by his/her perception of whether the distribution of salary is equitable⁴ (Pfeffer & Langton, 1993; Deutsch, 1985; Leventhal, 1976). Job satisfaction differs not only within departments, but also between public and private school faculty, with public faculty more dissatisfied with most aspects of their job, including salary, workload, and even institutional reputation (Zoghi, 2001).

Pay is one of the most important rewards individuals get from working (Kulik & Ambrose, 1992; Mowday, 1987; Pritchard, 1969), and is also a reliable predictor of organizational outcomes, such as absenteeism and turnover (Lawler, 1971). One important determinant of pay satisfaction is an employee's sense of fairness resulting from pay comparisons (Adams, 1965), also known as social comparison. Social comparison processes play an important role in how individual faculty members assess

⁴ Equity refers to fair and equal treatment, a concept distinctly different from "inequality," previous defined and used throughout this study.

their compensation. Social comparison theory says that individuals assess their own compensation through a process of comparing it to that of other organizational members (Festinger, 1954, Gartrell, 1982; Cappelli & Sherer, 1988; Law & Wong, 1998). The comparisons can be either “internal” or “external” (Scholl et al, 1987). Internal comparisons are based on people doing both the same and different work within the same organization, whereas external comparisons are based on people doing the same job in other organizations. In this case, the social referent is other faculty members within the same department at the same institution or within the same department in different institutions (Goodman, 1974; O’Reilly & Caldwell, 1979, Sweeney & McFarlin, 2005). While numerous studies have assessed the effects of both referents, finding slightly contradictory results, one study found that internal and external comparisons affect pay satisfaction in an interactive fashion (Ronen, 1986). One recent cross-national examination on social pay comparisons found three specific pay comparisons that play an important role in affecting pay satisfaction: comparisons to other people the same country, comparisons to others with similar education, and comparison to others with similar jobs (Sweeney & McFarlin, 2004). Finally, Mumford (1983) argues that organizational reinforcement mechanisms, such as promotions and raises, provide an incentive for individuals to engage in social comparisons with their peers, particularly when vague criteria are used to allocate them.

It is these very criteria that are part of concepts of fairness and distributive justice, which suggest that the process of distribution is as important to individuals as the amount of the distribution itself (Greenberg, 1982). Within the faculty community, there are

fairly consistent standards of what is valued in the salary allocation system. Typically these standards are merit-based and are related to research productivity and seniority. Wage dispersion or inequality, when related to these standards, is less likely to produce dissatisfaction (Pfeffer & Langton, 1993).

Although many scholars have studied faculty labor markets and salary inequality across institutional type, gender, field, and even race, very little research has thoroughly examined the overall level of salary inequality among faculty members, on a national scale. Shifting demand among undergraduate students and the increasing popularity of business fields as majors means that business schools will continue to grow and faculty hiring and compensation will be a key variable in meeting this demand. Given the growth in popularity and the unique position that business schools hold on most university campuses, with their often higher differential tuition, corporate relationships, and strong internal and external labor markets, analyzing the salary inequality in these environments becomes not only challenging, but also particularly interesting.

Conceptual Framework

The goal of this study is to fully investigate the levels of inequality both within institutions and across institutions. This study uses the conceptualization of the academic department as the intersection between the larger discipline and the local institution as its interpretive framework (Clark, 1987a). The classic academic department can be described as follows:

Nationally, an academic discipline or profession exists, with its defined intellectual turf, and each university employs practitioners of this discipline so that it can provide comprehensive coverage of academic topics....However, it is insufficient merely to have representatives of the discipline within the broader faculty—the discipline should have a formal presence on campus as an academic department. The department, then, serves as the crucial terrain, giving identity and community to the local representatives of the discipline. (Edwards, 1999, p. 18)

Thus, academics are members of their profession at large, the national system, the college, and the discipline (Clark, 1984). The academic department is the basic administrative unit of a college or university, with responsibility for the fundamental services of a university: research, teaching and service (Andersen, 1977; Clark, 1984; Peterson, 1976). “[Academic departments] represent the central link between the university and the disciplines,” (Eckel, 1998, p. 27; Trow, 1977). They have responsibility for many key functions essential to the operation of a university, such as hiring new members, promoting and retaining existing faculty, and allocating resources (Eckel, 1998). Academic departments have even been given status as the “definitive locus of faculty culture,” (Edwards, 1999, p. 18).

There are many ways that the national discipline influences an academic department. One way is through the disciplinary professional associations, which have specific goals and interests that may differ from the institution’s goals and interests

(Clark, 1987b). The second way is through disciplinary norms and values. These norms and values affect departments as they hire and promote faculty, produce scholarly work, and make decisions (Walvoord et al, 2000). The discipline additionally influences hiring through its societies, social networks, journals and its reliance on established practitioners to provide hiring recommendations (Burke, 1995). Finally, the socialization process of graduate students is very heavily focused on disciplinary agendas (Walvoord et al, 2000).

While an academic institution is made up of its collective departments, these departments also run relatively independently, often times with distinct budgets, curricula and power (Tucker, 1984). Departments also operate as separate units with regards to wage and salary policies and the general approach to setting and allocating compensation (Pfeffer & Langton, 1988). This “loose coupling” permits flexibility, localized culture, and preserves disciplinary independence (Weick, 1976), as well as takes into account that different departments want and need different things (Yjiloki, 2000).

Institutional theory would predict that disciplinary salary norms occur through normative processes, whereby faculty professionals with similar associations, similar training and mobility become fairly homogeneous in terms of their particular field (Dimaggio & Powell, 1983). These normative processes would lead to fairly similar salaries nationwide. However, previous research found that, although faculty salaries tend more toward equality at the assistant professor level, inequality increases with rank (Bell, 2001). Clearly, there are disciplinary, institutional, and departmental influences on faculty salaries. Using Clark’s conceptualization of the academic department, one would expect substantial levels of departmental autonomy in wage setting; however, the amount

of influence exerted by the national discipline and the local institution in wage and salary policies remains to be fully studied.

CHAPTER 3

DATA AND METHODS

Introduction

As demonstrated in Chapter 2, very few studies have researched salary inequality both across and within institutions using longitudinal, individual-level faculty salary data. Moreover, the extent to which salary inequality differs across different institutional characteristics and within business schools remains largely unknown. Given the gaps that exist in the faculty salary literature, this study explores faculty salary inequality in U.S. business schools, by addressing the following primary research question and four sub-questions:

A. What is the level and structure of faculty salary inequality in U.S. business schools and how has it changed in the recent past, between 1998 to 2004?

1. What is the overall level and structure of faculty salary inequality? How does the level and structure of faculty salary inequality differ for specific types of institutions, including public/private, Carnegie classification, and unionization?
2. How does between-institution inequality contribute to overall faculty salary inequality? What institutional characteristics contribute to between-institution inequality?
3. How does within-institution inequality contribute to overall faculty salary inequality? What institutional characteristics contribute to within-institution inequality?

4. What are the salary-setting strategies and forces affecting these salary inequalities?
 - a. What types of faculty do business schools hire and how do they set their compensation?
 - b. What strategies and tactics do business schools use in allocating annual raises and salary adjustments?
 - c. What strategies do business schools use when faculty attempt to leverage the external labor market?
 - d. How are business schools utilizing total salary packages to compete for faculty?
 - e. Do salary policies reflect a more general college-level strategy?
 - f. Does college culture or particular environmental forces play a role in salary setting?
 - g. What are the biggest challenges business schools face in faculty compensation?

The overall research question was derived from faculty salary literature and concepts of wage dispersion. By beginning with the broad question of the state of faculty salary inequality over the past seven years, a basic level of understanding emerges that provides a context for the sub-questions in which inequality is examined by specific institutional characteristics. The second phase of this study provides a qualitative richness of data in which to contextualize the inequalities. The following sections will detail the approach,

data, and methods of analyses that will be utilized in an attempt to explore and answer these questions.

Overall Approach

The present study uses a mixed methods approach, whereby a sequential explanatory strategy (Creswell, 2003) is employed. In this approach, quantitative analysis was conducted first, followed by qualitative analysis. The qualitative results support the interpretation of the findings of the primarily quantitative study. These two methods are integrated during the interpretation phase. Miles & Huberman (1994) make three assertions about qualitative data, the third of which bears directly on its use in this study: they are valuable in supplementing, validating, explaining, or reinterpreting quantitative data gathered from the same setting.

Quantitative Study

Population Sample and Data Source.

The primary focus of this investigation is faculty salaries in U.S. business schools, and is limited to business schools at four-year institutions. The primary data source for this study is faculty salary data collected between 1997⁵ and 2004 by the Association to Advance Collegiate Schools of Business (AACSB). AACSB, the accrediting body for business schools, conducts an annual salary survey of its educational member institutions, 506 as of April 2005. These salaries are collected using the AACSB International Salary Survey. More than 500 member schools participate annually, including more than 90% of accredited U.S.-based members (AACSB, 2004). The survey is administered to the

⁵ 1997 will be used to represent 1996/1997 academic year, from this point on.

dean or “head of the business unit,” defined as the senior academic responsible for faculty salary administration.

The survey instrument itself includes information on rank, tenure status, field code, gender, salary, and whether the individual was a new hire. For the purposes of this study, individual faculty characteristics received from AACSB include: rank, field, gender, institution name, and salary. Institutional characteristics include degrees granted, public/private control, Integrated Postsecondary Education Data System (IPEDS) identification number, and accreditation status. The faculty survey instrument has separate sections for full-time faculty, part-time faculty, and faculty with administrative duties. This study only uses data from the full-time faculty survey in order to reduce the outliers in the data such as department chairs, who typically earn more than all other faculty members in their department, or part-time faculty who generally receive lower salaries.

The initial data received contained 200,708 faculty salaries from over 900 institutions in 29 fields. A preliminary examination of the data, with the additional limitation that an institution must have at least one faculty member with salary and an Integrated Postsecondary Education Data System (IPEDS) identification number, reduced the data to 191,873 salaries from 700 institutions. The majority of the institutions excluded were non-U.S.⁶ or non-academic institutions, i.e., those corporate, government, or non-profit members (typically professional associations) with a commitment to management education.

⁶ Only 48 non-U.S. institutions reported data, primarily institutions from Canada and the U.K.

Extensive time was spent in the initial phases of the quantitative study exploring the full data set and comparing various possible samples that could be used for analysis. The longitudinal nature of the salary data provided an opportunity to conduct the analysis using a panel sample of consistent institutions over a multi-year period. After examining the number of institutions per year who reported salary data, average number of faculty per year, and the total number of faculty in each year, five different multi-year sample combinations were considered. Additional considerations were the number of institutions who had reported data for all eight years as well as a look at the field data by year. This examination showed that the 1997 data had 29 fewer institutions participating than subsequent years, and that 15 of the 29 fields were not used in 1997, a factor that would have severely limited the study of salary inequality by field. Therefore, the 1997 data was not used in the study. In addition, in order to study inequality within institutions, the number of faculty in the study had to be large enough to reveal variances across their salaries. Therefore, the sample was looked at with three different scenarios: (1) no required minimum of faculty per institution, (2) minimum of 10 faculty per institution, and (3) minimum of 15 faculty per institution. There are 326 institutions (133,154 faculty) when no minimum is introduced; 317 institutions (131,785 faculty) with a minimum of 10 faculty, and 306 institutions (130,584) with a minimum of 15 faculty. Looking at the numbers and taking into consideration that the majority of the institutions with less than 10 faculty are liberal arts colleges, the decision was made to use a sample of U.S. faculty salaries from research /doctoral-extensive and –intensive, and master’s 1 and 2 universities with 10 or more faculty (therefore dropping baccalaureate colleges),

and to only to use institutions which reported faculty salaries in all seven years, from 1998 to 2004. This yielded a final sample of 307 institutions⁷, with a total of 129,844 faculty salaries across the seven-year period.

A second sample of all institutions reporting faculty salary data in 2004 is also used in order to get the most complete picture of faculty salary inequality in the most recent year for which faculty salary data is available. This additional sample consists of 464 U.S. institutions (with greater than 10 faculty) and 24,983 faculty.

Table 2 details the two samples: “2004 all” and the “panel sample” of 307 institutions. As the table shows, public institutions make up around 70% of the institutions represented with 98% of them accredited. Unionized institutions make up roughly 20% of all schools in the sample. The majority of the schools offer either undergraduate and master’s degrees (around 49%) or undergraduate, master’s and doctoral degrees (around 45%). Each year of the panel data contains between 18,000 and 19,000 individual faculty salaries. Within the faculty sample, there are a couple of interesting trends. First, the percentage of female faculty steadily increased between 1998 and 2004, rising from 21.5% to 24.3%. The distribution of faculty by rank experienced some subtle shifts as well, with full and associate professors decreasing slightly and assistant professors and instructors increasing between three and four percentage points. There are also changes within the field distribution, although

⁷ Five universities with more than one institution are represented in this study. Two of those—Arizona State University and Rutgers University—have multiple campuses. The remaining three—Cornell University, Wake Forest University and University of Virginia—have two separate colleges that report information to AACSB as part of their annual faculty salary surveys.

Table 2*Faculty Samples*

	2004 Sample		Panel Sample					
	2004all	1998	1999	2000	2001	2002	2003	2004
Faculty								
N	24983	18236	18189	18291	18427	18816	18909	18968
	Percent							
Female	24.93	21.48	21.80	22.83	22.87	23.51	23.87	24.30
Male	75.07	78.52	78.20	77.17	77.13	76.49	76.13	75.70
Institution Type								
Public	70.08	71.86	72.04	70.70	70.87	70.79	70.31	70.50
Private	29.92	28.14	27.96	29.30	29.13	29.21	29.69	29.50
Accredited	92.51	97.98	98.00	98.02	98.16	98.07	98.08	98.12
Unaccredited	7.49	2.02	2.00	1.98	1.84	1.93	1.92	1.88
Union	20.86	20.50	20.73	20.06	20.59	20.40	20.18	19.94
Non-Union	79.14	79.50	79.27	79.94	79.41	79.60	79.82	80.06
Faculty Rank⁸								
Full Professor	35.03	37.24	37.62	36.15	36.01	35.57	35.68	35.80
Associate Professor	27.83	31.17	30.34	29.33	28.18	27.61	27.73	27.30
Assistant Professor	25.28	21.14	21.16	24.16	24.87	25.27	25.50	24.96
Instructor	11.86	8.44	8.71	10.37	10.95	11.55	11.09	11.95
Field⁹								
Accounting	16.54	17.82	17.58	17.37	17.09	16.69	16.38	16.44
Behavioral Sci/Org. Behavior	2.77	3.18	3.39	3.03	3.06	2.94	3.06	3.02
Business Law	2.96	3.42	3.20	3.15	2.97	2.89	2.86	2.88
CIS/MIS	10.76	8.99	9.71	10.13	11.09	11.24	11.03	10.68
Economics	9.86	10.26	10.04	10.05	9.59	9.42	9.35	9.35
Finance	13.03	12.58	12.78	12.84	12.92	12.95	13.18	13.43
Management	9.17	9.44	8.60	8.59	8.54	8.37	8.36	8.40

⁸ For 1998 and 1999, new doctorate and ABD were collected as separate faculty ranks. In 1998, these two accounted for 2.0% of faculty; in 1999, 2.18%.

⁹ Fields with less than two percent of faculty were omitted from this table. These fields include: business education, health/hospital administration, hotel/restaurant management, insurance, international business, operations research, public administration, quantitative methods, real estate, statistics, taxation, supply chain/logistics, ethics/corporate social responsibility, entrepreneurship/small business administration, e-business, general business, and other.

Marketing	12.7	12.45	12.71	12.59	12.78	12.88	12.87	12.94
Operations								
Mgmt.	4.09	4.07	4.01	3.84	3.68	3.98	3.95	4.09
Strategic								
Mgmt.	3.09	2.25	2.73	2.80	2.90	3.11	3.13	3.28
HRM	2.28	2.46	2.38	2.31	2.3	2.29	2.26	2.21

Carnegie Classification

	Panel Sample							
	2004all	1998	1999	2000	2001	2002	2003	2004
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Research / Doctoral								
Extensive	42.80	49.45	49.71	49.43	49.55	49.82	49.48	49.77
Research/ Doctoral								
Intensive	18.43	19.03	18.79	18.59	18.94	19.15	19.31	19.11
Master's 1	37.15	30.97	31.00	31.47	30.96	30.48	30.67	30.59
Master's 2	1.63	0.55	0.51	0.51	0.55	0.55	0.54	0.53

Degrees Offered

Undergraduate	3.03	1.73	1.88	1.88	1.86	1.78	1.72	1.73
Undergraduate/ Masters	54.00	49.88	49.79	49.79	49.69	49.23	49.58	49.05
Undergraduate/ Masters/ Doctoral	38.99	44.60	44.42	44.42	44.46	44.99	44.58	45.00
Masters	0.79	0.59	0.62	0.62	0.63	0.65	0.66	0.73
Masters/ Doctoral	3.17	3.20	3.29	3.29	3.36	3.34	3.46	3.48

accounting, computer information systems/management information systems, economics, finance, management, and marketing are the six most frequent fields, regardless of year, which may simply reflect the fact that these six are considered core business disciplines, required in any business school.

The institutions contained within this study represent around 49% Research/Doctoral -Extensive, approximately 19% Research/Doctoral -Intensive, and about 31% Master's 1 institutions; less than 1% are Master's 2 institutions. The Carnegie

Classification system (2000 edition) defines Research/Doctoral Universities-Extensive as institutions offering a wide range of baccalaureate programs and who award 50 or more doctoral degrees per year across at least 15 disciplines. Research/Doctoral Universities-Intensive are similar to Extensive, but they award fewer doctoral degrees in fewer disciplines—at least 10 doctoral degrees per year across three or more disciplines. Master's Colleges and Universities 1 are defined as institutions who typically offer a wide range of baccalaureate programs and award 40 or more master's degrees per year across three or more disciplines. Master's Colleges and Universities 2 are similar to Master's 1, but award fewer master's degrees—20 or more per year. Because both types of research institutions possess similar missions, that is, a commitment to graduate education through the doctorate, and the percentage of Master's 2 institutions is too small to provide a meaningful distinction, two new contiguous variables using Carnegie classification were created, combining Research/Doctoral-Extensive and –Intensive institutions into one research/doctoral variable and Master's 1 & 2 institutions into another, allowing for examination of differences across two broad classifications.

Faculty salaries were adjusted for inflation using the Consumer Price Index (CPI), bringing all salaries to inflation-adjusted 2004 dollars. CPI adjustment figures were obtained from the Commonfund Institute's 2005 Higher Education Price Index (HEPI) report; the CPI adjustments are made for the year beginning in July and ending in June. The HEPI is an inflation index specifically designed for higher education and provides a more accurate indicator of cost changes in the higher education sector than does the CPI. Thus, the HEPI is used to adjust institutional measures such as endowment and state

appropriations for inflation. The A final check of the descriptive stats, post-salary adjustments, showed that censorship of salaries either above or below certain levels was unwarranted; there are no extreme outliers that would distort the analysis.

Additional data on business school rankings was obtained, using *U.S. News & World Report's* America's Best Colleges and America's Best Graduate Schools annual rankings. While all rankings inherently possess some bias, the *U.S. News & World Report's* rankings of business schools are widely viewed as the most objective, credible source of programmatic quality. Their graduate methodology combines measures of student inputs (GMAT test score and GPA), academic and corporate reputations (as assessed by deans, associate deans and corporate recruiters) and student outputs (percentage of students employed both at graduation and three months after graduation along with average starting salary); the undergraduate rankings are based solely on the quality assessment of deans and senior faculty at AACSB-accredited schools. For the purpose of this study, a school is considered to be a ranked business school if they appear in either the undergraduate or graduate business rankings. This decision is based on the fact that not all business schools offer a Master of Business Administration, and that many of the business schools perceived to be among the best do not offer undergraduate degrees at all, e.g., Harvard and Stanford.

Supplemental data on Carnegie classification, tuition and fees, endowment, enrollment numbers, state appropriations, and state location of institution were obtained from the 1997 through 2004 IPEDS postsecondary education data collection program, conducted by the U.S. Department of Education's National Center for Education

Statistics. IPEDS is a system of interrelated surveys designed to collect data from all primary providers of postsecondary education. The IPEDS surveys collect institution-level data in such areas as enrollments, program completions, faculty, staff, and finances. Undergraduate tuition and fees for in-state full-time students was obtained. Business school tuition was not used in this study because it was not available in IPEDS and is likely highly correlated with the general undergraduate tuition of the institution. The enrollment data used in this study represents IPEDS surveys between Fall 1997 and Fall 2003 and uses a weighted formula whereby part-time students are treated as 1/3 full-time equivalent (FTE), undergraduates are 1.0 FTE, and graduate students are 2.0 FTE to reflect their different costs (O'Neill, 1971; Bowen, 1980; Brinkman, 1990). Endowment information was obtained from two surveys capturing endowment size and annual giving to education; these include National Association of College and University Business Officers (NACUBO) Endowment Study and Council for Aid to Education (CAE) Voluntary Support of Education Survey. NACUBO data was used if it was available for the institution; if not, CAE data was substituted. If specific year endowment data was missing, the adjoining year data was used to impute data for the missing year, assuming a median percentage change in endowment between the years. State appropriations used in this study are from the IPEDS finance data, from fiscal year 1998 to fiscal year 2004. State appropriations are adjusted for inflation to bring all appropriations to 2004 inflation-adjusted figures. These adjustments were done using the Commonfund's 2005 HEPI report, made for the year beginning in July and ending in June. Both state appropriations and endowments were divided by enrollment figures to create the

variables endowment per student and state appropriations per student. This allows for comparison across schools of varying sizes and resource bases.

Finally, information on institutional collective bargaining agreements was obtained from the *1998 Faculty Directory of Faculty Contracts and Bargaining Agents in Institutions of Higher Education*. This edition of the Directory was the most recent available. A brief examination of the data showed that in the 15 years leading up the 1998 Directory, only five institutions from the 2004 sample of 464 institutions added unions. Thus, this directory likely captured the most current picture of unionization in institutions of higher education.

Data Analysis.

For the purposes of this study, faculty salary inequality is examined using multiple methods including basic descriptive statistics, income inequality measures, and a series of regressions. These methods address different aspects of faculty salary inequality and ensure the most robust and reliable results.

Basic descriptive statistics, such as mean, median, and salary deciles, are used to look at overall inequality for all schools. These descriptive statistics are also run separately for public, private, research/doctoral, master's, unionized, and non-unionized institutions. A comparison of the mean faculty salary to the median salaries and their annual and overall percentage growth, as well as three ratios—90th percentile divided by the earnings of the 10th percentile of the faculty earnings distribution (the 90/10 ratio), the 10th percentile divided by the 50th percentile (the 10/50 ratio), and, the 90th percentile divided by the 50th percentile (the 90/50 ratio)—show which segments of the salary

distribution are contributing to salary inequality and changes to the differences between the upper, middle, and lower end of the distribution. Analysis of annual changes in these measures reveals the degree of change in salary inequality over time.

While the above measures describe the overall inequality, there are more sophisticated income inequality measures, including one which allows for overall inequality to be broken down into salary inequality deriving from differences between institutions and salary inequality stemming from differences within a given institution. This study will use multiple inequality measures to ensure the results are robust. Cowell (1995) provides a thorough description of these measures, but an introductory overview of these measures used in the later analyses will be presented here along with a brief discussion of the properties of inequality measures.

Cowell (1995) outlines five properties of inequality measures that are used to assess the appropriateness and effectiveness of a particular inequality measure. These five properties are: (1) weak principle of transfers, (2) income scale independence, (3) principle of population, (4) decomposability, and (5) strong principle of transfers. A brief definition of each of these will be provided here, but readers should refer to Cowell (1995) for complete explanations. In general terms, the *weak principle of transfers* means that a hypothetical transfer of income from a rich person to a poor person would reduce the inequality measure. However, the weak principle of transfers does not specify by how much the inequality should decrease. The *strong principle of transfers* does, in that the amount the inequality decreases is dependent on the distance between people's income shares. The strong principle of transfer is attractive because it forces ranking of

all possible income distributions in an unambiguous manner and requires measures to have better cardinal properties (Cowell, 1995). *Income scale dependence* is defined by using a metaphor of cake. The “measured inequality of the slices of the cake should not depend on the size of the cake,” (Cowell, 1995, p. 56). That is to say that if the scale of everyone’s income increases or decreases by the same amount, the inequality measures should remain the same since the income distribution has not been changed in any way. *Principle of population* “requires that the inequality of the cake distribution should not depend on the number of cake-receivers,” (Cowell, 1995, p. 56). For example, if two identical economic populations (with the same inequality measure) are combined, the resulting inequality measure of the new population should be the same. Finally, the *decomposability* property means that the overall inequality can be decomposed—or broken up into the amount of inequality that results from *within* the population subgroups and the amount of inequality that results from *between* the subgroups. Two additional terms require definition: cardinal equivalence and ordinal equivalence. Two items are found to be “*cardinally equivalent* if one scale can be obtained from the other by multiplying by a positive constant and adding or subtracting another constant,” (Cowell, 1995, p. 9). *Ordinal equivalence* requires that any set of results will be ranked in the same order, however, without the same percentage differences. Cardinal equivalence requires ordinal equivalence, but the reverse does not apply.

The first class of inequality indexes, known as ad hoc indexes (Sala-i-Martin, 2002), includes the Gini coefficient and the variance of the natural log of salary. It also uses the variance of salary, which was not used here because of its sensitivity to a scale

change of the salary distribution. The variance of the natural log of salary eliminates the income scale problem that occurs for the variance. Furthermore, unlike the coefficient of variation, it weights reductions in inequality in the lower income brackets more than reductions in inequality in the upper income brackets. However, the variance of the natural log of salary goes too far in this regard, transferring more weight at the lower end, while ceasing to be concave at high incomes (Atkinson, 1969). Finally, this measure is not decomposable.

The Gini coefficient is a slightly more sophisticated measure of income inequality, allowing for comparison of income distributions across different populations, and across periods of time. The Gini coefficient measures the average difference between all possible pairs of incomes in the study population, expressed as a proportion of total income. The attraction of the Gini coefficient is its relative simplicity, and its known sampling properties (Thistle, 1990). The Gini coefficient ranges from 0, perfect equality, to 1, perfect inequality whereby one individual has all the income and the rest have nothing. However, criticism of the Gini coefficient is that it is more sensitive to the income in the middle than to that of the extremes (Atkinson, 1969), valuing transfers from a richer person to a poorer person in the middle of the income more than similar transfers in either end of the distribution. This disadvantage can be particularly problematic when trying to analyze income inequality at both tails of the income distribution. Additionally, the Gini coefficient does not neatly decompose into within-group and between-group inequality (Foster & Shneyerov, 1999).

A second class of income inequality measures is the social welfare function indexes, which includes the Atkinson index. The Atkinson (1970) relates the “equally distributed equivalent level of income” to the actual mean income using a parameter, ϵ , which reflects the strength of society’s preference for equality (Foster & Shneyerov, 1999). The more equal the actual income to the computed societally desirable income, the lower the value of the Atkinson Index (Kawachi, 2000). Typically used values of ϵ include 0.5, 1, and 2. As the value of ϵ increases, the social preference for equality increases (or an aversion to inequality). The parameter, ϵ , can also be interpreted to mean that the higher (smaller) the ϵ , the more sensitive the measure is to changes in the bottom (top) end of the distribution. One criticism of the Atkinson Index is its sensitivity to the bottom of the distribution; it is often used in the study of poverty (Kawachi, 2000). Atkinson measures do decompose, but not very easily for some values of ϵ (due to the cardinal properties of the Atkinson measure that prevents it from meeting the strong principle of transfers).

Finally, there are axiomatic indexes, such as the Generalized Entropy (GE) Index. The GE Index, which is an additively decomposable index, allows for the separation of overall inequality into two summative parts: inequality existing between groups and inequality existing across groups (Cowell, 1995; Shorrocks, 1980; Bourguignon, 1979). The GE Index essentially defines inequality as the maximum possible value of entropy minus the actual entropy of the income distribution. The concept of entropy is taken from information theory and the entropy measure grows with the “degree of disorder.” The maximum possible value of entropy, zero, exists where all income is equally divided.

The least disorderly is the case where one individual has all income, equivalent to an entropy measure of 1 (Cowell, 1995). As inequality grows, so does the GE value. The GE Index is typically measured at four values of β : -1, 0, 1, and 2. The value of β defines the concept of distance that will be used to determine the weight to be associated with any transfer between a richer individual and a poorer individual. In the case of GE (1), the reduction in inequality associated with such a transfer is determined by the *ratio of the shares* held by the richer and poorer individual. This case is referred to as Theil's measure. In the case of GE (2), the reduction in inequality associated with such a transfer is determined by the *difference in the shares* held by the richer and poorer individual. This measure is cardinally equivalent to Herfindahl's Index. In the case of GE (0), the reduction in equality equals the difference in the *inverse of the shares* held by the richer and poorer individuals. The parameter for the GE Index is similar to the parameter used for the Atkinson Index, described above. The smaller (or more negative/less positive) the value of β , the more sensitive the measure is to changes in the bottom of the distribution. This relationship is contrary to that used for the Atkinson parameter. Note that the Atkinson measure has very similar properties to the GE; they are ordinally equivalent, but not cardinally equivalent.

It is noteworthy to mention that only the GE measure simultaneously satisfies all five properties laid out by Cowell (1995), making it the most desirable measure of inequality, overall. The other measures described earlier in this chapter have more drawbacks, but they do provide interesting comparisons in that they focus more on other parts of the distribution. Hence, this study will utilize all measures described here to

portray the most complete portrait of inequality possible. In summary, this study will use several of these income inequality indexes, including the variance of the natural log of salary, the Gini coefficient, the Atkinson index, and the GE index, to examine inequality and further decompose inequality into differences between and within groups of faculty in institutions.

In addition to examining salary inequality across faculty, this study examines inequality across and within institutions. Basic trends in faculty inequality both within and between institutions are examined. The examination within institutions provides information on the source of increasing faculty salary inequality *within a given institution*; whereas, the between institution examination provides the information on which *types of institutions* are contributing to increasing faculty salary inequality. Institution-level inequality measures were created and represent a single measure of inequality *within* each individual institution. These institution-level inequality measures include mean salary, median salary, mean log salary, variance of the natural log of salary, salary deciles, Generalized Entropy indices, Gini coefficient, and Atkinson indices. For these institution-level measures, both weighted (by number of faculty members) and unweighted salaries were examined to ensure consistency of results.

Next, a series of regression analyses determine the extent to which within-institution faculty salary inequality, as defined by eight measures—one descriptive statistic and seven income inequality measures—is influenced by a set of institutional variables. This methodology allows for an understanding of the impact of simultaneous effects of specific institutional characteristics (independent variables) on the dependent

variable. The dependent variables used in these regressions are institution-level: mean salary, 90/50 ratio, 10/10 ratio, variance of the natural log of salary, GE Index for $\beta = 1$, the Gini coefficient, and the Atkinson Index for $e = 1$. Independent variables include: union dummy, public dummy, research/doctoral dummy, a dummy variable for MBA not ranked, specific MBA rank, a dummy variable for undergraduate not ranked, specific undergraduate rank, number of faculty, accreditation dummy, a dummy variable for degrees offered with three variables: undergraduate/master's (combines undergraduate and undergraduate/master's), graduate only (combines master's and master's/doctoral), and undergraduate, master's and doctoral (the omitted, comparison group); tuition and fees, endowment per student, and state appropriations per student (Table 3). Dependent variables were selected based on their appropriateness for measuring salary inequality, discussed earlier in this chapter. Independent variables were identified from a careful review of the literature and the research-verified factors of salary inequality (discussed in Chapter 2).

Table 3

Regression Variables

Independent Variables		
Variable Name	Variable Label	Variable Description
<i>College & Institution-Level Variables w/o Missing Data</i>		
Union dummy	union	Unionized or non-unionized institution
Control dummy	public	Public or private institution
Carnegie classification dummy	resdoct	Research/doctoral or master's institution
MBA numeric ranking	mba_yr	Specific <i>U.S. News</i> MBA rank for a given year

MBA not ranked	nombaryr	Dummy variable for institutions without ranked MBA programs
Undergraduate numeric ranking	ug_yr	Specific <i>U.S. News</i> undergraduate rank for a given year
Undergraduate not ranked	nougryr	Dummy variable for institutions without ranked undergraduate programs
Faculty size	fac_tyr	Total number of faculty for a given year at an institution
Degrees offered dummy with multiple variables	un_unms	Institutions offering undergraduate only or undergraduate and master's degrees
	grad	Institutions offering master's or master's and doctoral degrees
	u_grad_doc	Omitted group: Institutions offering undergraduate, master's and doctoral degrees

*Institution-level Variables
w/Missing and Imputed Data*

Tuition and fees	t_fyr_ii	Undergraduate, in-state tuition and fees for a given year
Endowment	endyrbps	Endowment per student, for a given year
State appropriations ¹⁰	sappyrps	State appropriations per student, for a given year.
Intercept	_cons	Regression intercept

Dependent Variables

Variable Name	Variable Label	Variable Description
Mean salary	sali_yr	Mean salary for an institution, for a given year
90/50 Ratio	p9050_yr	90/50 ratio for an institution, for a given year
10/50 Ratio	p1050_yr	10/50 ratio for an institution, for a given year
Variance natural log salary	vlsayr	Variance of the natural log of salary for an institution, for a given year
GE (1)	ge1_iyr	Generalized Entropy Index for $\beta = 1$, for an institution, for a given year
Atkinson (1)	at1_iyr	Atkinson Index for $e = 1$, for an institution, for a given year
Gini coefficient	gini_iyr	Gini coefficient for an institution, for a given year

¹⁰ State appropriations were assumed to be zero for private institutions.

These series of regressions were run for both a panel sample and a sample of 2004 institutions. Because not all schools reported endowment information, state appropriations, tuition and fees, and enrollment, these two samples are different than the two samples used for the overall inequality, between-institution inequality and within-institution inequality analysis. As Table 4 shows, between 223 and 255 schools in our panel sample of 307 are not missing any data for an individual year. The majority of those schools with missing data are missing endowment data. By imputing¹¹ missing endowment data, the panel sample increases to 242 institutions with a total of 107,782 faculty members. For the 2004 sample, 356 of the 464 institutions are not missing any data. When we impute endowment information, the sample increase to 379 institutions with 21,871 faculty. Each regression was conducted using two steps. First, college and institution-level variables were regressed against the specific dependent variable for the full sample. Second, the regression was run again for the smaller regression sample using the original variables plus the institution-level variables with missing data: tuition and fees, endowment per student, and state appropriations per student. These regressions were also conducted separately for public, private, unionized and non-unionized institutions.

¹¹ As previously discussed, if specific year endowment data was missing, the adjoining year data was used to impute the missing year, assuming a median percentage change in endowment between the years.

Table 4*Regression Sample*The total number of schools with data for 2004.

	2004all Sample		Not Missing Data		Not Missing Data (w/ imputation)	
	N (inst)	TotFac	N (inst)	TotFac	N (inst)	TotFac
2004	464	24983	356	20434	379	21871

The total number of schools with panel data in each specific year.

	Panel Sample		Not Missing Data		Not Missing Data (w/ imputation)	
	N (inst)	TotFac	N (inst)	TotFac	N (inst)	TotFac
1998	307	18236	248	15697	255	16021
1999	307	18189	243	15316	257	15993
2000	307	18291	223	14314	253	16033
2001	307	18435	241	15453	253	16097
2002	307	18816	252	16465	260	16816
2003	307	18909	255	16631	264	17133
2004	307	18968	251	16233	262	17068
TOTAL		129844		110109		115161

The total number of schools with panel data for all 7 years.

	Panel Sample		Not Missing Data		Not Missing Data (w/ imputation)	
	N (inst)	TotFac	N (inst)	TotFac	N (inst)	TotFac
1998	307	18236	189	11976	242	15193
1999	307	18189	189	12017	242	15041
2000	307	18291	189	12091	242	15216
2001	307	18435	189	12131	242	15336
2002	307	18816	189	12458	242	15601
2003	307	18909	189	12480	242	15656
2004	307	18968	189	12636	242	15739
TOTAL		129844		85789		107782

As described previously, quantitative analysis was completed first and received priority in the interpretation phase. The following section will outline the qualitative portion of this study.

Deans' Interviews

Population Sample.

During the qualitative phase of this study, the population studied was business school deans or senior-level academics with responsibility for faculty hiring and setting faculty compensation. Business school deans are usually charged with setting a business school-wide general salary policy. This portion of the study focuses on information collected from deans regarding salary-setting policies within their institution. Of particular focus were the types of faculty being recruited and hired, salary policies being utilized and the extent to which college-level strategies and culture influence salary compensation. The sample includes a representation of 11 public and private school deans, six of whose institutions are ranked in the top 50 MBA programs according to *U.S. News & World Report*. These deans represent institutions from multiple geographic regions in the United States, including large, medium, and small cities. The sample also includes one unaccredited school well as one unionized institution. The sample is a stratified, convenience sample, with deans being selected based on accessibility to them; public school deans are slightly overrepresented as compared to AACSB membership by control, with 72% public and 28% privates versus membership of 61% public, 39% private. This sample represents the Carnegie classifications of research/doctoral-intensive and research/doctoral-intensive and one master's 1 institution. All deans

interviewed were male, which is in close keeping with the gender composition of business school deans, nationwide, where 85.5% of all deans are male (AACSB, 2005). Finally, all business school deans interviewed have reported data to AACSB salary surveys.

Data Collection.

The primary method of qualitative inquiry in this portion of the study was semi-structured interviews. The primary advantage of qualitative interviewing is the latitude to explore the participant's views while maintaining control over the line of questioning (Creswell, 2003). Interviewing also provides a useful means of inquiring about institutional values and experiences (Miles & Huberman, 1994). The advantage of the semi-structured interview is the ability to control solicitation of information coupled with the ability to follow new leads as presented (Bernard, 1988; Berg, 1995). Participants were contacted both directly and using third-party contacts. Two of the interviews were conducted in person; nine were over the telephone. The substance of the telephone interviews was not substantially compromised, however, it is clearly difficult to observe body language and facial expressions through this medium. There are also advantages to telephone interviews including greater cost efficiency, better interviewer uniformity, reduced interviewer effects and enhanced digital recording quality (Seidman, 1991).

The survey instrument developed in consultation with two business school deans was comprised of 10 questions aimed at understanding faculty compensation strategies, challenges and trends. The interview survey instrument was pilot tested in the fall of 2005; the combined data collection and analysis activities took place over a five-month

period in 2006. While all the deans were asked to respond to the same set of open-ended questions, prompts were utilized to elicit additional feedback and the interviewer occasionally asked an additional probing question based on the respondent's answers (Chadwick et al, 1984). The interviews were kept short, each lasting approximately 30 minutes in recognition of the time constraints and extremely busy schedules of deans, and were conducted and digitally recorded in the Spring of 2006. Field jotting during the interviews served as an additional means of recording participant quotes to aid when the final transcriptions were used for analysis (Lofland & Lofland, 1984). See Appendix A for the dean's interview questions.

Data Analysis.

Qualitative data analysis is accomplished through a process of “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others,” (Bogdan & Biklen, 1982, p. 145). Interviews were transcribed verbatim into word processing software and initially analyzed through open coding (Strauss & Corbin, 1998). The coding categories were built around the research questions and were primarily determined prior to the interview, based on emerging results from the quantitative phase of this study. However, the coding process also provided for flexibility and changes in categories and themes based on actual, albeit unexpected information developed during the interview analysis. Words and phrases were analyzed line by line and grouped into categories based on their content. Table 5 outlines the interview code list.

Table 5*Interview Code List*

Code Name	Abbreviation
Faculty Type: Overall Quality	FACQUAL
Faculty Type: Grow Talent	FACGROW
Faculty Type: Hire Stars	FACSTAR
Faculty Salary Strategy: Equal	PAYPARITY
Faculty Salary Strategy: Differential Pay	PAYSTAR
College Strategy: Maintain	STRATMAIN
College Strategy: Improve	STRATIMP
College Strategy: Prestige	STRATPREST
Faculty Compensation Challenges: Hiring	COMPHIRE
Faculty Compensation Challenges: Competitive Rates	COMPCOMP
Faculty Compensation Challenges: Loses	COMPLOSE
Faculty Compensation Challenges: Replace	COMPREP
External Market Offers: Match	OFFERMAT
External Market Offers: Raise	OFFERMORE
External Market Offers: Nothing	OFFERNADA
Innovative Compensation: Fellowships	INNOVFELL
Innovative Compensation: Summer	INNOVSUM
Innovative Compensation: Offload	INNOVLOAD

Once open coding was completed, the categories were re-examined using axial coding, a process which relates categories as the researcher seeks to assemble the big picture (Strauss & Corbin, 1998). During axial coding, new relationships became apparent and four themes emerged. Figure 2 graphically depicts the data analysis process.

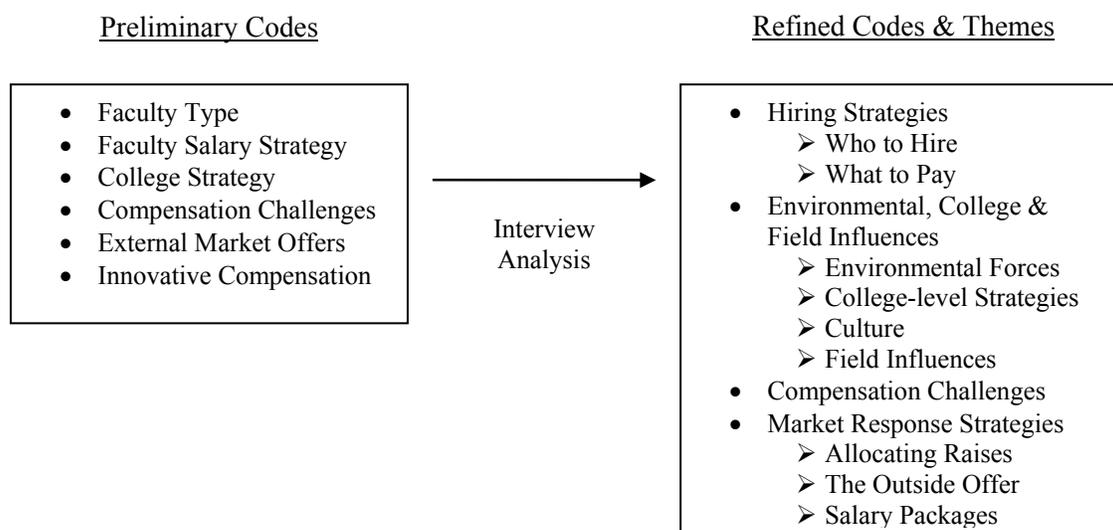


Figure 2: Data Analysis Process

Mixing Methods

The qualitative and quantitative analyses were blended during the results phase as the qualitative findings were presented as either helping to elaborate on or extend the quantitative results (Creswell, 2003). This approach strengthened the results because rather than inferring salary-setting policies from the quantitative data alone, rich, qualitative interview data provided a context for the quantitative interpretation.

Validity

Although validity is impossible to ensure, every effort was taken to ensure the highest degree of validity possible. Two primary strategies were used to check the accuracy of the study findings. First, the mixed methods nature of this study allowed for the objective examination of two separate data sources as a means of ensuring accurate

interpretation via data triangulation (Creswell, 2003). Second, the use of a process model of consent allowed all interview participants to review their interview transcripts for purposes of accuracy (Gregory, 2003). All interviewees also had access to analysis and final conclusions.

Summary

This chapter sets out the data and methodological approach to gathering and analyzing data for this study. The research protocols include quantitative analysis of a large national data set of faculty salary from business schools, as well as interviews with a sample of business school deans. Each of the distinct components of this mixed methods study is aimed at addressing particular dimensions of faculty salary inequality. The quantitative component provides insight into overall faculty salary inequality, the level and structure of inequality, contributions of between- and within-institution inequality, and the variation across schools in within-institution inequality (both in the most recent year of data and the changes between 1998 to 2004). The qualitative component describes the numerous decisions and challenges made by and facing business school deans that contribute to the above inequality patterns. Taken together, they suggest future research to quantitatively investigate some of the possible explanations suggested by the qualitative research. The quantitative findings are presented in Chapter 4; qualitative findings are presented in Chapter 5.

CHAPTER 4

QUANTITATIVE RESULTS

Introduction

This chapter first presents the results of the overall measures of inequality for U.S.-based business schools. These findings provide a general understanding of the level of salary inequality and how it has changed in the recent past, specifically between 1998 and 2004. The use of longitudinal panel data from the same 307 institutions in this study neutralizes the possibility that observed changes in inequality are based solely on differences in institutional participation and also allows observation of salary inequality across and within institutions. Next, the descriptive results of private and public business schools are presented and discussed, providing an understanding of how faculty salary inequality in business schools differs by institutional control. Then, the results for institutions, grouped by Carnegie classification, are introduced. Inequality within research/doctoral institutions and master's institutions will be discussed and the differences between the two highlighted. Results for institutions with unions are then discussed, with the differences versus non-unionized schools highlighted. Once the overall level and structure of inequality have been addressed along with differences across specific types of institutions, this chapter examines between-institution inequality and within-institution inequality separately. The section on between-institution inequality will include results from a series of regressions, providing an examination of the simultaneous effects of multiple institutional characteristics on mean salary. Similarly, the results from a series of regressions are presented in order to examine the

simultaneous effects of multiple institutional characteristics on within-institution inequality using three income inequality measures. In each section, the key findings will be introduced first, followed by a more extensive review of the evidence for each major finding.

Overall Variation

Investigation of the overall level and structure of faculty salary inequality, along with changes over time, produced several key findings. First, overall inflation-adjusted faculty salaries increased between 1998 and 2004 (Table 6). Second, the overall level of salary inequality increased. Much of the increase in the overall salary inequality has come from the upper tail of the salary distribution, which has experienced the most rapid growth. Finally, salary inequality within institutions contributes more to overall inequality than between-institution salary inequality and has increased over time. This suggests that individual faculty characteristics are more important than where faculty work.

Salary Changes

As Table 6 shows, average inflation-adjusted faculty salary increased from \$87,600 (1998) to \$97,500 (2004), for a percentage change of 11.3%. This corresponds to an average increase of 1.8% annually greater than the CPI. Median salaries also grew, albeit at a slightly slower rate.

Level of Inequality

Regardless of the inequality measure used, faculty salary inequality levels increased. For example, the variance of the natural log of salary, a basic measure of

income inequality, increased by 25.6% during the seven years. The GE Index shows similar inequality increases, ranging from 25.4% to 26.7%, depending on the parameter (-1, 0, 1, or 2). The Atkinson Index, using all parameters (0.5, 1, and 2), confirms similar increases of 25.2%, 24.8% and 23.3%, respectively. The Gini coefficient shows a much smaller increase in inequality, only 13% between 1998 and 2004. However, given the noted criticism of this particular measure and its insensitivity to the upper and lower tails of the distribution, it is not surprising that this measure would be lower since it fails to fully account for the increases in faculty salary at the upper tail and low growth in the lower tail.

Structure of Inequality

The rapidly growing upper tail, in combination with little to no growth in the lower tail, is the primary source of the growing salary inequality. This finding is supported by several measures, including the differential growth rates of mean versus median salaries, real earnings deciles and the three ratios: 90/50, 90/10, and 10/50. As mentioned above, mean salary exceeds median salary, and the difference has been increasing at an average rate of 1.4% annually. Both the absolute difference and the differing growth rates illustrate that the upper tail of the distribution is being paid more relative to the middle and lower tails, consistent with the findings of Bell (2000). As the deciles confirm, rapid growth is taking place at the top; faculty salaries at the 90th percentile saw a seven-year increase of 17.8%. In contrast, the 10th percentile grew only 1.3% during the same time. The ratios show the relationship of the upper, middle, and lower tails in another way. The 10/50 ratio shows very little change between 1998 and

2004. In 1998 a faculty member at the 10th percentile earned 0.69 of the faculty at the 50th percentile; this ratio in 2004 was 0.64. This equates to a *decline* of 6.7% over the seven-year period. The negative change in this ratio is primarily due to close to zero growth at the 10th percentile. The 90/50 ratio sheds light on how the highest paid faculty are faring relative to the median. It is this ratio that most dramatically supports the conclusion of the upper tail as the primary source of increasing salary inequality. In 1998, the 90th percentile earned 2.14 times that of the median; in 2004, this ratio had increased to 2.49, a change of 16.3%.

Contributions of Within and Between Inequality

As previously mentioned, the GE Index decomposes into within-institution inequality and between-institution inequality. Both within- and between-institution inequality increased between 1998 and 2004; within-institution inequality contributes more to overall inequality than does between-institution inequality. For example, in 2004, for GE (1), within-institution differences contribute 0.039 while between-institution differences contribute 0.028. Percentage-wise, within-institution inequality contributes a seven-year average of 59.9% of total inequality; between-institution differences account for 40.1%. These findings, contrary to Monks (2003), show that the percentage increase in faculty salary inequality is approximately the same both within a given institution and across institutions.

Table 6*Overall Salary Inequality*

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	18236	18189	18291	18435	18816	18909	18968				
Mean	\$ 87.6	\$ 90.6	\$ 91.4	\$ 93.2	\$ 95.1	\$ 95.7	\$ 97.5	1.8%	11.3%	\$ 1.6	\$ 9.9
Median	\$ 83.9	\$ 86.2	\$ 87.1	\$ 88.7	\$ 90.3	\$ 90.4	\$ 91.2	1.4%	8.6%	\$ 1.2	\$ 7.3
Deciles											
10	\$ 57.5	\$ 58.7	\$ 57.1	\$ 57.6	\$ 57.4	\$ 57.8	\$ 58.3	0.2%	1.3%	\$ 0.1	\$ 0.8
20	\$ 67.2	\$ 69.0	\$ 68.8	\$ 70.1	\$ 70.6	\$ 71.2	\$ 71.6	1.1%	6.5%	\$ 0.7	\$ 4.4
30	\$ 73.5	\$ 75.3	\$ 75.7	\$ 76.8	\$ 78.0	\$ 78.4	\$ 79.5	1.3%	8.1%	\$ 1.0	\$ 6.0
40	\$ 78.4	\$ 80.8	\$ 81.5	\$ 82.9	\$ 84.3	\$ 84.7	\$ 85.8	1.5%	9.5%	\$ 1.2	\$ 7.4
50	\$ 83.9	\$ 86.2	\$ 87.1	\$ 88.7	\$ 90.3	\$ 90.4	\$ 91.2	1.4%	8.6%	\$ 1.2	\$ 7.3
60	\$ 88.6	\$ 91.0	\$ 92.3	\$ 94.0	\$ 96.0	\$ 96.2	\$ 98.0	1.7%	10.6%	\$ 1.6	\$ 9.4
70	\$ 94.9	\$ 98.1	\$ 99.2	\$ 101.4	\$ 103.9	\$ 104.3	\$ 106.5	1.9%	12.2%	\$ 1.9	\$ 11.6
80	\$ 104.7	\$ 108.4	\$ 109.9	\$ 112.6	\$ 115.3	\$ 116.5	\$ 119.4	2.2%	14.0%	\$ 2.5	\$ 14.7
90	\$ 123.0	\$ 129.0	\$ 131.4	\$ 133.9	\$ 138.8	\$ 140.6	\$ 144.9	2.8%	17.8%	\$ 3.6	\$ 21.9
Ratios											
10/50	0.69	0.68	0.66	0.65	0.64	0.64	0.64	-1.1%	-6.7%		
90/50	1.47	1.50	1.51	1.51	1.54	1.56	1.59	1.4%	8.4%		
90/10	2.14	2.20	2.30	2.32	2.42	2.43	2.49	2.6%	16.3%		
Inequality Measures											
Variance Nat. log	0.108	0.111	0.121	0.121	0.129	0.130	0.136	3.9%	25.6%		
GE (-1)	0.058	0.059	0.065	0.065	0.070	0.070	0.073	4.1%	26.7%		
Within group	0.037	0.038	0.042	0.042	0.045	0.045	0.047	4.2%	27.2%		
Between group	0.021	0.022	0.023	0.024	0.025	0.025	0.026	3.9%	25.9%		
GE (0)	0.053	0.055	0.059	0.060	0.063	0.064	0.067	3.9%	25.7%		

Within group	0.032	0.033	0.035	0.035	0.038	0.038	0.040	3.8%	25.1%
Between group	0.021	0.022	0.024	0.024	0.025	0.026	0.027	4.0%	26.6%
GE (1)	0.053	0.055	0.059	0.059	0.063	0.063	0.066	3.9%	25.4%
Within group	0.031	0.032	0.034	0.034	0.036	0.036	0.040	4.5%	29.6%
Between group	0.022	0.023	0.025	0.025	0.027	0.027	0.028	4.2%	27.7%
GE (2)	0.057	0.059	0.063	0.064	0.067	0.069	0.071	4.0%	26.2%
Within group	0.033	0.035	0.036	0.036	0.039	0.039	0.041	3.7%	24.2%
Between group	0.023	0.025	0.027	0.027	0.029	0.029	0.030	4.4%	29.2%
Gini	0.175	0.179	0.185	0.187	0.192	0.193	0.198	2.1%	13.0%
Atkinson (0.5)	0.026	0.027	0.029	0.029	0.031	0.031	0.033	3.8%	25.2%
Atkinson (1)	0.052	0.053	0.057	0.058	0.061	0.062	0.065	3.8%	24.8%
Atkinson (2)	0.104	0.106	0.115	0.115	0.122	0.123	0.128	3.6%	23.3%

Note: Salary figures are in \$(000s).

In summary, overall inequality in U.S. business schools has increased between 1998 and 2004, primarily from larger increases in the upper tail of the salary distribution, relative to the middle and lower tail. Differences within a given institution account for more of the overall inequality than do differences across institutions. In the following sections, this inequality is examined in greater detail by looking at differences across different types of institutions.

Institutional Control

As mentioned in Chapter 2, the differences between public and private institutions are well chronicled. Consistent with earlier findings, faculty at private institutions earn appreciably more than their counterparts at public institutions (Hearn, 1999; Alexander, 2001; Fogg, 2004; McCormack, 2005) and the gap between the two has increased (Alexander, 2001). In addition to higher average salaries, faculty at private institutions experience greater inequality than those at public institutions. However, public institutions have experienced greater *increases* in inequality between 1998 and 2004, primarily due to a stagnation of lower tail salaries. There are also key differences in the structure of inequality. Finally, differences within institutions contribute more to overall inequality in public institutions than they do in private schools.

Salary Changes

Although faculty salaries in both public and private institutions increased from 1998-2004, faculty salaries at private institutions grew at a faster rate than publics: 13.6% versus 9.9% (Tables 7 and 8). Average public salaries lagged behind average private salaries by \$12.4K in 1998, increasing the salary gap to \$17.2K in 2004.

Level of Inequality

Private institutions have greater inequality than public institutions, as the variance of the natural log of salary indicates. For example, in 2004, this measure was 0.139 for private institutions as compared to 0.126 at public schools. However, public institutions experienced nearly double the growth in inequality, with inequality increasing 28.4% between 1998 and 2004; private institutions experienced a 14.7% increase. The GE Index, Atkinson Index, and Gini coefficient results present similar findings with higher *levels* of inequality at private schools and public institutions experiencing larger percentage *increases* in inequality (Tables 7 and 8).

Structure of Inequality

Although private institutions continue to pay much higher salaries on average, the more interesting findings are revealed by analyzing the changing inequality within each of the institutional types. In both public and private institutions, mean salaries exceed median salaries, with mean salaries experiencing slightly more growth over the seven years, 13.6% compared with 12.1% for privates and 9.9% versus 8.6% for publics. The difference between the mean and the median salaries increased at 33.1% for private schools while public institutions saw a greater change in the difference with an increase of 53.5%.

The ratios and deciles provide a clearer view of the source of salary inequality. For example, both public and private institutions experienced a decrease in the 10/50 ratios; the private ratio declined 3.6% between 1998 and 2004 and the public ratio decreased 9.4%. Clearly, the lower tail of the distribution in public institutions is faring

much worse vis-à-vis the average faculty member. The 90/50 ratio shows similar differences between public and private institutions, albeit a smaller one. A private school faculty member at the 90th percentile earns, on average, 60% more than a faculty member at the median, with this ratio growing 4.4% during the seven years. The 90/50 ratio for public schools indicates that on average, the 90th percentile earns 46% more than the median faculty, with the ratio growing at 6.4% between 1998 and 2004.

An analysis of the salaries by decile provides more detail on the structure of inequality. As Table 8 illustrates, private school faculty salaries increased at healthy rates across the distribution, ranging from a low of 8.1% at the 10th percentile to 17.1% at the 90th percentile. In contrast, the 10th percentile at public institutions lost ground, with a 1.6% *decrease* over the seven years. Only at the upper end of the distribution, beginning at the 70th percentile, did public school faculty see double digit salary growth with a high of 15.5%. As this comparison shows, although public school faculty experience reasonable annual salary growth, the smaller salary increases coupled with lower base salaries leads to a widening of the gap between public and private institutions, even for the highest paid public faculty. It is the lowest paid public faculty who are the worst off, with negative salary growth on an already low base.

Contributions of Within and Between Inequality

In addition to differences in overall inequality, public and private institutions differ in the size of contributions from within- and between-institution inequality. For example, in 2004 using GE (1), overall inequality of 0.071 within privates could be broken into 0.037 (contribution of 52.6% of total inequality) from within-institution

inequality and 0.033 (contribution of 47.4%) from between institutions. In contrast, public schools have an overall inequality measure of 0.059, 0.038 (64.4%) from within institutions, and 0.021 (35.6%) from between institutions. This suggests that individual faculty characteristics are more important than the place of employment.

In summary, while private school faculty still earn more than public school faculty, inequality is growing much more rapidly within the public sector, driven primarily by rising salaries at the upper tail of the distribution in combination with negative real salary growth at the lower tail. Differences within institutions contribute more to overall inequality than do differences between institutions.

Table 7*Salary Inequality in Public Institutions*

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	13104	13104	12931	13065	13319	13294	13372				
Mean	\$ 84.1	\$ 87.0	\$ 87.5	\$ 89.1	\$ 90.4	\$ 90.7	\$ 92.4	1.6%	9.9%	\$ 1.4	\$ 8.3
Median	\$ 81.7	\$ 84.3	\$ 85.2	\$ 86.6	\$ 87.9	\$ 87.8	\$ 88.7	1.4%	8.6%	\$ 1.2	\$ 7.0
Deciles											
10	\$ 55.7	\$ 57.0	\$ 54.9	\$ 55.2	\$ 53.9	\$ 54.1	\$ 54.8	-0.2%	-1.6%	\$ (0.1)	\$ (0.9)
20	\$ 65.8	\$ 67.9	\$ 67.3	\$ 68.2	\$ 68.3	\$ 68.5	\$ 69.3	0.9%	5.3%	\$ 0.6	\$ 3.5
30	\$ 72.0	\$ 73.8	\$ 74.0	\$ 75.1	\$ 76.0	\$ 76.2	\$ 76.7	1.1%	6.5%	\$ 0.8	\$ 4.7
40	\$ 76.8	\$ 79.2	\$ 79.7	\$ 80.8	\$ 81.7	\$ 81.8	\$ 83.0	1.3%	8.1%	\$ 1.0	\$ 6.2
50	\$ 81.7	\$ 84.3	\$ 85.2	\$ 86.6	\$ 87.9	\$ 87.8	\$ 88.7	1.4%	8.6%	\$ 1.2	\$ 7.0
60	\$ 86.1	\$ 88.8	\$ 89.9	\$ 91.4	\$ 93.1	\$ 92.7	\$ 94.1	1.5%	9.3%	\$ 1.3	\$ 8.0
70	\$ 91.5	\$ 94.6	\$ 95.6	\$ 97.3	\$ 99.3	\$ 99.5	\$ 101.3	1.7%	10.7%	\$ 1.6	\$ 9.8
80	\$ 100.2	\$ 103.5	\$ 104.8	\$ 106.8	\$ 109.6	\$ 109.9	\$ 113.0	2.0%	12.7%	\$ 2.1	\$ 12.8
90	\$ 116.0	\$ 120.6	\$ 123.1	\$ 125.5	\$ 129.4	\$ 130.7	\$ 134.0	2.4%	15.5%	\$ 3.0	\$ 18.0
Ratios											
10/50	0.68	0.68	0.65	0.64	0.61	0.62	0.62	-1.6%	-9.4%		
90/50	1.42	1.43	1.45	1.45	1.47	1.49	1.51	1.0%	6.4%		
90/10	2.08	2.12	2.24	2.27	2.40	2.42	2.45	2.7%	17.4%		
Inequality Measures											
Variance Nat. log	0.099	0.102	0.112	0.113	0.122	0.122	0.127	4.3%	28.4%		
GE (-1)	0.053	0.054	0.060	0.061	0.066	0.066	0.068	4.5%	29.4%		
Within group	0.037	0.038	0.042	0.043	0.047	0.047	0.048	4.5%	29.7%		
Between group	0.015	0.016	0.018	0.018	0.019	0.019	0.020	4.4%	28.8%		

GE (0)	0.047	0.049	0.054	0.054	0.058	0.059	0.061	4.4%	29.3%
Within group	0.032	0.033	0.035	0.036	0.039	0.039	0.041	4.3%	28.6%
Between group	0.015	0.016	0.019	0.018	0.019	0.019	0.020	4.7%	30.8%
GE (1)	0.046	0.048	0.052	0.053	0.056	0.057	0.059	4.5%	29.8%
Within group	0.030	0.031	0.033	0.034	0.037	0.037	0.039	4.2%	28.1%
Between group	0.016	0.016	0.019	0.019	0.019	0.020	0.021	5.0%	33.2%
GE (2)	0.047	0.050	0.054	0.055	0.058	0.059	0.062	4.7%	31.5%
Within group	0.031	0.033	0.034	0.035	0.038	0.038	0.041	4.4%	29.1%
Between group	0.016	0.017	0.020	0.020	0.020	0.021	0.022	5.4%	36.2%
Gini	0.164	0.167	0.175	0.177	0.183	0.184	0.188	2.3%	14.9%
Atkinson (0.5)	0.023	0.024	0.026	0.026	0.028	0.028	0.030	4.4%	29.3%
Atkinson (1)	0.046	0.048	0.052	0.053	0.057	0.057	0.059	4.3%	28.4%
Atkinson (2)	0.095	0.098	0.107	0.108	0.116	0.116	0.120	4.0%	25.9%

Note: Salary figures are in \$(000s)

Table 8

Salary Inequality in Private Institutions

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	5132	5085	5360	5370	5497	5615	5596				
Mean	\$ 96.5	\$ 100.0	\$ 100.7	\$ 103.3	\$ 106.3	\$ 107.5	\$ 109.6	2.2%	13.6%	\$ 2.2	\$ 13.1
Median	\$ 89.6	\$ 91.9	\$ 93.0	\$ 95.6	\$ 98.3	\$ 98.9	\$ 100.5	1.9%	12.1%	\$ 1.8	\$ 10.9
Deciles											
10	\$ 61.3	\$ 63.1	\$ 62.2	\$ 63.8	\$ 64.7	\$ 66.0	\$ 66.3	1.3%	8.1%	\$ 0.8	\$ 5.0
20	\$ 71.5	\$ 73.0	\$ 73.0	\$ 74.7	\$ 76.7	\$ 77.9	\$ 79.4	1.8%	11.1%	\$ 1.3	\$ 7.9
30	\$ 77.4	\$ 79.2	\$ 80.3	\$ 82.4	\$ 84.3	\$ 85.3	\$ 86.7	1.9%	11.9%	\$ 1.5	\$ 9.3
40	\$ 83.4	\$ 85.7	\$ 86.9	\$ 88.6	\$ 90.9	\$ 92.0	\$ 93.0	1.8%	11.4%	\$ 1.6	\$ 9.6

50	\$ 89.6	\$ 91.9	\$ 93.0	\$ 95.6	\$ 98.3	\$ 98.9	\$ 100.5	1.9%	12.1%	\$ 1.8	\$ 10.9
60	\$ 96.2	\$ 99.3	\$ 100.0	\$ 102.3	\$ 105.4	\$ 106.2	\$ 108.7	2.1%	13.0%	\$ 2.1	\$ 12.5
70	\$ 103.6	\$ 107.5	\$ 108.8	\$ 111.6	\$ 115.2	\$ 116.6	\$ 118.7	2.3%	14.6%	\$ 2.5	\$ 15.1
80	\$ 116.2	\$ 121.0	\$ 122.6	\$ 125.9	\$ 130.1	\$ 130.9	\$ 135.0	2.5%	16.2%	\$ 3.1	\$ 18.8
90	\$ 140.9	\$ 147.7	\$ 148.9	\$ 153.0	\$ 156.6	\$ 159.5	\$ 165.0	2.7%	17.1%	\$ 4.0	\$ 24.1
Ratios											
10/50	0.68	0.69	0.67	0.67	0.66	0.67	0.66	-0.6%	-3.6%		
90/50	1.57	1.61	1.60	1.60	1.59	1.61	1.64	0.7%	4.4%		
90/10	2.30	2.34	2.39	2.40	2.42	2.42	2.49	1.3%	8.3%		
Inequality Measures											
Variance Nat. log	0.121	0.123	0.130	0.127	0.130	0.129	0.139	2.4%	14.7%		
GE (-1)	0.065	0.066	0.070	0.068	0.070	0.069	0.075	2.5%	15.5%		
Within group	0.037	0.035	0.041	0.038	0.038	0.039	0.044	3.3%	19.1%		
Between group	0.029	0.030	0.029	0.031	0.031	0.031	0.032	1.8%	10.8%		
GE (0)	0.061	0.063	0.066	0.064	0.066	0.066	0.070	2.2%	14.1%		
Within group	0.032	0.032	0.036	0.033	0.034	0.035	0.038	2.8%	16.7%		
Between group	0.029	0.031	0.030	0.031	0.032	0.031	0.032	1.8%	11.1%		
GE (1)	0.062	0.064	0.067	0.066	0.068	0.068	0.071	2.1%	13.3%		
Within group	0.032	0.033	0.035	0.033	0.035	0.035	0.037	2.5%	15.1%		
Between group	0.030	0.032	0.031	0.032	0.033	0.032	0.033	1.9%	11.5%		
GE (2)	0.068	0.071	0.073	0.072	0.075	0.075	0.077	2.1%	13.5%		
Within group	0.036	0.037	0.040	0.038	0.040	0.041	0.042	2.4%	14.7%		
Between group	0.032	0.033	0.033	0.034	0.035	0.034	0.035	1.9%	12.0%		
Gini	0.191	0.196	0.199	0.198	0.201	0.200	0.205	1.1%	7.0%		
Atkinson (0.5)	0.030	0.031	0.032	0.032	0.033	0.033	0.034	2.2%	13.5%		
Atkinson (1)	0.059	0.061	0.063	0.062	0.064	0.064	0.067	2.2%	13.6%		
Atkinson (2)	0.116	0.116	0.123	0.120	0.123	0.122	0.131	2.2%	13.5%		

Note: Salary figures are in \$(000s).

Carnegie Classification

In addition to differences by control, salary inequality differs by institutional type as grouped by Carnegie classification— research/doctoral and master's. Previous studies found salary premiums exist for faculty working in research institutions over other institutional types (Rhee, 1997; Bell, 2000, 2001; Monks, 2003). Consistent with this literature, research/doctoral faculty in business schools earn significantly more, with the wage gap between the two increasing between 1998 and 2004. Research/doctoral institutions also experience a much higher level of overall inequality as compared to master's institutions, although the level has increased at similar rates. Differences exist in the structure of inequality as well as research/doctoral institutions derive much more inequality from the lower tail, with a smaller amount coming from the upper tail. Finally, the contribution of within-institution inequality to overall inequality in master's institutions is much larger percentage-wise than in research/doctoral institutions.

Salary Changes

Overall, inflation-adjusted salaries grew for faculty at both research/doctoral and master's institutions between 1998 and 2004. However, research/doctoral faculty experienced greater percentage increases in faculty salaries, leading to a widening salary gap between the two. This gap grew from a \$19,100 difference in 1998 to a \$24,700 difference in 2004.

Level of Inequality

Although the two classifications of institutions experienced nearly identical rates of change for inequality measures, research/doctoral institutions have much higher levels of inequality. For example, the variance of the natural log of salary among research/doctoral faculty increased 25% between 1998 and 2004, whereas, for master's faculty, the variance increased 23%. However research/doctoral institutions have nearly twice as much variance compared to master's institutions, e.g., 0.146 versus 0.075 in 2004. The results are similar using the GE Index, Atkinson Index and Gini coefficient. For example, GE (1) in 2004 shows that research/doctoral institutions have a measure of 0.069 versus a master's inequality measure of 0.032. Similarly, for Atkinson (2) in 2004, research/doctoral schools have inequality that is 1.86 times that of master's institutions, an identical difference to 1998.

Structure of Inequality

Unlike results shown for public and private institutions, where the mean both exceeds and is growing faster than the median, the median of master's faculty exceeds the mean and both measures grew at similar rates, 9% and 8%, respectively. Research/doctoral faculty face a similar situation to private school faculty, with the mean exceeding the median in 1998 and similar growth rates of both measures, 12.3% versus 11.6%, respectively. The ratios provide better understanding of the sources of inequality. The 10/50 ratio shows a *decrease* of 11.4% for research/doctoral over the seven years; the 10/50 ratio for master's faculty decreased as well, but by half as much, or 5.7%. This suggests that faculty at the lowest salaries of the distribution are doing much worse in

comparison to the median over the last seven years with low-wage faculty at research/doctoral institutions doing the worst, comparatively. Interestingly, master's faculty experienced higher percentage increases than did research/doctoral faculty at the lowest part of the distribution—the 10th and 20th percentiles. This explains, in part, why master's faculty experienced a smaller decrease in the 10/50 ratio than research/doctoral faculty. The upper tail of the distribution, when compared to the median, the 90/50 ratio, increased 5.7% from 1998 to 2004 for research/doctoral faculty. Master's faculty showed almost no increase over the time period—1.6%. As compared to research/doctoral institutions, master's institutions experienced lower salary increases at all deciles, only seeing double digit increases at the 90th percentile.

Contributions of Within and Between Inequality

Decomposition of overall inequality highlights significant differences in the size and contribution of within- and between-institution inequality. Both components of inequality have grown at nearly identical rates for research/doctoral institutions, although on average over seven years, within-group inequality in research/doctoral schools accounted for 64.5% of overall inequality versus between-group inequality contributions of 35.5%. Within master's institutions, both the growth rates and contributions of within- and between-institution inequality differ. For example, within-institution inequality has grown between 23.6% and 28.2% across 1998 to 2004. In contrast, between-institution inequality has only grown 6.4% to 7.1%.

Table 9*Salary Inequality in Research/Doctoral Institutions*

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	12488	12458	12441	12626	12978	13008	13065				
Mean	\$ 93.6	\$ 97.1	\$ 98.5	\$ 100.1	\$ 102.0	\$ 102.8	\$ 105.2	2.0%	12.3%	\$ 1.9	\$ 11.6
Median	\$ 88.6	\$ 91.5	\$ 93.0	\$ 94.9	\$ 96.5	\$ 97.0	\$ 98.9	1.9%	11.6%	\$ 1.7	\$ 10.3
Deciles											
10	\$ 60.6	\$ 61.5	\$ 60.9	\$ 60.4	\$ 59.5	\$ 59.9	\$ 60.0	-0.2%	-1.1%	\$ (0.1)	\$ (0.6)
20	\$ 71.7	\$ 73.5	\$ 74.0	\$ 74.4	\$ 75.1	\$ 75.5	\$ 76.2	1.0%	6.3%	\$ 0.8	\$ 4.5
30	\$ 77.7	\$ 80.1	\$ 81.2	\$ 82.3	\$ 83.5	\$ 83.9	\$ 85.2	1.6%	9.7%	\$ 1.3	\$ 7.5
40	\$ 83.2	\$ 86.0	\$ 87.5	\$ 88.7	\$ 90.2	\$ 90.5	\$ 91.9	1.7%	10.5%	\$ 1.5	\$ 8.7
50	\$ 88.6	\$ 91.5	\$ 93.0	\$ 94.9	\$ 96.5	\$ 97.0	\$ 98.9	1.9%	11.6%	\$ 1.7	\$ 10.3
60	\$ 94.9	\$ 98.3	\$ 99.6	\$ 101.5	\$ 103.8	\$ 104.2	\$ 106.6	2.0%	12.3%	\$ 1.9	\$ 11.7
70	\$ 102.8	\$ 106.3	\$ 108.0	\$ 110.5	\$ 112.9	\$ 113.5	\$ 116.8	2.2%	13.7%	\$ 2.3	\$ 14.0
80	\$ 113.7	\$ 118.2	\$ 120.9	\$ 123.0	\$ 125.8	\$ 127.8	\$ 131.2	2.4%	15.4%	\$ 2.9	\$ 17.5
90	\$ 132.3	\$ 139.7	\$ 142.9	\$ 145.9	\$ 149.8	\$ 152.3	\$ 156.2	2.8%	18.0%	\$ 4.0	\$ 23.9
Ratios											
10/50	0.68	0.67	0.65	0.64	0.62	0.62	0.61	-2.0%	-11.4%		
90/50	1.49	1.53	1.54	1.54	1.55	1.57	1.58	0.9%	5.7%		
90/10	2.18	2.27	2.35	2.42	2.52	2.54	2.60	3.0%	19.3%		
Inequality Measures											
Variance Nat. log	0.117	0.121	0.126	0.133	0.141	0.143	0.146	3.8%	25.0%		
GE (-1)	0.063	0.065	0.068	0.072	0.077	0.078	0.079	4.0%	26.1%		
Within group	0.043	0.045	0.047	0.049	0.053	0.053	0.055	4.0%	26.6%		
Between group	0.020	0.020	0.022	0.023	0.024	0.024	0.024	3.8%	24.9%		
GE (0)	0.057	0.059	0.061	0.064	0.068	0.069	0.071	3.8%	24.8%		

Within group	0.037	0.038	0.039	0.041	0.044	0.044	0.046	3.7%	24.4%
Between group	0.020	0.021	0.022	0.023	0.024	0.025	0.025	3.9%	25.5%
GE (1)	0.055	0.057	0.060	0.062	0.066	0.067	0.069	3.7%	24.1%
Within group	0.035	0.036	0.037	0.038	0.041	0.041	0.043	3.5%	22.8%
Between group	0.020	0.021	0.022	0.024	0.025	0.026	0.026	4.0%	26.2%
GE (2)	0.058	0.061	0.063	0.066	0.069	0.070	0.072	3.7%	24.2%
Within group	0.037	0.038	0.039	0.040	0.043	0.043	0.045	3.4%	22.4%
Between group	0.021	0.022	0.024	0.025	0.026	0.027	0.027	4.1%	27.2%
Gini	0.180	0.184	0.188	0.193	0.198	0.199	0.203	2.0%	12.7%
Atkinson (0.5)	0.027	0.029	0.030	0.031	0.033	0.033	0.034	3.7%	24.1%
Atkinson (1)	0.055	0.057	0.059	0.062	0.065	0.066	0.068	3.7%	23.9%
Atkinson (2)	0.112	0.115	0.120	0.126	0.133	0.134	0.137	3.5%	22.5%

Note: Salary figures are in \$(000s).

Table 10

Salary Inequality in Master's Institutions

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	5748	5731	5850	5809	5838	5901	5903				
Mean	\$ 74.5	\$ 76.5	\$ 76.2	\$ 78.3	\$ 79.5	\$ 80.0	\$ 80.5	1.3%	8.0%	\$ 1.0	\$ 5.9
Median	\$ 74.8	\$ 76.7	\$ 76.9	\$ 79.0	\$ 79.9	\$ 80.6	\$ 81.5	1.4%	9.0%	\$ 1.1	\$ 6.7
Deciles											
10	\$ 53.5	\$ 55.2	\$ 51.3	\$ 55.0	\$ 54.8	\$ 55.2	\$ 55.0	0.6%	2.8%	\$ 0.2	\$ 1.5
20	\$ 61.3	\$ 63.3	\$ 62.3	\$ 64.7	\$ 65.1	\$ 65.6	\$ 66.0	1.2%	7.6%	\$ 0.8	\$ 4.7
30	\$ 66.7	\$ 69.0	\$ 68.5	\$ 70.4	\$ 71.2	\$ 71.8	\$ 72.4	1.4%	8.5%	\$ 0.9	\$ 5.7
40	\$ 71.0	\$ 72.9	\$ 72.6	\$ 74.7	\$ 76.0	\$ 76.5	\$ 77.0	1.4%	8.4%	\$ 1.0	\$ 6.0
50	\$ 74.8	\$ 76.7	\$ 76.9	\$ 79.0	\$ 79.9	\$ 80.6	\$ 81.5	1.4%	9.0%	\$ 1.1	\$ 6.7

60	\$ 78.9	\$ 81.0	\$ 81.5	\$ 83.1	\$ 84.4	\$ 84.8	\$ 85.4	1.3%	8.2%	\$ 1.1	\$ 6.5
70	\$ 84.0	\$ 85.9	\$ 85.8	\$ 87.9	\$ 89.4	\$ 89.5	\$ 89.7	1.1%	6.8%	\$ 0.9	\$ 5.7
80	\$ 87.3	\$ 89.5	\$ 90.2	\$ 91.9	\$ 93.7	\$ 93.8	\$ 94.3	1.3%	8.0%	\$ 1.2	\$ 7.0
90	\$ 93.2	\$ 95.7	\$ 96.8	\$ 98.9	\$ 101.3	\$ 102.2	\$ 103.2	1.7%	10.7%	\$ 1.7	\$ 10.0

Ratios

10/50	0.72	0.72	0.67	0.70	0.69	0.69	0.67	-0.9%	-5.7%
90/50	1.25	1.25	1.26	1.25	1.27	1.27	1.27	0.3%	1.6%
90/10	1.74	1.73	1.89	1.80	1.85	1.85	1.88	1.3%	7.7%

Inequality Measures

Variance Nat. log	0.061	0.060	0.073	0.065	0.071	0.070	0.075	4.0%	23.0%
GE (-1)	0.036	0.032	0.031	0.038	0.034	0.037	0.037	4.1%	23.5%
Within group	0.029	0.025	0.025	0.031	0.028	0.030	0.029	5.9%	28.2%
Between group	0.008	0.007	0.006	0.007	0.006	0.008	0.008	1.5%	6.4%
GE (0)	0.032	0.028	0.028	0.033	0.030	0.033	0.033	3.7%	21.6%
Within group	0.025	0.021	0.022	0.027	0.024	0.025	0.025	4.5%	26.4%
Between group	0.008	0.007	0.006	0.007	0.006	0.008	0.008	1.5%	6.6%
GE (1)	0.030	0.026	0.026	0.031	0.028	0.031	0.030	3.4%	20.0%
Within group	0.022	0.020	0.020	0.024	0.022	0.023	0.022	4.2%	24.6%
Between group	0.008	0.007	0.006	0.007	0.006	0.008	0.008	1.6%	6.8%
GE (2)	0.029	0.026	0.025	0.030	0.027	0.030	0.030	3.3%	19.2%
Within group	0.022	0.019	0.019	0.023	0.021	0.022	0.021	4.1%	23.6%
Between group	0.008	0.007	0.006	0.007	0.006	0.008	0.008	1.6%	7.1%
Gini	0.133	0.125	0.124	0.134	0.128	0.134	0.133	1.4%	8.3%
Atkinson (0.5)	0.015	0.014	0.013	0.016	0.014	0.016	0.016	3.6%	20.6%
Atkinson (1)	0.032	0.028	0.028	0.033	0.030	0.033	0.032	3.7%	21.2%
Atkinson (2)	0.067	0.060	0.059	0.071	0.064	0.070	0.068	3.8%	21.8%

Note: Salary figures are in \$(000s).

Additionally, the percentage contribution of within-institution inequality within master's schools is greater than for research/doctoral institutions, with an average contribution of 77.1%.

In summary, while both research/doctoral and master's institutions experienced salary inequality, the level of inequality varies as does the growth rate of the inequality. Research/doctoral institutions have greater inequality, and that inequality has increased in the recent past, with the majority of the inequality coming from the lower tail, and to a lesser degree, the upper tail of the salary distribution. A decomposition of overall salary inequality into the sum of within-institution and between-institution inequality shows that within-institution differences account for more of overall inequality than do between-institution differences in both sectors; however, in master's institutions, within-institution differences account for an even larger percentage, something that has escalated in the recent past.

Unionization

While salaries for both unionized and non-unionized faculty increased between 1998 and 2004, faculty salaries at non-unionized schools grew at a much faster rate, leading to a widening of the salary gap between the two. The level of faculty salary inequality also increased, with unionized institutions experiencing greater increases in inequality than non-unionized schools. Unionized and non-unionized institutions also differ in the structure of inequality, as collective bargaining agreements appear to minimize salary inequality in the upper tail in unionized institutions, while non-unionized schools experience significant salary growth in the upper tail. Finally, unionized and

non-unionized schools differ in the size of the contributions of within-institution and between-institution inequality to overall inequality; differences within unionized institutions produce larger contributions to overall inequality than they do within non-unionized schools.

Salary Changes

Non-unionized mean salaries experienced a larger increase than did unionized mean salaries with overall growth of 12.0% versus 8.1%, respectively. This differential growth rate led to a widening of the gap between the two; in 2004, the average union faculty salary was \$90,100 (compared to \$83,300 in 1998) whereas the average non-union salary was \$99,300 (compared to \$88,700 in 1998).

Level of Inequality

Overall levels of inequality are increasing in both unionized and non-unionized institutions. Although non-unionized institutions had higher overall inequality, surprisingly, inequality increased at a faster rate for unionized schools, as evidenced by the percentage increases in the Atkinson and GE Indices, as well as the variance of the natural log of salary. Several measures provide evidence for these findings. For example, in 2004, the GE (1) measure for unionized institutions is 0.044. This measure increased 28.4% between 1998 and 2004. The comparable non-unionized measure is 0.070 with an overall change of 23.6%. Similarly, an examination of the Atkinson Index at two values, 0.5 (more sensitive to the upper part of the distribution), and 2.0 (more sensitive to the bottom of the distribution), shows that unionized schools have lower salary inequality than do non-unionized schools. In 1998, the Atkinson (0.5) was 0.0171

for unionized institutions versus 0.0281 for non-unionized institutions. By 2004, these indices were 0.0219 and 0.0347, respectively. The Atkinson (2.0) in 1998 was 0.0726 for unionized institutions, growing to 0.0913 in 2004. For non-unionized institutions, these measures were 0.1113 and 0.1359, respectively. The Gini coefficient and variance of the natural log of salary show similar differences in inequality between the two types of institutions. Non-unionized schools saw increases in these measures between 22% and 26%; whereas, unionized schools experienced increases between 25% and 31%. Thus, although unionization is thought to moderate salary inequality (and perhaps it does by controlling growth in the upper tail), inequality is increasing at a greater rate for unionized faculty than for non-unionized faculty.

Structure of Inequality

The differences within non-unionized schools are much greater than for those faculty in unionized schools. For example, in 2004, the range of salary for unionized faculty, from the 10th percentile through the 90th percentile of the salary distribution, was from \$59,400 to \$119,300 (Table 11). In contrast, the range for non-unionized faculty was \$58,100 to \$150,000 (Table 12). The differences between the mean and median salaries in these two sectors provide further support for the source of increasing inequality within each sector. The mean salaries in non-unionized schools are greater than the median salaries and also grew at faster rates, evidence of an upper tail which is growing more rapidly than the average. For unionized schools, the mean and median salaries are essentially equal, and, with the exception of the lower and upper tails, unionized faculty members throughout the salary distribution receive fairly similar

increases year over year (Table 11). Thus, it may be that collective bargaining agreements are minimizing the amount of salary inequality by union contracts that somehow limit salary at the upper tail.

An examination of the salary ratios in Tables 11 and 12 provides a clearer picture of the source of salary inequality. In both unionized and non-unionized schools, the lower end of the salary distribution is losing ground relative to the middle. The 10/50 ratio for unionized faculty *decreased* by 4.5% over the seven-year study period; the 10/50 ratio for non-unionized faculty *decreased* by 7.8%. The 90/50 ratio provides a sense of how the highest paid faculty members are doing relative to the median faculty members. For unionized schools, this ratio is 1.34 in 2004, an increase of 4.7% from 1998. In non-unionized institutions, the 90/50 ratio is 1.63 in 2004, with an increase of 7.8% from 1998. These ratios, along with the decile distribution, show that although faculty at the upper tail continue to realize greater salary increases relative to the rest, increasing inequality is also attributable to the bottom 10%, where salaries are essentially flat over the last seven years while the rest of the salaries are growing at modest and even rapid rates.

Contributions of Within and Between Inequality

An examination of the GE Index is necessary in order to completely understand the differential effects of between- and within-institution inequality on overall inequality. As this measure illustrates, differences within unionized institutions produce larger contributions to overall inequality than they do within non-unionized schools.

Table 11*Salary Inequality in Unionized Institutions*

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	3738	3771	3670	3795	3838	3815	3783				
Mean	\$ 83.3	\$ 86.3	\$ 85.9	\$ 87.4	\$ 89.1	\$ 89.2	\$ 90.1	1.3%	8.1%	\$ 1.1	\$ 6.8
Median	\$ 83.9	\$ 86.1	\$ 85.6	\$ 87.2	\$ 88.8	\$ 89.1	\$ 89.0	1.0%	6.1%	\$ 0.9	\$ 5.1
Deciles											
10	\$ 58.7	\$ 60.9	\$ 58.5	\$ 58.5	\$ 57.5	\$ 58.7	\$ 59.4	0.2%	1.3%	\$ 0.1	\$ 0.8
20	\$ 68.7	\$ 71.4	\$ 69.2	\$ 71.1	\$ 71.4	\$ 72.1	\$ 72.2	0.9%	5.1%	\$ 0.6	\$ 3.5
30	\$ 74.0	\$ 76.5	\$ 75.4	\$ 76.8	\$ 77.9	\$ 78.5	\$ 79.2	1.1%	7.0%	\$ 0.9	\$ 5.2
40	\$ 78.6	\$ 81.6	\$ 80.8	\$ 82.7	\$ 83.5	\$ 83.8	\$ 84.6	1.2%	7.6%	\$ 1.0	\$ 6.0
50	\$ 83.9	\$ 86.1	\$ 85.6	\$ 87.2	\$ 88.8	\$ 89.1	\$ 89.0	1.0%	6.1%	\$ 0.9	\$ 5.1
60	\$ 86.1	\$ 88.2	\$ 89.1	\$ 90.7	\$ 92.6	\$ 92.0	\$ 92.5	1.2%	7.5%	\$ 1.1	\$ 6.4
70	\$ 89.7	\$ 92.6	\$ 93.4	\$ 94.6	\$ 96.9	\$ 97.4	\$ 98.1	1.5%	9.4%	\$ 1.4	\$ 8.4
80	\$ 96.2	\$ 99.1	\$ 100.3	\$ 101.8	\$ 104.3	\$ 105.0	\$ 106.2	1.7%	10.4%	\$ 1.7	\$ 10.0
90	\$ 107.4	\$ 110.5	\$ 111.5	\$ 113.6	\$ 117.1	\$ 117.5	\$ 119.3	1.8%	11.1%	\$ 2.0	\$ 11.9
Ratios											
10/50	0.70	0.71	0.68	0.67	0.65	0.66	0.67	-0.7%	-4.5%		
90/50	1.28	1.28	1.30	1.30	1.32	1.32	1.34	0.8%	4.7%		
90/10	1.83	1.82	1.91	1.94	2.04	2.00	2.01	1.6%	9.7%		
Inequality Measures											
Variance Nat. log	0.074	0.071	0.081	0.087	0.095	0.096	0.095	4.3%	27.5%		
GE (-1)	0.039	0.037	0.043	0.047	0.050	0.051	0.050	4.5%	28.4%		
Within group	0.031	0.030	0.033	0.037	0.040	0.041	0.040	4.6%	29.4%		
Between group	0.008	0.007	0.009	0.010	0.011	0.010	0.010	4.4%	24.6%		
GE (0)	0.035	0.034	0.039	0.041	0.045	0.045	0.045	4.4%	28.1%		

Within group	0.027	0.027	0.029	0.031	0.034	0.035	0.034	4.4%	28.5%
Between group	0.009	0.008	0.010	0.010	0.011	0.010	0.011	4.7%	26.4%
GE (1)	0.034	0.033	0.037	0.039	0.043	0.042	0.044	4.4%	28.4%
Within group	0.025	0.026	0.027	0.029	0.032	0.032	0.033	4.3%	28.4%
Between group	0.009	0.008	0.010	0.011	0.012	0.011	0.011	5.1%	28.6%
GE (2)	0.035	0.041	0.038	0.040	0.044	0.043	0.045	4.8%	30.2%
Within group	0.026	0.026	0.028	0.029	0.032	0.032	0.034	4.5%	29.7%
Between group	0.009	0.008	0.010	0.011	0.012	0.011	0.012	5.5%	31.6%
Gini	0.139	0.136	0.146	0.148	0.156	0.155	0.157	2.2%	13.7%
Atkinson (0.5)	0.017	0.017	0.019	0.020	0.022	0.021	0.022	4.3%	27.9%
Atkinson (1)	0.035	0.034	0.038	0.040	0.044	0.044	0.044	4.3%	27.4%
Atkinson (2)	0.073	0.069	0.079	0.085	0.091	0.093	0.091	4.1%	25.8%

Note: Salary figures are in \$(000s).

Table 12

Salary Inequality in Non-Unionized Institutions

	Panel Sample							Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004				
N (faculty)	14498	14418	14621	14640	14978	15094	15185				
Mean	\$ 88.7	\$ 91.8	\$ 92.8	\$ 94.7	\$ 96.6	\$ 97.3	\$ 99.3	1.9%	12.0%	\$ 1.8	\$ 10.6
Median	\$ 84.0	\$ 86.3	\$ 87.9	\$ 89.3	\$ 90.8	\$ 91.0	\$ 92.3	1.6%	9.9%	\$ 1.4	\$ 8.3
Deciles											
10	\$ 57.3	\$ 57.9	\$ 56.4	\$ 57.4	\$ 57.3	\$ 57.6	\$ 58.1	0.2%	1.3%	\$ 0.1	\$ 0.8
20	\$ 66.9	\$ 68.5	\$ 68.7	\$ 69.7	\$ 70.5	\$ 70.9	\$ 71.4	1.1%	6.8%	\$ 0.8	\$ 4.5
30	\$ 73.2	\$ 74.9	\$ 75.7	\$ 76.8	\$ 78.1	\$ 78.3	\$ 79.6	1.4%	8.8%	\$ 1.1	\$ 6.4
40	\$ 78.3	\$ 80.4	\$ 81.8	\$ 82.9	\$ 84.6	\$ 84.9	\$ 86.2	1.6%	10.2%	\$ 1.3	\$ 7.9

50	\$ 84.0	\$ 86.3	\$ 87.9	\$ 89.3	\$ 90.8	\$ 91.0	\$ 92.3	1.6%	9.9%	\$ 1.4	\$ 8.3
60	\$ 89.5	\$ 92.2	\$ 93.4	\$ 95.6	\$ 97.6	\$ 97.8	\$ 100.0	1.9%	11.7%	\$ 1.7	\$ 10.5
70	\$ 96.7	\$ 100.1	\$ 101.2	\$ 103.6	\$ 106.1	\$ 107.0	\$ 109.6	2.1%	13.4%	\$ 2.2	\$ 12.9
80	\$ 107.4	\$ 111.8	\$ 113.2	\$ 116.2	\$ 119.4	\$ 120.4	\$ 123.1	2.3%	14.7%	\$ 2.6	\$ 15.7
90	\$ 126.6	\$ 133.1	\$ 135.8	\$ 139.2	\$ 143.7	\$ 145.0	\$ 150.0	2.9%	18.5%	\$ 3.9	\$ 23.4
Ratios											
10/50	0.68	0.67	0.64	0.64	0.63	0.63	0.63	-1.3%	-7.8%		
90/50	1.51	1.54	1.55	1.56	1.58	1.59	1.63	1.3%	7.8%		
90/10	2.21	2.30	2.41	2.43	2.51	2.52	2.58	2.7%	17.0%		
Inequality Measures											
Variance Nat. log	0.116	0.121	0.130	0.129	0.137	0.138	0.145	3.8%	24.4%		
GE (-1)	0.063	0.065	0.070	0.070	0.074	0.075	0.079	3.9%	25.6%		
Within group	0.039	0.040	0.044	0.043	0.046	0.046	0.049	4.1%	26.6%		
Between group	0.024	0.025	0.027	0.027	0.028	0.029	0.029	3.7%	24.0%		
GE (0)	0.057	0.060	0.064	0.064	0.067	0.068	0.071	3.7%	24.2%		
Within group	0.033	0.034	0.037	0.037	0.039	0.039	0.041	3.7%	24.2%		
Between group	0.024	0.026	0.027	0.027	0.028	0.029	0.030	3.7%	24.2%		
GE (1)	0.057	0.060	0.063	0.063	0.067	0.068	0.070	3.6%	23.6%		
Within group	0.032	0.033	0.035	0.035	0.037	0.037	0.039	3.5%	22.6%		
Between group	0.025	0.027	0.028	0.028	0.030	0.030	0.031	3.8%	24.8%		
GE (2)	0.061	0.065	0.068	0.068	0.072	0.073	0.076	3.7%	24.0%		
Within group	0.035	0.036	0.038	0.038	0.040	0.041	0.043	3.5%	22.6%		
Between group	0.026	0.028	0.030	0.030	0.032	0.032	0.033	3.9%	25.8%		
Gini	0.183	0.188	0.193	0.194	0.199	0.201	0.205	1.9%	12.2%		
Atkinson (0.5)	0.028	0.029	0.031	0.031	0.033	0.033	0.035	3.6%	23.6%		
Atkinson (1)	0.056	0.058	0.062	0.062	0.065	0.066	0.069	3.6%	23.4%		
Atkinson (2)	0.111	0.115	0.123	0.122	0.130	0.130	0.136	3.4%	22.1%		

Note: Salary figures are in \$(000s).

Using GE (-1), which is more sensitive to the bottom of the salary distribution, overall inequality in unionized schools increased from 0.0391 in 1998 to 0.0502 in 2004. On average, 75.4% of this inequality comes from differences within the institution, versus only 24.6% coming from differences across institutions. For non-unionized schools, GE (-1) increased from 0.0626 to 0.0787 over the seven years, with, on average, 57.9% related to differences within a given institution and 42.1% related to differences between institutions. Thus, salary inequality for unionized faculty is much more related to differences within the institution than differences between unionized institutions; whereas, non-unionized schools derive more equal parts to differences within and between institutions.

In summary, both unionized and non-unionized institutions experienced increases in salary inequality between 1998 and 2004. However, the level of inequality, the amount inequality increased, and the relative contributions of between- and within-institution inequality differ between the two sectors. While both unionized and non-unionized schools derive some salary inequality from the lack of growth at the bottom 10% of the salary distribution, rapid growth in the 90th percentile has exacerbated salary inequality at non-unionized schools.

Between-institution Inequality

Understanding between-institution inequality requires an examination of institution-level salaries¹², including institution-level mean and median salary and salary deciles. Both mean and median salaries at the institutional level (Table 13) grew at similar rates between 1998 and 2004; mean salaries increased 9.9% and median salaries, 8.6%. The key finding from this investigation is that the highest paying institutions, those at the 90th percentile, are pulling away from the others, as illustrated by looking at the salary distribution by deciles. Although institution-level deciles grew at rates between 6.3% and 9.4% for the percentiles 10th through 80th, at the 90th percentile, the rate of growth was 13.7%. This indicates that institutions whose salaries are at the 90th percentile—in other words, the top 10% of the highest paying institutions—are pulling away from the rest. An examination of the schools in the 2004 sample of 464 institutions shows that of the top 10% of the highest paying institutions, 22 are public and 24 are private. The range of mean salary within the top 10% is \$112,700 to \$181,200. Narrowing the focus to the top 20 highest paid schools, the distribution changes significantly. Of the top 20, 15 are private institutions, which include the top 10 highest paying schools, and only five (5) are public institutions. The salary difference between the highest paid school and the 20th is \$41,000; even within the top 10, there is a difference of \$32,000 in average salary. When you consider that that these 20 schools are out of a sample of 464, and that the bottom 10 schools earn between \$53,000 and \$59,600, the level of stratification is astounding.

¹² An institution-level salary is a single numeric representation of each individual institution, e.g., institutional mean or median salary and the institutional deciles.

Table 13*Salary Inequality Between Institutions*

	Panel Sample								Avg. % change per yr.	Overall % Change	Avg. \$ change per yr.	Overall \$ Change
	1998	1999	2000	2001	2002	2003	2004					
Mean	\$ 83.7	\$ 86.0	\$ 86.7	\$ 88.4	\$ 89.7	\$ 90.5	\$ 92.0		1.6%	9.9%	\$ 1.4	\$ 8.3
Median	\$ 79.6	\$ 80.5	\$ 82.1	\$ 83.1	\$ 85.0	\$ 85.0	\$ 86.5		1.4%	8.6%	\$ 1.1	\$ 6.9
Deciles												
10	\$ 65.7	\$ 66.9	\$ 67.4	\$ 69.1	\$ 69.6	\$ 69.6	\$ 70.8		1.3%	7.8%	\$ 0.9	\$ 5.1
20	\$ 70.2	\$ 71.5	\$ 71.7	\$ 73.2	\$ 74.0	\$ 74.2	\$ 75.2		1.1%	7.0%	\$ 0.8	\$ 4.9
30	\$ 73.1	\$ 75.5	\$ 75.9	\$ 76.1	\$ 76.7	\$ 77.5	\$ 77.8		1.0%	6.3%	\$ 0.8	\$ 4.6
40	\$ 75.6	\$ 78.0	\$ 78.5	\$ 79.9	\$ 80.8	\$ 81.7	\$ 82.7		1.5%	9.4%	\$ 1.2	\$ 7.1
50	\$ 79.6	\$ 80.5	\$ 82.1	\$ 83.1	\$ 85.0	\$ 85.0	\$ 86.5		1.4%	8.6%	\$ 1.1	\$ 6.9
60	\$ 83.2	\$ 85.4	\$ 85.5	\$ 86.9	\$ 88.7	\$ 88.9	\$ 90.0		1.3%	8.1%	\$ 1.1	\$ 6.8
70	\$ 88.5	\$ 90.7	\$ 90.9	\$ 92.5	\$ 94.6	\$ 94.9	\$ 95.6		1.3%	8.0%	\$ 1.2	\$ 7.1
80	\$ 95.8	\$ 97.7	\$ 98.7	\$ 100.6	\$ 101.5	\$ 102.1	\$ 103.9		1.4%	8.4%	\$ 1.3	\$ 8.1
90	\$ 107.7	\$ 111.2	\$ 112.7	\$ 116.9	\$ 120.8	\$ 120.5	\$ 122.5		2.2%	13.7%	\$ 2.5	\$ 14.8
Inequality Measures												
Variance Nat. log	0.039	0.041	0.042	0.043	0.045	0.046	0.047		0.030	0.197		
GE (-1)	0.020	0.021	0.022	0.022	0.023	0.024	0.024		0.031	0.202		
GE (0)	0.021	0.022	0.022	0.023	0.024	0.025	0.025		0.034	0.220		
GE (1)	0.022	0.023	0.024	0.024	0.025	0.026	0.027		0.037	0.240		
GE (2)	0.023	0.025	0.025	0.026	0.027	0.028	0.029		0.040	0.265		
Gini	0.114	0.116	0.117	0.119	0.121	0.123	0.125		0.016	0.097		
Atkinson (0.5)	0.011	0.011	0.011	0.012	0.012	0.013	0.013		0.035	0.229		
Atkinson (1)	0.020	0.021	0.022	0.023	0.023	0.024	0.025		0.033	0.216		
Atkinson (2)	0.039	0.040	0.041	0.042	0.044	0.045	0.046		0.030	0.193		

Note: Salary figures are in \$(000s).

Regression Results

Next, a series of regressions were conducted using mean salary as the dependent variable with several institution- and college-level variables as the independent variables. Regressions allow for a more complete examination of how between-institution salary inequality differs by institutional characteristics. As Table 14 shows, these three regression models have very high R^2 indicating a series of models that capture between 78.9% and 84.5% of the variance in mean faculty salaries; or conversely, only between 21.1% and 15.5% of the variance is unexplained by this set of variables.

After controlling for a number of institutional characteristics, faculty at unionized institutions earn between \$3,021 and \$4,898 more than non-unionized faculty in 2004, depending on which regression model is considered. Consistent with previous findings (Alexander, 2001, Hearn 1999), public faculty earn between \$7,772 and \$9,067 less than their private faculty counterparts. Carnegie classification also has a significant effect on mean salary with research/doctoral faculty earning between \$4,697 and \$7,661 more than faculty at master's institutions. The degrees offered by an institution is also associated with statistically significant differences in mean faculty salary. Institutions that offer undergraduate only or undergraduate/master's degrees earn between \$5,970 and \$8,265 less than faculty who work in institutions that offer undergraduate, master's and doctoral degrees. The mean salary premium is even larger when comparing institutions with all three degrees to those that only offer graduate degrees; faculty at institutions that offer only graduate degrees earn between \$15,739 to \$19,957 more than the institutions with undergraduate, master's and doctoral degrees. This is not surprising given that most the

business schools with only graduate-level degrees are those in the elite tier of schools. Accreditation is also associated with higher mean salaries. Faculty who work at an accredited school earn, on average, between \$10,151 to \$12,607 more than faculty at an unaccredited school. This premium may be related to the requirement that the majority of faculty in accredited business schools be terminally qualified, i.e. have doctoral degrees, whereas unaccredited business schools may have a higher percentage of faculty with master's degrees. Faculty size is only significant in model 3, with mean salary increasing \$51 for every additional faculty member a business school adds.

Although undergraduate rankings or being an unranked undergraduate program have no statistically significant effect on average faculty salary, MBA rankings do play a statistically significant role. For every one point drop in MBA rankings, a faculty member's salary falls between \$434 and \$753. The mean salary difference between a faculty member at the number one ranked MBA program versus a faculty in an unranked business school is between \$31,371 and \$51,581. These differences are substantial and indicate the stratification that exists between faculty at the top ranked business schools and the rest.

In model 3, the additional effect of institutional resource variables can be examined. As Table 14 indicates, increases in tuition and fees, endowment per student, and state appropriations per student are all associated with increases in mean faculty salary.

Table 14*Regression Results, Mean Salary Using 2004 All Sample*

Dependent Variable: Mean Salary			
Regressor	(1)	(2)	(3)
union	4.898*** (1.210)	3.890*** (1.341)	3.021** (1.199)
public	-7.787*** (1.048)	-7.772*** (1.161)	9.067** (3.569)
resdoct	6.833*** (1.210)	7.661*** (1.352)	4.697*** (3.569)
mba_04	-0.754*** (0.129)	-0.717*** (0.133)	-0.434*** (0.122)
nombar04	-51.581*** (5.216)	-48.856*** (5.506)	-31.372*** (5.230)
ug_04	0.103 (0.145)	0.132 (0.153)	0.069 (0.137)
nougr04	-2.641 (4.855)	-3.620 (5.087)	-5.927 (4.547)
fac_t04	0.028 (0.019)	0.0277 (0.020)	0.051*** (0.018)
un_unms	-8.265*** (1.494)	-7.653*** (1.612)	-5.971*** (1.453)
grad	16.748*** (3.358)	19.958*** (3.769)	15.740*** (3.409)
accred	12.607*** (1.396)	11.879*** (1.671)	10.151*** (1.499)
t_f03_ii (000s)			86.996*** (12.866)
end03bps (000,000s)			1.189*** (0.188)
sapp04ps (000s)			1.117*** (0.298)
intercept	131.966*** (4.477)	130.317*** (4.690)	87.241*** (6.428)
Summary			

Statistics

R ²	0.790	0.803	0.845
Adjusted R ²	0.785	0.797	0.839
N (institutions)	464	379	379

These regressions were estimated using both the 2004 all sample and the sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 15*Regression Results, Mean Salary Using Panel Sample*

Dependent Variable: Mean Salary							
	sal_i98	sal_i99	sal_i00	sal_i01	sal_i02	sal_i03	sal_i04
Regressor							
union	2.114 (1.471)	3.220** (1.497)	2.368 (1.503)	2.868* (1.490)	2.969* (1.563)	2.615 (1.598)	2.517 (1.646)
public	3.986 (4.310)	2.674 (4.367)	4.575 (1.751)	3.088 (4.534)	5.331 (4.845)	4.790 (4.992)	7.979 (5.238)
resdoct	2.802** (1.491)	3.664** (1.506)	4.496*** (1.520)	3.456** (1.504)	2.681* (1.589)	3.175* (1.627)	4.783*** (1.665)
mba_yr	-0.424*** (0.122)	-0.649*** (0.131)	-0.703*** (0.130)	-0.587*** (0.125)	-0.463*** (0.137)	-0.429*** (0.142)	-0.352** (0.142)
nombaryr	-25.057*** (5.058)	-32.303*** (5.684)	-33.408*** (5.792)	-36.662*** (5.932)	-32.065** (5.989)	-29.266*** (6.687)	-25.980*** (6.571)
ug_yr	-0.003 (0.126)	0.0708 (0.134)	0.061 (0.149)	0.151 (0.147)	-0.022 (0.148)	0.045 (0.179)	-0.145 (0.173)
nougryr	-6.370 (4.821)	-6.294 (5.058)	-8.281 (5.302)	-2.899 (5.481)	-6.250 (5.485)	-8.152 (6.210)	-12.703** (5.907)
fac_tyr	0.040* (0.021)	0.046** (0.021)	0.029 (0.021)	0.035* (0.021)	0.049** (0.022)	0.032 (0.023)	0.022 (0.023)
un_unms	-3.729** (1.682)	-4.162** (1.726)	-4.301** (1.738)	-5.602*** (1.717)	-5.929*** (1.807)	-6.854*** (1.846)	-7.408*** (1.912)
grad	16.045*** (3.926)	16.772*** (4.220)	16.564*** (4.243)	10.364** (4.289)	13.135*** (4.233)	16.856*** (4.615)	16.313*** (4.351)
accred	7.347** (3.585)	8.104** (3.643)	7.769** (3.673)	6.628* (3.642)	6.154 (3.818)	7.758** (3.900)	9.478** (4.019)
t_fyr_ii (000s)	0.965*** (0.245)	0.846*** (0.242)	0.836*** (0.247)	0.968*** (0.247)	1.167*** (0.260)	1.072*** (0.264)	1.203*** (0.273)

endyrbps	59.747***	52.586***	52.274***	48.204***	57.795***	73.569***	84.340***
(000,000s)	(12.167)	(11.142)	(11.350)	(9.581)	(11.456)	(13.847)	(14.661)
sappyrps	1.046***	0.9780***	1.211***	1.168***	1.320***	1.231***	1.113***
(000s)	(0.292)	(0.279)	(0.298)	(0.289)	(0.319)	(0.353)	(0.376)
_cons	84.692***	94.272***	98.447***	97.992***	94.401***	95.569***	93.415***
	(8.067)	(8.208)	(8.302)	(8.248)	(8.965)	(9.017)	(9.262)

Summary Statistics

R ²	0.801	0.821	0.828	0.844	0.840	0.844	0.844
Adj. R ²	0.789	0.810	0.817	0.835	0.830	0.834	0.835
N (inst.)	242	242	242	242	242	242	242

These regressions were estimated using the panel sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

A longitudinal analysis of the panel sample of institutions allows for an examination of the simultaneous effects of the selected institutional characteristics using a consistent set of schools, and to understand how the effect of these characteristics on mean salary has changed over time (Table 15).

The Carnegie classification variable highlights that the salary premium that faculty at research/doctoral institutions have over master's institution faculty has grown over the past seven years (with some fluctuation), with average salary premiums for research/doctoral faculty increasing from \$2,802 (1998) to \$4,782 (2004). The degrees offered variable provides evidence of how undergraduate and undergraduate/master's as well as how schools that offer only graduate degrees compare to undergraduate/master's and doctoral (the omitted group). Graduate-only degree granting institutions earn appreciably more than those that offer all three degrees; this variable decreased in 2001 and 2002 before rebounding to similar levels in 2003 and 2004. Accreditation is also associated with higher mean salaries. Average faculty salaries in accredited business schools are between \$6,153 and \$9,477 higher than those in unaccredited schools. Changes in the accreditation coefficient followed no apparent pattern, although the effect increased in the last two years of the sample. Unionization is similar, with no discernible trend; unionization is associated with between \$2,114 and \$2,969 increase in mean salary over non-unionized faculty. Faculty size has had both increases and decreases in effect over the seven years with every additional faculty member corresponding to an increase of between \$22 and \$49 in mean salary.

Both of the MBA rankings variables—the specific rank and the dummy variable for being unranked—correspond to faculty at ranked institutions earning significantly more than faculty at unranked institutions. Faculty at unranked institutions experience a decrease in salary relative to their ranked counterparts of between \$25,056 and \$36,662. Similarly, there is a decrease in mean salary associated with each one-point drop in the MBA rankings of between \$351 and \$702. The shapes of both of these coefficients resemble a curve, with steadily increasing effects between 1998 and 2000 (2001 for not ranked), followed by a corresponding decrease in the effect to the point where 2004 coefficient sizes are similar to those of 1998. Interesting, this roughly corresponds to the same business cycles experienced in the late 1990s and early 2000s when the economy was rapidly growing and business schools were seeing unprecedented salaries offered to their students. The 2001 - 2004 declines correspond to the slowdown in hiring and the economic crash associated with September 11th, 2001 and its subsequent years. Undergraduate rankings variables have no significant effect on average faculty salary although the size of the coefficients is curvilinear, with the maximum point in 2001.

Finally, all three of the institutional resource variables are statistically significant and associated with higher mean salaries. The effects of all three increased over the seven years of the study.

Within-institution Inequality

It is also important to understand what drives inequality within institutions. Within-institution inequality can be examined using both basic descriptive statistics and ratios, as well as using regression analyses but first requires the creation of institution-

level inequality measures. These measures take a single inequality measure from each institution, either accounting for the number of faculty in an institution (weighted) or treating all institutions the same (unweighted). Using both weighted and unweighted measures allows for a checking process to ensure the size of an institution's faculty doesn't unknowingly influence the results. This section details both sets of results.

Table 16

Within-institution Inequality—Unweighted

Mean Ratios by Year						
N (inst)						
307	p1050_98	0.720	P9050_98	1.281	p9010_98	1.842
307	p1050_99	0.713	P9050_99	1.278	p9010_99	1.868
307	p1050_00	0.692	P9050_00	1.274	p9010_00	1.917
307	p1050_01	0.696	P9050_01	1.274	p9010_01	1.901
307	p1050_02	0.678	P9050_02	1.274	p9010_02	1.959
307	p1050_03	0.679	P9050_03	1.272	p9010_03	1.959
307	p1050_04	0.668	P9050_04	1.279	p9010_04	1.998
464	p1050_04 all	0.687	P9050_04 all	1.258	p9010_04 all	1.910
	Avg. % Δ/ Yr	-0.6%		-0.3%		0.4%
	% Δ	-7.3%		-0.4%		8.4%

Note: The last row, p1050_04 all represents the 2004 all sample; the remaining rows are from the panel sample.

Although the results of the overall variation section would seem to reflect that the greatest source of faculty salary inequality is the upper tail of the distribution, when institution-level measures are considered, the results are quite different. An examination of the means of the three ratios—10/50, 90/50, and 90/10—helps with this interpretation. The mean 10/50 ratio *decreased* 7.3% between 1998 and 2004, from 0.720 to 0.687 (Table 16). The upper tail relative to the median, or the mean 90/50, was essentially flat,

with a nominal *decrease* of 0.4% over the seven years. Finally, the mean 90/10 ratio increased 8.4% during the same time, from 1.842 to 1.910. A comparison of these three ratios shows that it is not the 90th percentile that is driving the increase in inequality; it is the 10th percentile, which is falling behind the rest of the distribution.

A review of the weighted institution-level ratios and deciles supports this assertion (Table 17). The 10/50 ratio *decreased* 8.1% from 1998 and 2004, decreasing from 0.692 to 0.636. The 90/50 ratio is flat, with a ratio of around 1.31 for each of the seven years. However, the 90/10 ratio increased from 1.973 to 2.171 during the same time, for a change of 10.1%. Thus, these three ratios collectively pinpoint the lower tail as the source of the increasing salary inequality. This mirrors findings in the labor market at large (Autor, Katz & Kearney, 2005).

Table 17

*Within-institution inequality—Weighted Mean Ratios*¹³

	Panel Sample							Avg. % Δ / Yr	% Δ
	1998	1999	2000	2001	2002	2003	2004		
Ratios									
10/50	0.692	0.682	0.665	0.664	0.649	0.648	0.636	-0.8%	-8.1%
90/50	1.316	1.314	1.317	1.310	1.316	1.314	1.320	-0.1%	0.3%
90/10	1.973	2.011	2.058	2.050	2.113	2.122	2.171	0.8%	10.1%

The following series of regression analyses will allow for a more complete understanding of the salary inequality within institutions. These regressions will look at

¹³ The weighted ratios account for the number of faculty in an institution; unweighted ratios treat all institutions equally.

how institutional characteristics affect within-institution salary inequality, whether the within-institution inequality is being driven by increases in upper tail salaries (90/50) or by flat or declining lower tail salaries (10/50), and any apparent trends. Additionally, differences in inequality by public versus private and union versus non-union will be reviewed.

Regression Results

This section focuses on presenting the findings from three of the dependent variables used to fully examine within-institution salary inequality: GE (1), 10/50 ratio, and 90/50 ratio. These measures were selected for several reasons. Most of the economics literature cites the GE Index as the preferred index for studying salary inequality (Cowell, 1995). Regressions run for the Atkinson Index, Gini coefficient, and variance of the natural log of salary all produced similar results to the GE; and finally, the 10/50 and 90/50 ratios provide insights into the source of the changing inequality within institutions. Descriptive statistics for the regressions using both the 2004 sample and the panel sample are set out in Appendix B.

All Institution Regressions

Developing the most complete picture of inequality requires that three different regression analyses be laid out consecutively: GE (1), 90/50, and 10/50. This allows for discussion of effects on overall inequality (Tables 18 and 19) along with the source of the inequality, whether upper tail (Tables 22 and 23) or lower tail (Tables 20 and 21), and which institutional characteristics are associated with more inequality in each tail. Examination of several samples including the entire 2004 sample (N = 464), the 2004

sample with imputed endowment, tuition and fees, and state appropriations ($N = 379$), and the panel sample ($N=307$) provides details on what is happening in the most recent year, as well as between 1998 and 2004. As larger values of GE (1) equate to greater inequality, the coefficients of the independent variables are interpreted as follows: negative coefficients equate to less inequality; positive coefficients equate to more inequality. Interpretation of the 10/50 ratio regression results is: negative values represent more inequality in the lower tail; positive values represent less inequality in the lower tail. Finally, results from the 90/50 ratio regression use the following interpretation: negative values represent less inequality in the upper tail; positive values represent more inequality in the upper tail.

Collectively, these three variables highlight a number of key findings as to which institutional characteristics are associated with differences in within-institution inequality. First of all, as Table 18 indicates, there are several institutional characteristics that affect salary inequality. Analysis using the panel data illustrates changes in the effect of these characteristics over time, from 1998 to 2004 (Table 19). Differences in institutional type result in statistically significant differences in inequality, including control, unionization, and Carnegie classification. Degrees offered produces similar results as it captures nearly the same information as Carnegie classification. The two MBA rankings variables are associated with differences in inequality; however, undergraduate rankings variables have no effect. Finally, of the last three institutional variables, neither tuition and fees nor state appropriations per student have an effect on

salary inequality; however, endowment per student is associated with more inequality. A review of the evidence, changes over time and source of the inequality follows.

Public institutions have more overall inequality than do private institutions, with greater inequality in the lower tail and less inequality in the upper tail. In the study years 1998 to 2000, public institutions had *less* inequality than private schools. However, beginning in 2001, this changed, with much of the increasing inequality in public institutions coming from greater inequality in the lower tail; the lower tail inequality showed steady increases over time. The upper tail also contributes to differences between public and private institutions. Public institutions have less inequality in the upper tail, with the effect increasing slightly over time. (Differences between public and private institutions will be discussed more fully in a separate section.)

Unionized institutions have lower overall inequality as well as lower inequality in the lower tail than do non-unionized institutions. Unionization also reduces the level of inequality in both upper and lower tails as compared to non-unionized institutions. Both the upper and lower tails for unionized institutions had fairly constant effects between 1998 to 2004. However, overall inequality fluctuated during the seven years, without a discernible trend. (Differences between unionized and non-unionized institutions will be discussed more fully in a separate section.)

Table 18*Regression Results, GE Measure Using 2004 All Sample*

Dependent Variable: Within Institution Salary Inequality, GE (1)			
	(1)	(2)	(3)
Regressor			
union	-0.00634*** (0.00154)	-0.00737*** (0.00177)	-0.00738*** (0.00177)
public	0.00245* (0.00134)	0.00312** (0.00154)	0.00776 (0.00528)
resdoct	0.00586*** (0.00155)	0.00553*** (0.00179)	0.00549*** (0.00186)
mba_04	0.000275* (0.00017)	0.00030* (0.00018)	0.00039** (0.00018)
nombar04	0.01243* (0.00667)	0.01518** (0.00728)	0.01905** (0.00774)
ug_04	0.00012 (0.00019)	0.00013 (0.00020)	0.00012 (0.00020)
nougr04	-0.00358 (0.00620)	-0.00486 (0.00673)	-0.00484 (0.00673)
fac_t04	0.00021*** (0.00002)	0.00021*** (.00003)	0.00021*** (.00003)
un_unms	-0.00610*** (0.00191)	-0.00647*** (0.00213)	-0.00649*** (0.00215)
grad	0.00046 (0.00429)	0.00334 (0.00498)	0.00108 (0.00505)
accred	0.00062 (0.00178)	0.00098 (0.00221)	0.00045 (0.00222)
t_f03_ii (000s)			0.00004 (.00028)
end03bps (000,000s)			0.03930** (0.01900)
sapp04ps (000s)			-0.00046 (0.00044)
intercept	0.00824 (0.00572)	0.00706 (0.006202)	0.00128 (0.00951)
Summary Statistics			
R ²	0.452	0.450	0.459
Adjusted R ²	0.439	0.433	0.438
N (institutions)	464	379	379

These regressions were estimated using both the 2004 all sample and the sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 19*Regression Results, GE Measure Using Panel Sample***Dependent Variable: Within-Institution Salary Inequality, GE (1)**

Regressor	ge1_i98	ge1_i99	ge1_i00	ge1_i01	ge1_i02	ge1_i03	ge1_i04
union	-0.00435** (0.00198)	-0.00514*** (0.001947)	-0.00508** (0.00208)	-0.00487** (0.00201)	-0.00513** (0.00209)	-0.00453** (0.00213)	-0.00608*** (0.00215)
public	-0.00188 (0.00174)	-0.00083 (0.00170)	-0.00036 (0.00184)	0.00071 (0.00177)	0.00164 (0.00185)	0.00186 (0.00188)	0.00160 (0.00188)
resdoct	0.00689*** (0.00199)	0.00578*** (0.00193)	0.00336 (0.00207)	0.00507** (0.00200)	0.00647*** (0.00209)	0.00605*** (0.00213)	0.00410* (0.00214)
mba_yr	-0.000003 (0.00017)	0.00003 (0.00018)	0.00005 (0.00019)	0.00026 (0.00018)	0.00019 (0.00019)	0.00021 (0.00020)	0.00042* (0.00020)
nombaryr	-0.00248 (0.00708)	0.00043 (0.00760)	0.00234 (0.00816)	0.00547 (0.00800)	0.00137 (0.00787)	-0.00076 (0.00860)	0.01890* (0.00874)
ug_yr	-0.00007 (0.00018)	-0.00004 (0.00019)	-0.00003 (0.00022)	-0.00009 (0.00021)	0.00003 (0.00021)	0.00025 (0.00025)	0.00005 (0.00024)
nougryr	0.00017 (0.00698)	-0.00307 (0.00709)	-0.00289 (0.00786)	0.00161 (0.00788)	0.00775 (0.00778)	0.01219 (0.00866)	-0.00653 (0.00827)
fac_tyr	0.00012*** (0.00003)	0.00012*** -0.00003	0.00019*** -0.00003	0.00019*** -0.00003	0.00018*** -0.00003	0.00019*** -0.00003	0.00023*** -0.00003
un_unms	-0.00507** (0.00231)	-0.00751*** (0.00228)	-0.00374 (0.00243)	-0.00556** (0.00234)	-0.00687*** (0.00243)	-0.00701 (0.00248)	-0.00713*** (0.00253)
grad	-0.00426 (0.00541)	-0.00214 (0.00564)	0.00171 (0.00605)	0.00069 (0.00592)	-0.00497 (0.00584)	-0.00662 (0.00628)	0.00399 (0.00590)
accred	0.002593 (0.00392)	0.001394 (0.00384)	0.00187 (0.00412)	0.00324 (0.00397)	0.00522 (0.00413)	0.00493 (0.00422)	0.00277 (0.00426)
_cons	0.02096***	0.02379***	0.01747***	0.00853	0.00629	0.00364	0.00463

	(0.0072)	(0.00718)	(0.007721)	(0.00724)	(0.00794)	(0.00784)	(0.00786)
Summary Statistics							
R ²	0.296	0.359	0.306	0.355	0.376	0.379	0.421
Adjusted R ²	0.270	0.335	0.280	0.330	0.352	0.356	0.399
N (inst.)	307	307	307	307	307	307	307

These regressions were estimated using the panel sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 20*Regression Results, 10/50 Ratio Using 2004 All Sample*

Dependent Variable: Within-Institution Salary Inequality, 10/50 Ratio			
	(1)	(2)	(3)
Regressor			
union	0.05793*** (0.01344)	0.05755*** (0.01473)	0.05517** (0.01472)
public	-0.06083*** (0.01164)	-0.06419*** (0.01275)	-0.06106 (0.04381)
Resdoct	-0.02738** (0.01343)	-0.02107 (0.01484)	-0.02874* (0.01539)
mba_04	-0.00130 (0.00143)	-0.00146 (0.00146)	-0.00159 (0.00150)
nombar04	-0.12665** (0.05792)	-0.13964** (0.06044)	-0.13433** (0.06420)
ug_04	-0.00067 (0.00161)	-0.00056 (0.00168)	-0.00066 (0.00168)
nougr04	-0.00925 (0.05392)	-0.00033 (0.05585)	-0.00609 (0.05581)
fac_t04	-0.00116*** (0.00021)	0.00022*** (0.00022)	-0.00112*** (0.00023)
un_unms	0.00728 (0.01659)	0.01071 (0.01769)	0.01526 (0.01784)
grad	-0.00313 (0.03729)	-0.01765 (0.04138)	-0.00534 (0.04185)
accred	-0.02980* (0.01550)	-0.03721** (0.01835)	-0.03649** (0.01841)
t_f03_ii (000s)			0.00307 (0.00231)
end03bps (000,000s)			-0.19320 (0.15790)
sapp04ps (000s)			0.00751** (0.00365)
intercept	0.92564*** (0.04972)	0.930619*** (0.05149)	0.87048*** (0.07891)
Summary Statistics			
R ²	0.238	0.259	0.273
Adjusted R ²	0.220	0.237	0.245
N (institutions)	464	379	379

These regressions were estimated using both the 2004 all sample and the sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 21*Regression Results, 10/50 Ratio Using Panel Sample***Dependent Variable: Within-Institution Salary Inequality, 10/50 Ratio**

	p1050_98	p1050_99	P1050_00	p1050_01	p1050_02	p1050_03	p1050_04
Regressor							
union	0.04337* (0.01789)	0.05265** (0.01833)	0.03777** (0.01853)	0.04170** (0.01746)	0.03918** (0.017764)	0.04322** (0.01776)	0.05880** (0.01753)
public	-0.03272** (0.01569)	-0.04349*** (0.01597)	-0.03696** (0.01638)	-0.04553*** (0.01540)	-0.05698*** (0.01578)	-0.06192*** (0.01571)	-0.05883*** (0.01540)
resdoct	-0.02608** (0.01794)	-0.02157 (0.01821)	-0.00231 (0.01844)	-0.01147 (0.01740)	-0.03876 (0.01777)	-0.03809** (0.017738)	-0.02052** (0.01748)
mba_yr	0.00021 (0.00156)	0.00085 (0.00170)	0.00055 (0.00170)	-0.00038 (0.00154)	0.00043 (0.0016)	-0.00027 (0.00163)	-0.00120 (0.00164)
nombaryr	-0.02111 (0.06386)	-0.01001 (0.07155)	-0.05488 (0.07265)	-0.07759 (0.06957)	-0.05225 (0.06702)	-0.01317 (0.07172)	-0.12364* (0.07137)
ug_yr	0.00015 (0.00166)	-0.00073 (0.00180)	0.00019 (0.00194)	0.00077 (0.00182)	-0.00064 (0.00178)	-0.00180 (0.00205)	-0.00117 (0.00192)
nougryr	-0.04065 (0.06297)	-0.03142 (0.06673)	0.00289 (0.07003)	-0.00061 (0.06851)	-0.03618 (0.06630)	-0.11351 (0.07220)	-0.02810 (0.06758)
fac_tyr	-0.00094*** (0.00026)	-0.00097*** (0.00027)	-0.00108*** (0.00027)	-0.00118*** (0.00025)	-0.00097*** (0.00026)	-0.00109*** (0.00025)	-0.00117*** (0.00025)
un_unms	-0.00878 (0.02082)	-0.00407 (0.02143)	-0.01330 (0.02163)	-0.00683 (0.02031)	-0.00920 (0.02073)	-0.00625 (0.02072)	0.01259 (0.02067)
grad	0.028821 (0.04884)	0.04872 (0.05312)	0.01211 (0.05390)	-0.00890 (0.05146)	0.02468 (0.04978)	0.07475 (0.05238)	-0.01999 (0.04819)
accred	-0.0658* (0.03538)	-0.03548 (0.03612)	-0.03434 (0.03672)	-0.04548 (0.03455)	-0.04039 (0.03519)	-0.03326 (0.03516)	-0.02538 (0.03477)
_cons	0.91181***	0.85926***	0.84741***	0.89740***	0.90045***	0.93844***	0.92506***

	(0.06479)	(0.06759)	(0.06878)	(0.06293)	(0.06768)	(0.06537)	(0.06418)
Summary Statistics							
R ²	0.121	0.133	0.108	0.148	0.170	0.192	0.198
Adjusted R ²	0.088	0.100	0.075	0.116	0.139	0.162	0.168
N (inst.)	307	307	307	307	307	307	307

These regressions were estimated using the panel sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 22*Regression Results, 90/50 Ratio Using 2004 All Sample*

Dependent Variable: Within-Institution Salary Inequality, 90/50 Ratio			
Regressor	(1)	(2)	(3)
union	-0.01465 (0.01302)	-0.02654* (0.01482)	-0.02897* (0.01484)
public	-0.04560*** (0.01128)	-0.04528*** (0.01284)	-0.00452 (0.04419)
resdoct	0.04683*** (0.01302)	0.04570*** (0.01494)	0.03699** (0.01552)
mba_04	-0.00015 (0.00139)	0.00012 (0.00147)	0.00096 (0.00151)
nombar04	-0.05876 (0.05612)	-0.04437 (0.06084)	0.00803 (0.06475)
ug_04	0.00144 (0.00156)	0.00171 (0.00169)	0.00151 (0.00169)
nougr04	-0.04150 (0.05224)	-0.03994 (0.05622)	-0.04765 (0.05629)
fac_t04	0.00030 (0.00020)	0.00036 (0.00022)	0.00044 (0.00023)
un_unms	-0.07815*** (0.01607)	-0.08189*** (0.01781)	-0.07662*** (0.01799)
grad	-0.00077 (0.03613)	0.01178 (0.04165)	-0.00017 (0.04220)
accred	-0.02517 (0.01502)	-0.03086* (0.01847)	-0.03568* (0.01856)
t_f03_ii (000s)			0.00314 (0.00233)
end03bps (000,000s)			0.26840* (0.15930)
sapp04ps (000s)			0.00377 (0.00368)
intercept	1.43311*** (0.04817)	1.42360*** (0.05183)	1.30328*** (0.07958)
Summary Statistics			
R ²	0.392	0.403	0.412
Adjusted R ²	0.377	0.385	0.390

N (institutions)	464	379	379
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These regressions were estimated using both the 2004 all sample and the sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 23*Regression Results, 90/50 Ratio Using Panel Sample***Dependent Variable: Within-Institution Salary Inequality, 90/50 Ratio**

	p9050_98	p9050_99	p9050_00	p9050_01	p9050_02	p9050_03	p9050_04
Regressor							
union	-0.03302* (0.01745)	-0.02423 (0.01717)	-0.02764* (0.01633)	-0.02809* (0.01683)	-0.02313 (0.01666)	-0.02229 (0.01661)	-0.00553 (0.01677)
public	-0.07591*** (0.01530)	-0.07092*** (0.01496)	-0.05917*** (0.01444)	-0.06040*** (0.01484)	-0.06225*** (0.01480)	-0.06157*** (0.01470)	-0.06558*** (0.01473)
resdoct	0.04673*** (0.01749)	0.04633*** (0.01707)	0.02820*** (0.01626)	0.03033* (0.01677)	0.02360* (0.01667)	0.02874* (0.01659)	0.03249* (0.01672)
mba_yr	0.00077 (0.00152)	0.00045 (0.00159)	0.00109 (0.00150)	0.00222 (0.00148)	0.00316** (0.00154)	0.00271* (0.00153)	0.00136 (0.00157)
nombaryr	-0.07027 (0.06228)	-0.02978 (0.06705)	-0.01904 (0.06405)	-0.02602 (0.06705)	-0.01642 (0.06287)	-0.00238 (0.06710)	-0.00449 (0.06827)
ug_yr	-0.00013 (0.00162)	-0.00010 (0.00168)	-0.00089 (0.00171)	0.00006 (0.00176)	0.00072 (0.00167)	0.00214 (0.00192)	0.00096 (0.00184)
nougryr	-0.01596 (0.06141)	-0.09256 (0.06253)	-0.09067 (0.06174)	-0.02519 (0.06604)	0.01840 (0.06220)	0.00639 (0.06754)	-0.06774 (0.06465)
fac_tyr	0.00013 (0.00026)	-0.00001 (0.00025)	0.00057** (0.00024)	0.00022 (0.00024)	0.00047* (0.00024)	0.00043* (0.00024)	0.00035 (0.00024)
un_unms	-0.07976*** (0.02031)	-0.08532*** (0.02008)	-0.05942** (0.01907)	-0.08110*** (0.01958)	-0.08009*** (0.01944)	-0.08762*** (0.01938)	-0.08563*** (0.01977)
grad	-0.02641 (0.04763)	0.03671 (0.04977)	0.05178 (0.04752)	0.014018 (0.04960)	0.02347 (0.04670)	0.03482 (0.04900)	0.00367 (0.04610)
accred	-0.01998 (0.03451)	-0.01716 (0.03384)	-0.02169 (0.03237)	0.02042 (0.03331)	0.06156* (0.03300)	0.03726 (0.03289)	0.02176 (0.03326)
_cons	1.46165***	1.49591***	1.43371***	1.36949***	1.26898***	1.28889***	1.38425***

	(0.06318)	(0.06333)	(0.06063)	(0.06066)	(0.06349)	(0.06115)	(0.06134)
Summary Statistics							
R ²	0.380	0.409	0.410	0.398	0.407	0.438	0.432
Adjusted R ²	0.357	0.387	0.388	0.376	0.385	0.417	0.410
N	307	307	307	307	307	307	307

These regressions were estimated using the panel sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Carnegie classification is also related to salary inequality, with research/doctoral institutions having more overall inequality than master's institutions; master's schools have less lower and upper tail inequality. Degrees offered shows that institutions offering all three degrees exhibit more inequality than institutions that offer undergraduate or undergraduate/master's degrees. Although the lower tail regression isn't statistically significant for the panel sample, offering only undergraduate or undergraduate/master's degrees is associated with less inequality in the upper tail and the size of this effect has grown over the seven years.

An MBA ranking also has a significant effect on salary inequality. For every one point drop in MBA rankings, inequality increases. Once an institution reaches a ranking of 45, the level of inequality is the same as that of an unranked school (Table 18). The lower tail regressions were not significant for MBA rankings variables (Table 21); however the upper tail regression using the panel sample shows that the size of this effect increased between 1998 and 2002 before falling (Table 23). This corresponds to more inequality in the upper tail followed by a slight decrease in the upper tail inequality in 2003 and 2004. Thus, the highest ranked schools have the least inequality, all else equal. Neither the upper tail nor lower tail of ranked or unranked MBA programs has an effect. Institutions that are not ranked at all have more salary inequality. An institution's undergraduate ranking and the unranked undergraduate dummy variable are not statistically significant in any of the all institution regression models.

Consistent with Pfeffer & Langton (1988), faculty size was associated with greater salary inequality. As the size of the faculty increases, the level of inequality

increases. Increases in faculty size were consistently associated with increases in salary inequality, with the size of the effect growing over the seven years. Faculty size is also associated with more inequality in both the upper and lower tail.

Business school accreditation is not statistically significant in predicting overall salary inequality. However, accreditation does correspond to more inequality in the lower tail and less inequality in the upper tail. Accredited schools had less inequality in the upper tail from 1998 to 2000; between 2001 and 2004, the effect changed and these schools showed more inequality.

Tuition and fees has no statistically significant effect on overall inequality, upper tail inequality or lower tail inequality. However, endowment per student is related to higher inequality. The richer an institution is, the more inequality that exists within it. Endowment per student is also associated with more upper tail inequality. Finally, state appropriations per student is only significant between 2001 and 2003 with increases in appropriations related to less inequality; this inequality has decreased over time. Increases in state appropriations per student correspond to less inequality in the lower tail; there is no effect on upper tail inequality.

Public/Private Regressions

Regressing these variables separately by public and private allows for a more detailed examination of how the determinants of salary inequality vary by institutional control. As the results in Table 24 indicate, there are several key differences between public and private institutions. Unions are more effective at reducing inequality at private institutions than at public institutions. The size of the coefficient for private

institutions is roughly twice that of public schools, indicating less inequality. However, unionization is only effective at reducing upper tail inequality for private institutions; the effect for public institutions is statistically insignificant (Table 26). As shown in Table 25, when comparing differences in lower tail salary inequality across public and private institutions, unions are most effective at limiting inequality in the lower tail in private institutions than in public institutions. The coefficient for unionized privates is more than twice that of unionized publics.

Table 24

Regression Results, GE Measure, Public and Private

Dependent Variable: Within-Institution Salary Inequality, GE (1)		
Regressor	Public	Private
union	-0.00630*** (0.00194)	-0.01268*** (0.00452)
resdoct	0.00858*** (0.00233)	-0.00029 (0.00326)
mba_04	-0.00015 (0.00030)	0.00076*** (0.00025)
nombar04	0.00493 (0.01296)	0.02431** (0.01047)
ug_04	0.00018 (0.00031)	0.00011 (0.00031)
nougr04	-0.00350 (0.01145)	-0.00704 (0.00891)
fac_t04	0.00020*** (.00003)	0.00025*** (.00005)
un_unms	-0.00620** (0.00253)	-0.00502 (0.00432)
grad	-0.00588 (0.00840)	0.00711 (0.00688)
accred	0.00014	0.00078

	(0.00305)	(0.00342)
t_f03_ii (000s)	0.00007 (0.00059)	-0.00003 (0.00038)
end03bps (000,000s)	-0.00151 (-0.00663)	0.03180 (0.02340)
sapp04ps (000s)	-0.00048 0.00045	(dropped)
intercept	0.021691* (0.01133)	-0.00163 (0.01446)

Summary Statistics

R ²	0.480	0.460
Adjusted R ²	0.450	0.409
N (institutions)	238	141

These regressions were estimated using the 2004 all sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test. State appropriations for all privates were set to zero.

Table 25

Regression Results, 10/50, Public and Private

Dependent Variable: Within-Institution Salary Inequality, 10/50		
Regressor	Public	Private
union	0.04422** (0.01729)	0.09553*** (0.03370)
resdoct	-0.05043** (0.02083)	0.00109 (0.02425)
mba_04	0.00232 (0.00265)	-0.00353* (0.00184)
nombar04	-0.02114 (0.11580)	-0.16437** (0.07801)
ug_04	-0.001373 (0.00279)	-0.00094 (0.00230)
nougr04	-0.03461 (0.10228)	0.00597 (0.06636)
fac_t04	-0.001201*** (0.00030)	-0.00111*** (0.00035)
un_unms	0.00974 (0.02264)	0.01324 (0.03214)

grad	-0.02945 (0.07506)	-0.00256 (0.05124)
accred	-0.03299 (0.02720)	-0.03749 (0.02544)
t_f03_ii (000s)	0.00721 (0.00528)	0.00210 (0.00286)
end03bps (000,000s)	0.19900 (0.59200)	-0.20440 (0.17460)
sapp04ps (000s)	.00840** (.00403)	(dropped)
intercept	0.71761*** (0.10124)	0.89990*** (0.10769)

Summary Statistics

R ²	0.243	0.199
Adjusted R ²	0.199	0.125
N (institutions)	238	141

These regressions were estimated using the 2004 all sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test. State appropriations for all privates were set to zero.

Table 26

Regression Results, 90/50, Public and Private

Dependent Variable: Within-Institution Salary Inequality, 90/50		
Regressor	Public	Private
union	-0.01998 (0.01394)	-0.09919** (0.04468)
resdoct	0.04046** (0.01680)	0.01643 (0.03215)
mba_04	-0.00114 (0.00214)	0.00230 (0.00244)
nombar04	-0.05479 (0.09340)	0.02035 (0.10343)
ug_04	0.00158 (0.00225)	0.00228 (0.00305)
nougr04	-0.03604 (0.08249)	-0.05280 (0.08799)
fac_t04	0.00036 (0.00024)	0.00074 (0.00047)

un_unms	-0.07201*** (0.01826)	-0.08729** (0.04262)
grad	-0.10058* (0.06054)	0.05266 (0.06794)
accred	-0.02402 (0.02194)	-0.03046 (0.03373)
t_f03_ii (000s)	0.00969** (.00426)	-0.00116 (0.00379)
end03bps (000,000s)	0.16200 (0.47780)	0.15090 (0.23150)
sapp04ps (000s)	0.00550* (0.00325)	(dropped)
intercept	1.29949*** (0.08165)	1.38942*** (0.14278)
Summary Statistics		
R ²	0.476	0.379
Adjusted R ²	0.445	0.321
N (institutions)	238	141

These regressions were estimated using the 2004 all sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test. State appropriations for all privates were set to zero.

Carnegie classification is only significant for public institutions, with research/doctoral institutions having more overall inequality than master's institutions. Research/doctoral institutions also have more inequality in the lower tail than do master's institutions. Carnegie classification is only significant for public institutions. Both types of institutions are affected by the size the faculty: the larger the size of the faculty, the more overall inequality that exists. Both types of institutions have similar size effects. Faculty size is also associated with greater inequality in the lower tail. The size of the coefficient is similar in both, indicating similar effects. Upper-tail inequality in public and private institutions is not affected by faculty size. Accredited business schools have more inequality in the lower tail than do unaccredited schools.

Rankings are only significant for private institutions. As the ranking of a private institution drops, the level of salary inequality increases, up to a ranking of 32, at which time, it is the same as not being ranked at all (Table 24). While the specific MBA ranking is not statistically significant, having an unranked MBA program corresponds to an increase in inequality in the lower tail. MBA rankings is only associated with increasing lower tail inequality for private institutions. As an institution's MBA ranking drops each point, inequality in the lower tail increases. This holds true until the institution reaches a ranking of 47, at which time it is the same effect as not being ranked at all (Table 25)

Finally, increasing state appropriations per student is associated with less inequality in the lower tail for public institutions. Public institutions see an increase in upper tail inequality associated with both increasing state appropriations per student and increases in tuition and fees.

Unionization Regressions

In addition to examining differences by institutional control, differences between unionized and non-unionized institutions were analyzed. None of the lower tail independent variables are significant for unionized institutions (Table 28). As Table 27 shows, although institutional control matters for all institutions, when examining union status, it was statistically insignificant. However, Carnegie classification is significant

Table 27*Regression Results, GE Measure, Unionized and Non-unionized*

Dependent Variable: Within-Institution Salary Inequality, GE (1)		
Regressor	Unionized	Non-unionized
public	0.01315 (0.01223)	0.00611 (0.00609)
resdoct	0.00764** (0.00360)	0.00478** (0.00215)
mba_04	-0.00051 (0.00117)	0.000425** (0.00019)
nombar04	(dropped)	0.01982** (0.00819)
ug_04	-0.00045 (0.00104)	0.00019 (0.00021)
nougr04	-0.02424 (0.03571)	-0.00242 (0.00704)
fac_t04	0.00012** (0.00005)	0.00025*** (0.00003)
un_unms	-0.00673 (0.00468)	-0.00622 (0.00242)
grad	(dropped)	0.00246 (0.00530)
accred	0.00231 (0.00409)	-0.00016 (0.00265)
t_f03_ii (000s)	0.00057 (0.00077)	-0.00015 (0.00031)
end03bps (000,000s)	0.07900 (0.08750)	0.04020** (0.02020)
sapp04ps (000s)	0.00097 (0.00089)	-0.00087* (0.00051)
intercept	0.01976 (0.03933)	0.00132 (0.01028)
Summary Statistics		
R ²	0.534	0.447
Adjusted R ²	0.460	0.422
N (inst.)	81	298

These regressions were estimated using the 2004 all sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 28*Regression Results, 10/50 Ratio, Unionized and Non-unionized*

Dependent Variable: Within-Institution Salary Inequality, 10/50		
Regressor	Unionized	Non-unionized
public	-0.18809 (0.13087)	-0.03026 (0.04787)
resdoct	-0.03768 (0.03856)	-0.02470 (0.01692)
mba_04	-0.00429 (0.01249)	-0.00200 (0.00147)
nombar04	(dropped)	-0.14496** (0.06435)
ug_04	-0.00765 (0.01111)	-0.00051 (0.00166)
nougr04	-0.14945 (0.38226)	-0.01081 (0.05531)
fac_t04	-0.00051 (0.00052)	-0.00133*** (0.00026)
un_unms	0.02570 (0.05006)	0.01125 (0.01902)
grad	(dropped)	-0.01433 (0.04164)
accred	-0.03648 (0.04378)	-0.04100** (0.02082)
t_f03_ii (000s)	-0.00220 (0.00824)	0.00452* (0.00243)
end03bps (000,000s)	0.54310 (0.93700)	-0.19220 (0.15880)
sapp04ps (000s)	0.00843 (0.00957)	0.00781* (0.00401)
intercept	1.04154** (0.42107)	0.86584*** (0.08076)
Summary Statistics		
R ²	0.256	0.294
Adjusted R ²	0.138	0.261
N (institutions)	81	298

These regressions were estimated using the 2004 all sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test.

Table 29*Regression Results, 90/50 Ratio, Unionized and Non-unionized*

Dependent Variable: Within-Institution Salary Inequality, 90/50		
Regressor	Unionized	Non-unionized
public	0.05851 (0.09294)	-0.017553 (0.05146)
resdoct	0.06282** (0.02738)	0.030767* (0.018185)
mba_04	-0.01798** (0.00887)	0.000573 (0.001584)
nombar04	(dropped)	-0.02025 (0.069168)
ug_04	-0.02015** (0.00789)	0.002629 (0.001788)
nougr04	-0.69857** (0.27146)	-0.020148 (0.059459)
fac_t04	0.00036 (0.00037)	0.000529* (0.000275)
un_unms	-0.07420** (0.03555)	-0.072711*** (0.020447)
grad	(dropped)	0.002456 (0.044755)
accred	-0.01535 (0.03109)	-0.039899* (0.022379)
t_f03_ii (000s)	0.00730 (0.00585)	0.00176 (0.00261)
end03bps (000,000s)	0.85100 (0.66540)	0.23040 (0.17070)
sapp04ps (000s)	0.01580** (0.00679)	0.00048 (0.00431)
intercept	1.76412*** (0.29903)	1.33737*** (0.08681)
Summary Statistics		
R ²	0.539	0.392
Adjusted R ²	0.466	0.364
N (institutions)	81	298

These regressions were estimated using the 2004 all sample with imputed data. Standard errors are in parentheses under coefficients. The individual coefficient is statistically significant at the *10% level or **5% level or ***1% significant level using a two-sided test

for both unionized and non-unionized institutions; unionized research/doctoral institutions have more inequality than non-unionized research/doctoral schools (compared to master's institutions). Unionized research/doctoral institutions have more inequality in the upper tail (versus master's institutions) than non-unionized schools.

Upper tail and lower tail inequality also differs by accreditation. Non-unionized accredited business schools have more inequality in the lower tail and less inequality in the upper tail than do unaccredited schools.

Faculty size is significant for both types of institutions; however, the size of the faculty has a much larger effect in non-unionized institutions compared to unionized institutions. Therefore, non-unionized institutions derive greater salary inequality from larger sized faculty than do unionized institutions. Faculty size is also associated with increasing inequality in both the upper and lower tail for non-unionized institutions

The two MBA rankings variables are both statistically significant, but only for non-unionized institutions. Salary inequality increases for every one point drop in the MBA rankings; once a school drops to a ranking of 45, the effect of the rankings is the same as not being ranked at all (Table 28). Rankings also contribute to upper and lower tail differences by unionization. Non-unionized institutions that have unranked business schools have more inequality in the lower tail than do ranked business schools. MBA and undergraduate rankings variables are only associated with upper tail inequality in unionized institutions. For every one-unit drop in the undergraduate and/or MBA rankings, a unionized institution will see less inequality in the upper tail. While being an unranked MBA program is statistically insignificant in both types of institutions,

unranked undergraduate schools with unions see a decrease in inequality in the upper tail versus ranked schools.

Increases in state appropriations are associated with less inequality in non-unionized as compared to unionized institutions, with unionized schools experiencing an increase in inequality in the upper tail (Table 29). Increases in tuition and fees and state appropriations per student are both associated with less inequality in the lower tail of non-unionized institutions. This suggests that as non-unionized institutions increase their resources from these two funding sources that they pursue an approach of increasing salaries among the lowest paid. Larger endowments per student are associated with more inequality in non-unionized institutions. There is no statistically significant effect from the upper or lower tail.

Within-Institution Regression Summary

As these results indicate, within-institution salary inequality differs based on numerous institution- and college-level characteristics. This section summarizes some of the key differences. While unions are more effective at ensuring the lowest paid faculty (10/50) don't fall that far behind the median, unions don't do as well at controlling higher salaries (90/50). Unions may moderate inequality versus non-unionized institutions; however, inequality is still increasing. Second, the nature of salary inequality in public and private institutions differs. Public institutions have more inequality in the lower tail while the highest paid are closer to the median than are that of private schools. Thus, there are different structures of inequality determined by institutional control. Third, Carnegie classification only affects salary inequality in public institutions. Within public

institutions, research/doctoral institutions have more inequality in both the upper and lower tail than do master's institutions. Therefore, it appears that a combination of increasing salaries at the upper tail and flat or declining salaries at the lower tail are contributing to overall salary inequality between the two institutional types.

Rankings at the MBA level show that the top ranked schools have less salary inequality and that as the numeric rankings falls or a business school is unranked, inequality increases. Unranked institutions have more inequality in the lower tail. Undergraduate rankings, on the whole, have very little effect on salary inequality. They matter only for unionized schools at the upper tail, with each one-point drop associated with less upper tail inequality.

Faculty size is significant across multiple regressions and is associated with increasing overall, upper tail, and lower tail inequality for the overall sample, public, private, unionized and non-unionized. This suggests that as an institution's faculty size grows, they are more likely to engage in differential salary practices; whereas, with smaller faculty, it might be more difficult, from a social comparison perspective, to have as much salary variance without creating dissatisfied faculty (Pfeffer & Langton, 1988).

Accreditation is only statistically significant when looking at the source of the salary inequality. It has no effect on overall salary inequality, as measured by GE (1). Accredited business schools have more inequality in the lower tail and less inequality in the upper tail. This is true for the entire sample, as well as for non-unionized institutions, but is statistically insignificant for public, private and unionized institutions.

Finally, the institution-level resource variables, tuition and fees, state appropriations per student and endowment per student have varied effects on salary inequality. First, tuition and fees produces weak results overall and is not significant in examining overall salary inequality; however, tuition and fees does contribute to understanding the source. As tuition and fees increase, there is more inequality at the upper tail for publics and less inequality at the lower tail for non-unionized institutions. Second, since state appropriations are assumed to be zero for private institutions, it only affects public institutions. As state appropriations per student increase, there are two effects: (1) there is more inequality at the upper tail for public institutions and (2) less inequality at the lower tail for non-unionized institutions. Finally, endowment per student is only significant for three of the regressions: GE (1) overall imputed sample, GE (1) non-unionized, and 90/50 overall imputed sample. Endowment per student affects overall salary inequality (GE (1)) with increasing inequality as endowment per student grows. Similarly, as endowment per student rises, the overall imputed sample shows increasing inequality in the upper tail of the distribution. Thus, as an institution's wealth grows, inequality grows both overall and from the highest paid faculty.

CHAPTER 5

QUALITATIVE RESULTS

Introduction

Faculty salary is a product of multiple decisions based on individual factors which, in the aggregate, have an impact on salary inequality. This chapter sets out, in four sections, the qualitative findings of this study that address the primary research question: What are the strategies and forces influencing faculty salary inequality? Part One addresses the hiring strategies of institutions, both types of faculty hired and compensation approaches. Part Two provides an understanding of the environmental, disciplinary, and college-level influences on compensation, including strategies and culture. Part Three examines the biggest compensation challenges facing business schools. Finally, Part Four considers market response strategies—strategies used to allocate raises, respond to outside job offers, and structure overall salary packages. Throughout this chapter, the individual decisions deans make that have an impact on salary inequality are examined; differences between institutional types will be highlighted where appropriate. Direct quotes are used when appropriate to provide personal insight into the business school deans' perspectives on faculty salary. The participant responses are summarized in Appendix C and reflect interviews that took place in March and April of 2006.

Part One: Hiring Strategies

The questions on hiring strategies for this study were designed to obtain information from deans on two subtopics. First, the questions were aimed at gathering information on the types of faculty hired by the institution, i.e. whether the focus was on new doctorates or more experienced professors, and/or on research versus teaching. Secondly, the study questions were designed to solicit information on specific strategies used to compensate faculty. These two sub-topics are designed to investigate the extent to which institutions develop faculty talent from within (and the associated costs that accompany hiring assistant professors) and to the extent to which institutions rely on experienced faculty (and the costs that accompany these kinds of hires). The questions assumed that the type of faculty hired and the compensation strategies used affected the amount of inequality in faculty salaries within and across institutions.

Who to Hire?

The majority of the deans interviewed for this study (6 of the 11) approach faculty hiring from a contingency perspective; that is, the hiring of new faculty depends on the needs of individual departments, including its faculty demographics and relative strengths and weaknesses. One dean's remarks captured this perspective perfectly.

[Areas need to] understand what their needs are, whether they are senior or junior, because we have some areas that are completely needing [sic] senior leadership and we have some areas that are pretty heavy on seniors and really need young junior blood. Dean, Large Public Research/Doctoral University in Midwest

By and large, institutions seem to be looking for faculty with strengths in both research and teaching, although many deans admitted that research probably plays a more significant role. Other deans, trying to improve the reputation of their colleges, are doing so through the types of faculty they hire.

First and foremost, they are great scholars that have been out, or if they are new PhDs, they have got the potential to be great scholars....They also have to be good teachers, although research drives this place just like it drives everything else. Dean, Large Public Research/Doctoral University in Midwest

I have been trying to push that more on the research side. I have made the point to the two hires we've made this year that the standards are going to be going up and the bar has been raised in terms of getting tenure and expectations that you do publish consistently and in a reasonable quality journal. Dean, Private Master's University in East

I always spend a lot of time on recruiting. I think it's the way you change the culture. Dean, Private Research/Doctoral University in Southwest

Other deans preferred to hire junior faculty, typically newly "minted" PhDs. This preference stemmed from both the fact that full professors are much more expensive and potential that senior faculty would not fit well within the established culture. However, rapid growth in assistant professor salaries has made assistant and associate professors

cost nearly the same. Only two deans expressed a preference for hiring experienced faculty, although it is noteworthy that their definition of experienced was faculty with three to five years of experience. Experienced faculty were deemed easier to evaluate in terms of quality, as one dean put it, “I think the better strategy is to hire somebody with a proven record,” (Dean, Public Research/Doctoral University in West).

What to Pay?

One singular theme dominated the discussions of salary setting strategies and that was the rule of the market. Over the course of 11 interviews, the term “market” was mentioned an astonishing 187 times. Depending on the particular business school, deans use AACSB data to place their faculty hires within the market arena in which they compete. For most of the schools, they have identified competitive marketplaces for their own institutions, typically a set of both similar and better institutions. These competitive marketplaces differ depending on the mission, ranking, and Carnegie classification of the institution.

We have a list of peer schools and we have a list of aspirant schools. We don't rely much on the data that all 400 schools provide [to AACSB] because for a school like us, it's just irrelevant. I mean that the salaries are so much lower than what top schools are paying, the average is meaningless. Dean, Large Public Research/Doctoral University in Southwest

For some of the schools, this meant shooting for the average or median AACSB salaries or, even taking the average and moving their faculty down a bit; for others, it meant upper quartile or 90th percentile. One dean said his salary strategy simply was,

I don't have a strategy because I don't believe that we deans set compensation levels. I think the markets set the compensation level when you are bringing people in....[Later, admitting somewhat to a strategy,] My strategy is—I am bringing in somebody new, I have got to pay at market price and that's true assistant through chaired professors. Dean, Large Public Research/Doctoral University in Southwest

The outside [hiring], it's simply market-driven. It's whatever it takes to move the individual and that is partly a function of what other schools are offering. So, we will pay whatever the market is to get those kinds of people who we think will add to the quality of our programs. Dean, Large Public Research/Doctoral University in Midwest

Fields differences, on a national basis, contribute substantially to what an institution must pay for new hires.

The markets are different, so you know, starting salaries for accounting and finance are going to be at the top, and then marketing, and then management is a bit lower. So, it creates some inequities, but I think from a salary and administration process, you have to pay attention to the

marketplace realities. Dean, Large Public Research/Doctoral University in Midwest

Part One: Summary

While business school deans have differing approaches as to the types of faculty they tend to hire, the strategies for setting compensation reflect an almost singular approach—the rule of the market. This is consistent across every dean interviewed for this study. The differences across schools are in how they define their own institutional market, be it top publics, research institutions, or regional business schools. Each school competes in a somewhat unique marketplace for faculty, bounded by national disciplinary forces, but influenced by their mission and goals. Surprisingly, contrary to the literature on faculty superstars (Frank & Cook, 1995; Burgan, 2005), only two deans mentioned hiring in star faculty at premium salaries. For one, this meant simply bringing in faculty at a 25% premium over existing faculty; for the other, it was stated as, “...if it's somebody I really want, we have a supra-market salary,” (Dean, Large Public Research/Doctoral University in Southwest).

Part Two: Environmental, College, and Field Influences

As mentioned in the review of the literature in Chapter 2, faculty members belong to three discrete groups: national, local, and disciplinary. Each has the potential to influence faculty compensation (Clark, 1984; Eckel, 1998; Trow, 1997). This section examines the influences that environmental forces, college-level strategies and culture,

and discipline (or field) have on faculty salary inequality, recognizing them as potentially, but not exclusively, separate factors in faculty compensation.

Environmental Forces

Although there was little consistency among deans as to the environmental forces they face, the “market” was frequently cited as a prominent environmental force with which business school deans have to contend. As one dean puts it, “There is a marketplace for faculty talent and we have to be cognizant of it,” (Dean, Large Public Research/Doctoral University in Midwest). Beside the market, deans mentioned environmental forces such as competition from top schools, unionization, internal administrative [the Provost] and resource challenges, such as an endowment smaller than peer and aspirant schools, and scarcity of faculty, which is reflected in the market. The following quote provides a clear picture of not only faculty scarcity, but also the difference by field.

Here is an example of the problem. There may have been last year - I don't know the exact number, maybe 80 or 85 PhDs in Accounting awarded nationally, alright? Of that 80 or 85...my guess is 20 schools alone are looking for probably a total of maybe 40 or 50 people in Accounting. So you are already have, just with the top 20 schools, you have consumed better than half of the available new supply of faculty. Now, the problem is, of that 80 to 85, there is probably no more than about 40 that can produce at levels that will be desired by the top 20 schools. So, there is just an incredible shortage, almost quite literally by area of

specialization. Dean, Large Public Research/Doctoral University in Midwest

Another dean detailed how declining state funding is having a domino effect on business schools, because business schools, with their ability to generate outside funding, are receiving smaller appropriations from central administration. Smaller appropriations causes business schools to raise tuition and to teach more non-degree executive education courses and considerably more MBA programs (typically executive or part-time). These additional programs and courses create a “squeeze,” on business schools, described in complete detail below.

There were two things going in opposite directions. One is that state funding in almost every state, state support of universities is declining. Business schools are especially hit by it because the first thing Presidents do, if they are savvy, is they say ‘business schools have other ways of making money, We’re going to give less and less to the business school, make them stand on their own and we’ll take that money and spread it around the University,’ okay? So the business schools, then, in reaction to that they say ‘okay, we’ve got to be teaching a lot more executive education and a lot more MBA because that’s where we make money.’ You are committed to hiring much more highly qualified, internationally recognized research faculty. And they are going to teach less and less, okay. So what do you have to do? Well, I mean look...actually the market is taking care of this. I have to reduce the size of my tenure-track

faculty over time. How am I going to teach more? I'm going to teach more by hiring what we call clinical faculty. The full-time non-tenure track faculty, doctorally qualified, tremendous in the classroom, but they aren't doing great research or they don't want to do great research. But they are great at, and what they like doing, is teaching, which I am saying, is fine. I will hire you and you are going to teach eight sections a year for me. Now I don't pay them as much as the research faculty but I still pay them a lot of money. Okay, so I expand that group, contract the tenure-track faculty group and I teach more overall. Dean, Large Public Research/Doctoral University in Southwest

This switch from tenure-track/tenure-eligible faculty to more clinical professors or “professors of practice” (also known as instructors) was mentioned by several deans as “a way to handle this insatiable demand for salary,” (Dean, Large Public Research/Doctoral University in Midwest), or to “leverage faculty resources,” (Dean, Large Public Research/Doctoral University in Midwest). It is also a way to meet increased demand for business education on college campuses while effectively dealing with a scarcity of PhDs in many business disciplines.

College-level Strategies

When describing how they connect their college-level strategy with their compensation strategies, the deans' responses were usually very brief and lacked the passion exhibited in responses about setting salaries. However, some noted the direct link between their goals and how they compensate people. These goals varied depending

on institutional characteristics, but unranked schools tended to have different goals than their ranked counterparts. Examples of college-level strategies mentioned by unranked schools were generally about improvement: increasing or improving research, improving teaching, and competing for better faculty. Deans of ranked business schools discussed compensation strategies linked to institutional goals of intellectual capital creation and dissemination, rewarding faculty members who contribute to the goals and strategic objectives of the college, and making a shift from rewarding people purely on research to a model that more heavily weights teaching and citizenship, with the recognition that “good research is a necessary but insufficient condition for a great business school,” (Dean, Large Public Research/Doctoral University in Southwest).

Culture

One of the most interesting findings in the exploration of the influence of culture of faculty salary inequality was that most of the deans did not view culture as having *any* influence at all. Those that did mention culture mentioned the culture being related to the research orientation of the institution or the departmental culture of the individual disciplines. One dean responded:

We are a business school and people understand markets. So, certainly people understand there is a market for faculty talent. Clearly, no business school in the U.S. has [a culture of] egalitarianism. Dean, Large Public Research/Doctoral University in Midwest

Similarly, another dean indicated a performance-driven culture:

I am a strong believer that rewards follow performance and everywhere I have been in the industry, rewards always follow performance. Dean, Large Public Research/Doctoral University in Southwest

Other deans, primarily from unranked institutions, were dealing with historical influences while trying to shift culture. One stated:

We are dealing with a long-standing tradition of egalitarianism. My philosophy, frankly, is to reward those that are indeed advancing the business school and I am going to be less inclined to worry about those who are sitting on the sidelines. Dean, Private Master's University in East

Others noted the role of departmental culture,

The culture, I guess it would be more department culture that played a role [in compensation strategies]. There are some departments that are much more focused on keeping the balance and harmony within that department. Dean, Large Public Research/Doctoral University in Southwest.

Field Influences

In order to understand how compensation strategies might be influenced by individual fields, deans were queried as to the role of the department in explaining differences. Two interesting findings came out of this line of questioning. The first is that there although there are large differences in salary by field, there are very little differences by field in compensation strategies. Nearly all deans categorized their departments as being performance-driven. When asked about compensation strategy differences between departments, one dean replied:

We have zero differences by department. They are all market-based and I don't allow egalitarian activity. Dean, Private Research/Doctoral University in Midwest

Another was blunter in his views on the potentially deleterious effects of egalitarianism on universities.

I think it's more pay-for-performance [the departments]. Absolutely. I just don't believe in an egalitarian model. That's what screws up universities. You've got to have an incentive system that is linked to performance. Dean, Large Public Research/Doctoral University in Midwest

The second finding is that the field differences seem to reflect national disciplinary differences. One dean saw the influence of the department as being related exclusively to the discipline, nationally:

We don't put any limits on the differences in salary that could exist between different functional specialties. So we could literally have - take assistant professors across our college, alright. And let's just talk about incoming assistant professors just to get a standard measure; we could literally have a \$60,000 difference in what we pay one assistant professor versus another assistant professor, simply as a function of the market for their specialty. Dean, Large Public Research/Doctoral University in Midwest

Similarly, another dean noted the effect of department on variance.

There is a quite a bit of difference. I wouldn't say any of them are low variance, but the range of variance goes from, literally in one department, \$80,000 full professor, \$220,000 assistant—that's in one department. And in another department we have a range where you do have an \$80,000 full professor but the assistant professors aren't making \$220; the assistant professors are all making below \$130,000. Dean, Large Public Research/Doctoral University in Southwest

A couple of deans questioned the notion that differences in faculty salary inequality across fields are a departmental phenomenon:

I'm not sure [salary variance] is a departmental phenomenon. I think that it's an individual phenomenon. If you have a tenured faculty member that keeps up on research but doesn't do a good job teaching, the person has tenure, we can't fire them. So, the only mechanism the dean has is basically not rewarding them. And yet, because you have people like them, you should actually hire a few superstars to balance them out and pay them high salaries and suddenly when people look at it, they say "Oh my God, there is really salary inequality." But it was all because of the performance of the individuals.... If you are looking at the difference between the max and the min, it would appear to be very large because clearly you have superstars and you have many non-performing people. Dean, Large Public Research/Doctoral University in Midwest

Part Two Summary

There are clearly multiple influences on faculty compensation within U.S. business schools. Environmental forces, primarily the “market,” are leading to a shift in the composition of faculty types toward more clinical faculty and slightly smaller tenure-track/tenure-eligible faculty, as business schools struggle to find the resources to pay ever-increasing faculty salaries. The national disciplinary compensation norms and markets drive, in large part, salary differences across fields within institutions. Although departments enjoy substantial decision-making autonomy (Eckel, 1998), the unique nature of business schools, situated at the intersection of academia and business, means that departments typically pursue a pay-for-performance or market-based approach to compensation. Finally, the institution influences compensation based on the differing missions and goals. For example, ranked business schools, which are all research/doctoral, have very different missions and goals than unranked schools. Although not a direct line of inquiry, several deans volunteered that differences between institutions, particularly between the public and private institutions and between “prestige” schools and the rest, affect salary decisions. One dean, who had experience at several different types of schools remarked:

It is amazing the inequity that is in our industry from the prestige schools to the other schools. You know my highest finance professor here is \$120,000 and that is just obscene when I think about where I worked before. We were budgeting \$350,000 for a faculty member, for benefits, for administrative assistance and summer research support. So quite a bit

of difference in this type of school. Dean, Private Master's University in East

Yet another dean who has worked in both public and private universities noted:

The state isn't going to come to the table with more money. So, the public universities are going to have to be more like private universities. The privates have their own problems. How long can you keep raising tuition once you get into \$40,000 bucks per year? But I think the whole financing issue is going to be a huge one, across universities and probably exacerbated a little bit more in business schools. Dean, Large Public Research/Doctoral University in Midwest

The dean of this public school noted that private institutions are driving up market rates:

Those market rates, in lot of cases, are being driven by private schools with more money than [he listed several top 50 publics]. And while you can't always match the private schools but you got to stay with—let's say the top 20 public business schools. Dean, Large Public Research/Doctoral University in South

Another dean noted the unique situation public universities face when faculty salaries are publicly available, similar to Tolbert's (1986) assertion that organizational variables are a source of earnings differences:

Being a public institution exacerbates that [comparisons between faculty] because those who are motivated can find out what their colleagues in the business school are making and they do. I have had faculty come into me

with lists of what everyone they want to compare themselves with is making and they will lay the list down in front of me. Dean, Large Public Research/Doctoral University in Southwest

Thus, the deans' comments support Clark's (1984) assertion that academics are members of their profession at large, the national system, the college, and the discipline.

Part Three: Compensation Challenges

This section details the major compensation challenges faced by business school deans. While each individual dean noted a slightly different challenge, many are interrelated. Challenges mentioned include rapidly increasing salaries, different kinds of costs, such as teaching loads and research and discretionary funding, salary compression and inversion, faculty scarcity, internal and external equity, and, finally, system challenges, both tenure and the university. These challenges presumably relate to faculty salary inequality and deans develop strategies and tactics to address them. This line of inquiry, along with salary-setting strategies, produced the most passionate responses from the deans as they clearly struggle with how to best respond to these challenges.

Although deans discussed the rule of the market when talking about how they set faculty salaries, they also noted rapidly increasing salaries when discussing their biggest compensation challenges—without explicitly mentioning market forces. Rapidly increasing salaries are directly connected with several of the other compensation

challenges the deans face, e.g., scarcity of faculty, compression and inversion, resource availability, and the related costs accompanying these salaries. One dean's response to his biggest compensation challenge highlights this interrelation:

[Laughs.] Finding the money to pay them. The faculty salaries have just exploded and it's a very real issue; it's a very real concern. We are all chasing an increasingly small pool of talent, so the ability to generate the resources that are necessary to be competitive is probably the biggest problem, particularly for those of us who define a very important and very significant research mission. Dean, Large Public Research/Doctoral University in Midwest

Other deans noted the connection between rising base salaries and other costs that business schools must undertake to be competitive.

Faculty salaries are increasing every year at a rate that is reasonably fast. Top faculty talent is not cheap and it is getting expensive in more ways than one. Clearly, the actual salary numbers are increasing. But the other is, how much teaching are top research faculty going to do and how much of a teaching appointment do you give them? Dean, Large Public Research/Doctoral University in Midwest

Other deans noted that the competition to reduce teaching loads for research faculty has often led to the hiring of more clinical faculty, as noted above in Part Two. Several deans didn't necessarily view the demand for reduced teaching loads as problematic, but as a way to differentially utilize faculty based on their skills and talents, with top researchers

teaching less and clinical faculty bearing a greater course load. One dean at a public research university said he would prefer to view his faculty as:

A portfolio, as a collection of assets....I would be happy to see us reach a point where we had faculty who taught not at all. Really top researchers doing nothing but research and then we have some faculty who taught two, some taught three courses, some taught four. Dean, Large Public Research/Doctoral University in South

Salary compression and inversion were cited as compensation challenges, consistent with the literature and the business school press (Amey & VanDerLinden, 2002; LeClair, 2002, 2003). Responses varied from concerns balancing internal and external equity to the effects on hiring and to the notion that junior and senior faculty are part of different markets. Several deans noted that salary inversion is caused by two different forces, acting in combination. The first is that assistant professor salaries have continued to rise every year. Second, associate professor or full professor salaries only increase if they continue to perform. Compression was mentioned as being a “huge issue,” (Dean, Public Research/Doctoral University in West) for unionized schools. However, not all deans view compression as negatively as one would expect.

The senior faculty have seen the performance of the new hires and have seen their credentials and don't have much of a struggle with it at all.

Dean, Private Research/Doctoral University in Midwest

Another dean noted the differential nature of faculty salaries, with a matter of fact response.

We differentiate a lot. I mean, we have got full professors making \$80,000 and we have assistant professors that are making \$220,000. And so, I think our faculty are pretty used to the idea that we are going to not have compression—we are going to have inversion in a lot of cases....And so what they have to understand is, it's kind of like the dividends and capital gains argument. The reputation goes up, and then their market goes up. But they better not ask me for a dividend every time that happens. Because that will—that will bring down the whole enterprise. I cannot possibly keep everybody up to market. I can keep a set of premier researchers at market that I cannot afford to lose. I will compete for assistant professors and always try to keep those people as close to market as I can. Dean, Large Public Research/Doctoral University in Southwest

Another dean echoed this notion of different markets, although he mentioned trying to “do what we can to move salaries up,” (Dean, Large Public Research/Doctoral University in Midwest); however, he also noted that faculty who have been at the school for a while are in a different market and don't command the same premium that a young PhD can in certain fields. Although some deans didn't view equity as a concern at all, several deans expressed concern with trying to balance internal and external equity.

How do you ensure a sense of fairness without being equal? People need to think they have to be individually fairly compensated and the best way to do that is to essentially sit down with each person and discuss where the

market is and let them deal with it. Dean, Private Research/Doctoral University in Midwest

Another dean commented that finding this equity balance is “huge,” (Dean, Large Public Research/Doctoral University in Southwest) since business school faculty are especially cognizant of their market. Yet another dean recognized that trying to improve his institution by bringing in higher quality faculty created “huge equity problems and inversion problems on salary.” He told his faculty:

If you want to hire people that are *not* making more than you, we can hire those people. It’s like buying swimsuits at the end of the season. They are deeply discounted. Dean, Private Research/Doctoral University in Southwest

Another dean noted that compensation strategies and faculty salary inequality has unwittingly created problems for schools trying to bring in new faculty.

One of the unanticipated consequences [of rewarding people differentially] is that you've got a salary position and if the person that has been in that position hasn't been a top performer then he hasn't been getting the level of raises to keep that position competitive within the marketplace. When a line becomes open—somebody leaves or somebody retires—the amount of money in that line isn't near enough to hire another senior faculty member or seasoned associate. In the rest of the university, when someone retires, you might be able to hire one and a half or two faculty. In a business school, if somebody has been in that

position for a long time that might not necessarily be the case. I think this is going to be a big issue for a lot of business schools. Dean, Large Public Research/Doctoral University in Midwest

With a large number of faculty nearing retirement within the next 10 years, business schools likely won't be able to replace them with an equal number of tenure-track/tenure-eligible faculty. Several deans predicted that these replacement hires will be largely clinical faculty.

Part Three Summary

While business school deans face a number of compensation challenges, the majority of these challenges are connected to the rapidly rising salaries of their faculty. Scarcity of business faculty, particularly in certain disciplines such as accounting and finance, has led to higher average starting salaries, consistent with traditional labor market theories of supply and demand. These higher starting salaries have also led to both compression of salaries and, in some fields, inversion, where newly minted assistant professors earn more than experienced full professors. In addition to paying higher average base salaries, the total cost of faculty salary packages have increased as top schools put pressure on the market by offering more research and discretionary funds and lower teaching loads. All these factors strain resources as business schools struggle to remain competitive in their respective marketplaces.

Part Four: Market Response Strategies

Part Four examines the different strategies that business schools use to allocate annual raises, respond to outside job offers, and attempt to provide innovative salary packages. Raise strategies provide an understanding of how annual raises can contribute to faculty salary inequality while deans' responses to outside faculty job offers allow examination of the effect mobility has on faculty salary inequality (Fogg, 2004; Gomez-Mejia & Balkin, 1992; Shuster, 1970). Finally, this section presents some of the strategies deans are using to structure overall salary packages.

Raises

Although initial starting salaries are an important part of an institution's compensation strategy, how an institution allocates raises also contributes heavily to the degree of inequality within a given institution. Many of the deans interviewed in this study spoke of the laborious, time-consuming processes whereby each faculty member is evaluated according to some institution-specific metrics and ranked within their discipline, and even across the business school. Deans frequently asserted that there is a direct connection between this process and individual performance. Depending on an individual faculty member's location within the ranking distribution, he/she might see a healthy raise, a moderate raise, or even no raise at all. This represents a type of merit compensation system and, according to Hansen (1988), high quality faculty tend to move to institutions when they can see a direct connection between their individual performance and the potential raises.

We will sit down [for raises] with each department chair and go through every single faculty member. What were their raises; what is the chair recommending; how does it fit with our evaluation here. So, it is very, very, very performance-driven and we give out a lot of zeros if we don't think people are performing well. You got to differentiate and that's why we get zeros and I always say to the other deans at dean's meetings, 'How many of you have given out zeros and if you are not giving out zeros then you are telling me you are the number one department in your discipline, and if the answer to that is no, then you are not doing your job.' Dean, Large Public Research/Doctoral University in Midwest

Another dean characterized the type of faculty that tend to get the zeros:

When it happens, I never should use the word always—it is typically an associate professor who will likely remain an associate. They are tenured and they are associates and they are not able to get the full—that's the category that most often would get a zero or a very low raise. Dean, Large Public Research/Doctoral University in South

Raises were also used to try and move faculty culture from egalitarian to performance-driven, and to channel scarce resources to those faculty deemed most important to keep.

[When allocating raises,] probably 10 to 20% getting a healthy bump, another 20-30% getting a modest bump, 40-50% getting nothing. So clearly it was more of a targeted effort and over a number of years, we were actually able to make some pretty good progress with people using

that strategy. Dean, Large Public Research/Doctoral University in Southwest

Faculty are also rated on how much the institution wants to keep them. Two deans spoke of giving preemptive raises to faculty they really wanted to keep but who were viewed at risk of leaving, sometimes increasing their salaries \$25,000 to \$30,000 per raise to keep them off the market. Another dean noted that he tries to “raise the switching costs,” (Dean, Private Research/Doctoral University in Midwest), the psychological, social, emotional, and financial costs of changing jobs. Although the deans spoke of using a merit-based approach to allocate raises, a literal interpretation of their responses would imply that a substantial percentage of their faculty are not performing at high levels. This seems to contradict the reality of the faculty tenure process in which faculty who achieve tenure are presumed to have achieved some standards of research and scholarly productivity. Thus, it appears that beneath the merit- and performance-based language used by deans, their actions imply an approach in which, lacking financial resources to keep all of their faculty at market and low or no cost-of-living increases for faculty, they keep a selective group of their faculty at market, based on what they can afford.

The Outside Offer

When a faculty member walks in to a dean or department head’s office with an outside offer in hand, there are three possible scenarios. The dean can: match the offer, give them a raise less than the offer, or do nothing. Nearly all of the deans interviewed indicated that they use a “contingency” approach to deciding which scenario to use; that

is, they decide how badly they want to keep a particular faculty member. This depends on several factors:

If this is a person who is really a great researcher and teacher, we absolutely do everything we can to keep the person. If they have been made an offer from what we don't consider a peer school that might have a higher salary, I really don't take that into account. Dean, Large Public Research/Doctoral University in Midwest

This comment shows that many factors are weighed when decided how to react to outside offers. For schools with smaller resources and less ability to react to these offers, deans use an approach of promising future raises over a number of years to placate faculty.

This was deemed useful since state raises are often so small or so few that faculty couldn't count on them for any meaningful salary increases. One public school dean uses a rules-based approach to respond to outside offers. Offers within 10% of the current salary aren't matched at all, with the assumption that any move comes with a 10% transaction cost. Offers greater than 10% above salary lead to salary adjustments, although not necessarily a direct match, and offers from non-comparable institutions are ignored.

There were two deans that decided not to match at all, instead preferring that faculty who are thinking about going on the market come to them up front so they can preemptively react. As one dean explained it:

I prefer if they came to me before that and I encourage them to do that....we are able to try to react proactively before—we don't want them

to go on the market. As soon as somebody goes on the market, there is a good chance of losing them. Dean, Large Public Research/Doctoral University in South

At that point you know if they go out and come back, I'm going to lose a lot more money because then if they were at \$130,000 and they are getting offer at \$165,000, you know if I'd have given them \$20,000 I could have precluded them from going out and looking for that other offer. Now, I've got to match at least to \$165,000 offer and you don't want to get into bidding wars for the most part. That's a bad situation in my view. At that point you are paying at market rate, so conceivably I can hire somebody just that good if this person leaves and so if they start paying \$10,000 more than the other school to keep the guy or the woman, then I've overpaid. Dean, Large Public Research/Doctoral University in Southwest

Although dean's refer to this as "not matching," pre-emptive salary increases could be viewed as matching, but at a lower cost to the institution than if they were responding to another offer. It becomes a case of choosing the lower cost strategy. One dean said his institution's compensation strategy actually encourages faculty to go outside and get offers because the salary system is so structured that it doesn't allow for annual raises. Outside offers are the only way faculty can get more money from the institution.

Some deans viewed the outside offer as leverage for a raise with a more psychological approach. As one dean said, he always draws on psychology's "motivation

theory” that by rewarding faculty who go out and obtain outside offers, the institution is reinforcing wrong behaviors and sending a signal to other faculty that if you want to get a raise, play the market.

The way I wanted to react to each and every one of those is to say ‘Good luck. Enjoy it.’ And for the majority I did. I had a lot of support from a department head on this one who said to me that he has told his faculty who went out interviewing, ‘You are not providing me any additional information that I don’t have. I know what you can make in other schools. I know what you are making here....I am not going to do anything with an offer because it is not providing me anything I don’t know.’ Dean, Large Public Research/Doctoral University in Southwest

Another dean tells his faculty:

[Finance faculty] always thought they were substantially underpaid because they were trained with this market-based model. And they would say ‘well the market is this and therefore I ought to make that.’ And I would say ‘Sir, then you ought to go on the market.’ But it’s the same thing in corporate America. I mean you are never at the market except the day you come in. If you always want to be in the market you are going to be moving constantly....I have real clear guidelines on [dealing with outside offers] and it basically is two-fold. If you feel you need to go on the market I would like to know early because perhaps there is something we can do about it or...maybe I don’t think I can do something. But then

what I want to agree to is that once you then go onto the market, tell me if you are leaving, but don't come in to negotiate about it. Dean, Large Private Research/Doctoral University in Southwest

Although these responses seem to suggest that, on average, faculty leaving institutions are not top researchers since institutions are generally willing to pay more money to keep them¹⁴, the dean's comments fail to capture how they actually respond. Deans speak of performance-based cultures and differentiation between faculty members, yet their actions imply less of a meritocracy and more of a market approach that weighs the individual faculty markets and responds accordingly. Anecdotal information frequently tells of counteroffers increasing salary differentials as a result of keeping research stars at all costs (Pratt, 2003) and of faculty leaving public institutions for more money at private schools (Fogg, 2004). One type of market response that deans did not mention during the course of the interviews is the "raid" or "poaching" of experienced faculty. This represents a type of market mechanism in which deans not only respond to, but shape the market by raiding senior faculty from other institutions. This is the primary way in which senior faculty are hired, particularly because, over time, faculty often become tied to their institutions because of "academic institution-specific human capital," and their communities for other non-economic reasons (Ehrenberg et al, 1991).

¹⁴ One explanation proffered by deans is that these faculty are typically moving to lesser quality institutions willing to pay more to get a good researcher, even an average researcher, in order to improve the quality of the institution and strengthen their research capabilities.)

Salary Packages

One tool that business schools deans use to combat ever-increasing starting salaries and increasing competition for faculty is structuring total salary packages that, as one dean described it, “create the environment for you to do your best work,” (Dean, Large Public Research/Doctoral University in Midwest). Most of the ranked research/doctoral institutions engage in similar practices: two-ninths summer support for assistant professors, variable and decreased teaching loads, faculty fellowships, an increasing emphasis on increasing the number of endowed faculty chairs, and, off-load teaching for additional compensation, typically in MBA programs and non-degree Executive Education. One dean noted that AACSB surveys don’t do a good job of capturing this off-load teaching, using an example of the fact that some of his faculty earn two times their base salary in additional compensation. This provides an advantage when other schools attempt to recruit his faculty. Although other schools can offer more in base salary, they can’t compete with this additional compensation. This practice suggests that faculty salary inequality may be underestimated at schools with significant non-degree and executive programs, where faculty have the potential to earn far greater salaries than would be reported in regularly collected data.

Clearly, there are differences between institutions with regard to what is offered as total compensation. The top ranked schools provide greater research funding and larger annual discretionary accounts for faculty. One dean from a ranked school noted that while many of the items included in the total compensation packages are not particularly innovative, they are “all the normal things that one has to do to generate the

resources that are necessary to be competitive,” (Dean, Large Public Research/Doctoral University in Midwest). However, for many of the unranked institutions, these “perks” are a relatively new part of their college compensation strategies. Several deans from unranked schools indicated they were “finally” offering faculty fellowships, two-ninths summer support, and release time for chaired professors while others are just beginning to institute variable teaching loads. These differences potentially further stratify the ranked and the unranked institutions, making it more difficult for schools who lack the ability to offer the full menu of compensation items to recruit high quality faculty.

One dean mentioned something he found truly innovative: a ranked, competitor school offering high starting salaries with the caveat that the faculty will not get a raise for a certain number of years; that is, raises are built into the initial offer.

Part Four Summary

Along with hiring and compensating faculty newly hired into the institution, business schools must engage in numerous other activities in an attempt to respond to market forces and keep the faculty they want in their institution. The deans allocate annual raises, respond to outside job offers, and attempt to provide overall salary packages that attract and retain faculty. One private school dean described his approach as:

The idea is to try and have people compensated at a level that they think is fair and to enjoy what they are doing so it takes more to move them. I am trying to raise the switching costs. Dean, Private Research/Doctoral University in Midwest

Institutions have finite resources and must manage and allocate them in a way that best serves the schools. This sometimes leads to a somewhat impersonal approach to rewarding faculty, one that non-business school academics might view as business-like.

I will compete for assistant professors and always try to keep those people as close to market as I can. At least until it becomes clear they aren't going to get tenure and then I am done with them. Okay. And again, it's not being cold or callous; it's just they will make more money when they go out to another school. And I'm going to use the money to reward somebody else. Dean, Large Public Research/Doctoral University in Southwest

One dean even mentioned the need for other academic disciplines to rethink their approach to compensation, calling it a "huge, huge issue."

I think in some of the other disciplines, it is really problematic, you know this egalitarian nonsense [in humanities, etc.] —there's no pay for performance and it's really problematic....That's part of what's wrong with higher ed. I think that you've got to have an incentive system that's linked to performance and you know it's linked to research, teaching, raising money or whatever. There needs to be more of that [across universities] and there needs to be much more accountability. Dean, Large Public Research/Doctoral University in Midwest

Although deans talk of performance and merit, their actions indicate that, generally, they mean market. They compensate junior faculty at market prices (for their particular

competitive marketplace), whereas, more experienced, senior faculty are more “stuck,” only able to see significant increases if they are “superstars” or if they are willing to move. “Performance” increases are used to keep the faculty they can least afford to lose close enough to market to reduce the likelihood of them leaving.

Summary

This chapter synthesized the data from interviews with business school deans in order to understand the strategies and forces influencing faculty salary. Four different sections detailed hiring strategies, the multiple influences on faculty salary inequality—national, local, and disciplinary, compensation challenges, and tools that deans use to respond to market forces. The interviews highlight the multitude of issues and challenges facing today’s business school dean. The next and final chapter of this study summarizes the qualitative data presented here along with the quantitative results of Chapter 4 to provide answers to the research questions and to outline opportunities for future research.

CHAPTER 6

SUMMARY AND CONCLUSION

Introduction

As mentioned earlier, although many studies have examined faculty salary differences across institutions, by control, and by field, very little research has looked at salary inequality longitudinally, using a sample of the same institutions, with individual-level faculty salary data. This study substantially expands on previous work to deepen the understanding of faculty salary inequality in U.S. business schools along multiple dimensions along with the strategies and forces that influence it. The quantitative portion of the study describes basic patterns of inequality and changes between 1998 and 2004. The qualitative portion suggests several explanations for salary inequality. The original intent of this chapter was to integrate the quantitative and qualitative findings to facilitate an understanding of how salary inequality is shaped by the decisions made by business school deans. However, it became clear during the analysis phase that salary inequality is not based on a single decision or approach. What is revealed through this study is that inequality is the product of a series of decisions that, taken in the aggregate, affect both the salary inequality itself as well as the source of the inequality. This chapter first presents a summary of the findings of both the quantitative and qualitative portions of this study, and concludes with a number of questions raised throughout this research and recommendations for additional quantitative research.

Summary of Findings

This section will briefly cover the results by re-stating the research questions, along with some of the highlighted findings, and concluding with a discussion of the deans' interview results and implications for inequality.

Overall Research Question: What is the level and structure of faculty salary inequality in U.S. business schools and how has it changed in the recent past?

Overall inflation-adjusted faculty salaries increased between 1998 and 2004 at a rate of 11.3%.¹⁵ Overall salary inequality also increased, at approximately 25% over the seven years. The upper tail of the salary distribution experienced the most rapid growth. Inequality both *within* and *between* institutions increased, with within-institution increasing slightly more, implying that both market forces and salary decisions within the institution are related to changing levels of inequality.

How does the level and structure of faculty salary inequality differ between public and private institutions?

Faculty at private institutions continue to earn more than their public counterparts and have higher salary inequality. The absolute salary gap between public and private institutions grew larger between 1998 and 2004, as a result of faster growth at private schools.¹⁶ However, salary inequality at public institutions increased more than at private institutions over the last seven years (25.9% growth for publics; 13.5% for privates), primarily due to the stagnation of faculty salaries in the lower tail of the distribution.

¹⁵ In comparison, average inflation-adjusted salaries for all full-time instructional faculty in the U.S. increased 4.0% between 1998 and 2004 (NCES, 2005).

¹⁶ The inflation-adjusted public-private gap for all U.S. full-time instructional faculty increased from \$10,092 in 1998 to \$18,947 in 2004 as a result of both faster growth at private institutions and negative real growth at public schools.

This implies that, while private institutions pay higher salaries across the board (suggesting a strategy of keeping a larger percentage of faculty at market rates), public institutions are increasingly engaging in differential salary practices, financially able to keep far fewer of their faculty members at market salaries.

The between-institution regression results indicate that, all else equal, faculty at private institutions have higher mean salaries. Within-institution regressions indicate that, controlling for all other variables, public institutions have more inequality within the institution, with more lower tail inequality and less upper tail inequality than private schools.

How does the level and structure of faculty salary inequality differ by Carnegie classification?

Faculty at research/doctoral institutions earn significantly more than those at master's institutions. Their salaries experienced a higher percentage increase, widening the already existing gap between the two. Additionally, there is more inequality in research/doctoral institutions, although the inequality increased at similar rates for both types of institutions between 1998 and 2004. Differences also exist in the structure of inequality between research/doctoral and master's institutions, with research/doctoral schools deriving much more of their overall inequality from the lower tail of the distribution. Unionization has been found to have differential effects among different Carnegie classifications. Research on both 1977 and 1988 faculty data¹⁷ found that the union wage premium was positive only at master's institutions (Ashraf, 2001). Given

¹⁷ This study used 1977 *Survey of the American Professoriate* and the 1988 *National Study of Post Secondary Faculty*.

that 60% of the unionized institutions in this study are master's institutions, it may be that some of the perceived effect of Carnegie classification is, in fact, related to unionization. Finally, percentage-wise, within-institution inequality contributes more to overall inequality for master's institutions than research/doctoral schools.

The between-institution regression results indicate that, all else equal, Carnegie classification has a significant effect on mean salary with research/doctoral faculty earning more than master's faculty; the size of the effect has grown over the last seven years. Within-institution regressions indicate that, controlling for all other variables, research/doctoral institutions have more inequality within institutions than do master's institutions. Both upper tail and lower tail inequality are greater in research/doctoral schools than in master's institutions.

How does the level and structure of faculty salary inequality differ by unionization?

Non-unionized faculty earn more than unionized faculty and received larger percentage increases in salary between 1998 and 2004.¹⁸ Although unionized institutions have less overall inequality, the existing inequality grew at a faster rate than did that of non-unionized schools. Collective bargaining agreements appear to minimize upper tail inequality in unionized schools; non-unionized schools experienced significant upper tail salary growth. Finally, differences within unionized institutions contribute more to overall inequality than they do in non-unionized schools.

¹⁸ This reflects only differences in average salary without controls by institutional characteristics. This result is consistent with analysis done using CUPA data from 2004-2005, which indicates that faculty without collective bargaining agreements have a slightly greater average salary (NEA, 2006). Once controls are implemented, the outcome is different.

The between-institution regression results indicate that unionization (contrary to the above finding) is associated with higher salary, all else equal. Because unions are more likely to be at public universities and two-year institutions, controlling for control and Carnegie classification allows for a careful examination of the impact of unions on faculty salaries. Within-institution regressions indicate that, controlling for all other variables, unionization is associated with less inequality within institutions. Previous evidence indicates that certain measures of faculty merit, such as number of years of experience since receiving the degree and publications, are valued less highly in unionized schools (Barbezat, 1989). Thus, one would expect to see fewer upper tail salaries that greatly exceed the average since rewards to the senior faculty are lower in unionized institutions (Ashraf, 2001). Unions additionally reduce inequality in the lower tail.

How does between-institution inequality contribute to overall faculty salary inequality? What institutional characteristics contribute to between-institution inequality (excluding control, Carnegie classification, and unionization, detailed above)?

This analysis shows that the highest paying institutions, those at the 90th percentile, are pulling away from the rest. While the proportion of publics to privates in the top 10% is roughly equal, privates are disproportionate in the top 20 highest paying schools and the variance in salary even amongst the top 20 is staggering. Institutional characteristics associated with between institution salary inequality are:

- MBA rankings: higher ranked programs earn more.

- Degrees offered: graduate only programs earn the most, followed by those that offer all three degrees.
- Accreditation: accredited schools earn more.
- Faculty size: larger faculty equates to higher salaries.
- Tuition and fees: increases lead to increases in salary; size of the effect has grown between 1998 and 2004.
- State appropriations per student: increases lead to increases in salary; size of the effect has grown.
- Endowment per student: increases lead to increases in salary; size of the effect has grown.
- Undergraduate rankings have no effect.

The schools in the 95th to 99th percentiles have set themselves so far apart from the remainder of the institutions, that even schools at the 90th percent are having difficulty competing for faculty. These results show a Matthew effect whereby the “rich get richer” and schools with more prestige and resources pull farther away from the rest (Trow, 1984). As mentioned in Chapter 1, as these schools pull away, there exists a real danger that faculty talent will not only become concentrated in the richest schools, but also that non-elite schools will be unable to realistically catch up. Additionally, the fact that these schools are almost exclusively private suggests that public business schools will have difficulty competing for the best faculty, and correspondingly, the best students.

How does within-institution inequality contribute to overall faculty salary inequality? What institutional characteristics contribute to within-institution inequality (excluding control, Carnegie classification, and unionization, detailed above)?

The 10th percentile of faculty is falling behind the rest of the distribution, with flat or negative real growth in salaries. Institutional characteristics associated with within-institution inequality are:

- Degrees offered: schools that offer all three degrees have the most within-institution inequality.
- MBA rankings: higher ranked have less within-institution inequality.
- Faculty size: larger faculty is associated with more inequality within institutions.

Differences also exist in the source of the inequality, whether upper tail or lower tail.

- Accredited programs, unranked MBA programs, and larger faculty: more salary inequality in the lower tail.
- Accredited programs: less inequality in the upper tail.
- Degrees offered: institutions that offer all three degrees have more upper tail inequality.

These results highlight that, although there is increasing inequality, the increasing inequality is primarily located in the lower tail of the salary distribution. These findings directly contradict much of the literature and higher education press on faculty “superstars” who command premium salaries at the expense of others (Burgan, 2005). Although it is accurate that the upper tail salaries are growing at double-digit rates, the

complete lack of growth at the bottom tail indicates that while the wealthiest faculty continue to do better, the poorest faculty are worse off now than they were seven years ago, yet another example of the rich get richer and the poor get poorer and an illustration of the “polarization” pattern of divergence described by Autor et al (2006).

Although private school faculty earn more, inequality within the public schools has grown more over the past seven years. These results imply that while private institutions pay higher salaries across the board, the range of salaries in public institutions is greater. This has potential implications for public faculty quality over the long-term and, correspondingly, has the potential to affect students, the majority of whom are educated in public institutions (Ehrenberg, 2003). This finding is contrary to Monks’ (2003) results that inequality was growing more within privates. There are two possible explanations to account for the different findings. The first is the time period studied. Monks looked at faculty salary from 1988, 1993 and 1999 across institutions, excluding health sciences. This study examines 1998 through 2004, suggesting that faculty salary inequality may have changed in the recent past. The second possible explanation is that business schools are simply different institutional environments than are other fields or disciplines. The next section presents a discussion of the types of decisions deans make that collectively impact salary inequality.

What are the salary-setting strategies and forces affecting faculty salary inequality?

Business school deans face a multitude of decisions that, in the aggregate, potentially affect faculty salary inequality. Although all deans view their strategies as being ruled, to some extent, by the open market (and national disciplinary markets do

play a role), they make individual decisions based on how they define their own competitive marketplace. Hiring strategies, including the types of faculty to hire and what to pay them, set the baseline for salary inequality, onto which another series of decisions can increase or decrease inequality.

Deans also decide how to reward current faculty through raises and what approach to take when presented with an outside job offer by a faculty member. These decisions build on the base salary decision to create more or less inequality. Performance-driven cultures within business schools translate into compensation strategies in which “performance” is the mantra, yet the dean’s actions suggest allocation of raises is tied to keeping a certain percentage of faculty “keepers” at market salaries. Although deans indicate they are not afraid to give out zero raises, this appears to be related to an inability to afford raises for all performing faculty and, thus, a need to allocate scarce resources the most effectively. Contrary to much of the higher education press coverage of faculty job mobility and its effect on compensation, qualitative data suggests that some deans say they have a clear strategy of not responding to outside job offers without carefully weighing the desire to keep the particular faculty member. However, as noted in Chapter 5, deans themselves influence the market by “raiding” and “poaching” experienced faculty from other institutions. In doing so, they force other institutions to make decisions about their ability and willingness to respond to outside job offers.

Finally, business schools are affected by a number of external and internal forces and challenges that impact salary inequality. These range from declining state funding to

inadequate production of PhDs in certain fields, rapidly increasing salaries and the other “costs” associated with higher salaries.

These forces have contributed to a gradual increase in the number of clinical faculty as a way to fill needed faculty positions at lower average salaries than tenure-track faculty. As Table 30 shows, instructors (clinical faculty) and assistant professors have been growing in frequency, with associate professors declining and full professors flat. Additionally, assistant professor salaries have been increasing at rates greater than all other ranks.¹⁹ In 2004 (of the panel sample), assistant professors at the 90th percentile earned the exact same amount as experienced associate professors, \$125,000. Median assistant professor salary slightly exceeded median associate professor salary.²⁰

Clearly, deans in different types of schools face a similar set of decisions, although the institutional wealth, ranking, and competitive marketplace of different institutions result in different tactics and, correspondingly, the resulting salary inequality differs on multiple dimensions. Equally clear is that these decisions have the potential to impact the quality of the faculty an institution has, and their ability to remain competitive year-over-year has a direct connection to faculty compensation. Many of the decisions made by deans also have the potential for unintended consequences. As mentioned by one dean, rapidly increasing salaries at the assistant professor level along decisions to pay differential salaries at the associate and full professor levels, leave many institutions facing a situation as many faculty near retirement, of being unable to replace them with

¹⁹ Percentage increases between 1998 and 2004 for all U.S. full-time instructional faculty were 7.9% for full professors, 5.6% for associate professors, and 7.6% for assistant professors (NCES, 2005).

²⁰ By comparison, the difference between average assistant and associate professor salaries from all U.S. full-time instructional faculty is slightly more than \$10,000, (NCES, 2005).

the same number of tenure-track positions. This leads some schools to either cannibalize their own lines to generate the salary money to hire an additional faculty member, or causes a subtle shift over time in the number of non-tenure track faculty. Since the AACSB accreditation process requires the majority of faculty to be doctorally educated, and given both the next decade of predicted faculty retirements and shortage in PhDs being produced worldwide (with 8% of current PhD-funded positions in business schools vacant), business schools appear to face a difficult task of meeting increased demand for business education, at greater expense, and without an adequate pool of faculty talent (AACSB, 2002). This will undoubtedly require business schools to be more creative in identifying alternative sources for professors, whether from similar disciplines, or outside the traditional academic track, such as individuals with significant business experience.

Decisions deans have made shape a school's position on salary inequality (either low or high). In a low inequality institution, highly productive faculty may feel undercompensated relative to their peers, whereas in a high inequality institution, lesser productive faculty feel undercompensated compared to colleagues (Ehrenberg et al, 1991). If a low inequality school is less prestigious and doesn't differentiate much between faculty, it is likely that the higher quality faculty will leave for institutions in which they feel better compensated. However, the highest ranked schools have the least inequality; because they pay higher salaries across the board and they have high quality faculty, their faculty are probably less likely to feel undercompensated, even with relatively low salary dispersion. Finally, given that salary inequality is increasing more

rapidly in public institutions, there exists a possible crisis of faculty morale, retention, and collegiality amongst public school faculty.

Many of the issues raised by the deans in the qualitative portion of this study present interesting opportunities for further research, something to be discussed in the next section.

Table 30*Faculty Descriptives by Rank*

	2004all sample	1998	1999	2000	2001	2002	2003	2004	1998 – 2004 % Change
Faculty Rank									
Full Professor									
N (faculty)	8,751	6791	6842	6612	6638	6693	6747	6790	0.0%
Percent	35.03	37.24	37.62	36.15	36.01	35.57	35.68	35.8	-3.9%
Mean Salary	112.6	106.1	109.7	111.5	113.4	116.3	116.7	119.0	12.2%
10th percentile	78.1	75.1	77.4	78.1	79.1	80.4	80.3	81.3	8.2%
50 th percentile	101.6	96.9	99.3	101.1	102.2	104.8	104.9	106.6	10.0%
90th percentile	164.6	149.6	157.4	161.8	165.1	170.1	171.8	177.5	18.7%
Associate Professor									
N (faculty)	6,953	5685	5519	5364	5195	5195	5243	5178	-8.9%
Percent	27.83	31.17	30.34	29.33	28.18	27.61	27.73	27.30	-12.4%
Mean Salary	88.2	83.1	85.5	87.2	88.7	91.0	91.2	93.3	12.3%
10th percentile	66.3	63.3	65.4	66.0	67.4	68.1	67.8	69.0	9.0%
50th percentile	84.7	80.8	82.8	84.4	85.4	87.2	87.0	88.7	9.8%
90th percentile	114.3	105.3	108.7	111.4	114.2	120.0	121.3	125.0	18.7%
Assistant Professor									
N (faculty)	6,315	3856	3848	4419	4584	4754	4822	4734	22.8%
Percent	25.28	21.14	21.16	24.16	24.87	25.27	25.50	24.96	18.1%
Mean Salary	85.7	78.1	81.0	83.6	86.5	88.8	90.1	91.9	17.7%
10th percentile	60.0	57.5	58.6	58.5	60.8	62.6	62.3	63.0	9.5%
50th percentile	82.4	75.9	78.6	80.5	83.1	85.8	86.9	89.0	17.2%
90th percentile	116.6	102.1	107.5	112.6	116.9	120.0	122.7	125.0	22.5%

Instructor									
N (faculty)	2,964	1539	1584	1896	2018	2174	2097	2266	47.2%
Percent	11.86	8.44	8.71	10.37	10.95	11.55	11.09	11.95	41.6%
Mean Salary	52.3	48.9	50.8	51.3	53.7	53.1	52.5	54.2	10.8%
10th percentile	34.0	32.2	33.7	33.3	35.1	34.3	34.5	35.0	8.6%
50th percentile	48.2	45.5	46.8	47.4	49.1	48.5	49.0	50.0	10.0%
90th percentile	75.9	71.8	72.4	74.2	79.3	77.2	75.2	79.0	10.0%

*Note: Salaries are in \$(000s). New Doctorate and ABD omitted in 1998 and 1999, representing 2.0% and 2.18% of faculty, respectively

Recommendations for Further Research

There are several issues related to the above trends and some of the deans' responses that need to be studied using quantitative data. The first is that faculty composition needs to be further examined to better understand shifts in the types of faculty hired and employed by business schools and how this differs across institutions. Since this study included instructors in the research, there is likely higher salary inequality than earlier studies since these faculty are growing in number and are generally lower paid. Future work should examine the amount of the increase in inequality that remains when the influence of changing faculty composition is removed.

Second, the rapid growth of assistant professor salaries and the deans' responses on salary inversion and compression require a more detailed look at this phenomenon and how it has changed over time. Are salary inversion and compression exclusively related to rapidly increasing assistant professor salaries or are they also related to tenured faculty, such as associate professors, who fail to receive competitive salaries and are not increasing much at all?

Third, individual faculty differences remained to be analyzed. Although this study focused on salary inequality differences by institutional characteristics, the impact of individual faculty characteristics, such as field in which they work, rank, tenure status, and gender need to be examined.

Finally, differences in salary inequality by field remain to be considered. To what extent does salary inequality differ by field and how do these differences contribute to overall salary inequality? Are there particular fields in which inversion and compression

are commonplace and others in which it is unheard of? These questions are all issues that when answered, would add to the body of literature on faculty labor markets.

Conclusion

Faculty are a critical resource in institutions of higher education and how they are compensated and the levels of salary inequality have important implications for faculty morale, recruiting, and the distribution of faculty across institutions. Business schools provide a unique environment in which to study the magnitude of faculty salary inequality, the decomposition of inequality in inequality existing across schools and inequality existing within schools, and how it differs across different institutional characteristics. This study explains the extent to which individual faculty characteristics and institutional strategies are leading to a faculty compensation scenario, unlike in an earlier, more egalitarian era, in which faculty salary inequality is increasing both within and between institutions. While the long-term repercussions are unclear, research does implicate salary inequality as being associated with job satisfaction, scholarly productivity and research collaboration (Pfeffer & Langton, 1993; Deutsch, 1985). Additionally, faculty salary reliably predicts organizational loyalty and turnover (Lawler, 1971). Taken together, these suggest U.S. business schools may soon face a turbulent period or, at least, a period of change in the years to come.

APPENDIX A

QUALITATIVE STUDY: DEAN INTERVIEW QUESTIONS

General questions (to be collected through business school web sites in advance of the interview):

1. Job position, length of time in position, and length of time at organization
2. Short description of educational background
3. Short description of employment background

Specific questions:

1. What type of faculty do you try to recruit and hire?
 - a. Leading question, if necessary: To what extent does your business school try to develop faculty talent from within, versus recruiting top faculty from outside (who have experience and history of productive research)?
2. What is your strategy in setting faculty salaries?
3. Are there major environmental forces that led you to choose this strategy?
4. Does your salary strategy reflect a more general college-level strategy?
5. Does the college culture play a role in your salary policies and how?
6. Of the departments in your college, how many departments use the equity model versus the “star” model or “pay for performance?”
7. What are the biggest challenges you face in terms of faculty compensation?
8. What is your general strategy for handling faculty who come forward with outside job offers, looking for more money to stay?
9. What are some of the innovative things you have done with faculty salary packages?

Optional question if it doesn't come up in Q5 or Q6:

10. I am trying to understand the impact of wage dispersion across departments or within departments and its impact on job satisfaction.
 - a. Do some senior faculty become frustrated at how much new hire assistant professors are being paid?
 - b. Or, do certain departments who are less well paid compare their salaries to departments with higher paid faculty?

APPENDIX B

REGRESSION DESCRIPTIVE STATISTICS

Descriptive Statistics for 2004 Sample Regression

All institutions with data for 2004

Variable	N	Mean	SD	Minimum	Maximum
sal_i04	464	87.1737	21.4653	53.0286	181.1892
p1050_04	464	0.6736	0.1252	0.2917	0.9559
p9050_04	464	1.2726	0.1358	1.0000	2.0838
vlsa04	464	0.0657	0.0429	0.0039	0.3677
ge1_i04	464	0.0278	0.0170	0.0019	0.1240
gini_i04	464	0.1209	0.0387	0.0337	0.2658
at1_i04	464	0.0293	0.0182	0.0019	0.1420
union	464	0.1983	0.3991	0	1
public	464	0.6810	0.4666	0	1
resdoct	464	0.4655	0.4993	0	1
mba_04	464	2.6250	8.9559	0	47
nombar04	464	0.8987	0.3020	0	1
ug_04	464	2.2177	7.8376	0	41
nougr04	464	0.9009	0.2992	0	1
fac_t04	464	53.8427	33.7973	12	206
un_unms	464	0.7155	0.4517	0	1
grad	464	0.0388	0.1933	0	1
accred	464	0.8427	0.3645	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
sal_i04	379	89.71518	22.35526	54.50769	181.1892
p1050_04	379	0.6712	0.1267	0.2917	0.9286
p9050_04	379	1.2823	0.1421	1.0000	2.0838
vlsa04	379	0.0687	0.0447	0.0050	0.3677
ge1_i04	379	0.0292	0.0177	0.0024	0.1240
gini_i04	379	0.1241	0.0397	0.0365	0.2658
at1_i04	379	0.0307	0.0189	0.0024	0.1420
union	379	0.2137	0.4105	0	1
public	379	0.6280	0.4840	0	1
resdoct	379	0.5172	0.5004	0	1

mba_04	379	3.1108	9.6425	0	47
nombar04	379	0.8786	0.3270	0	1
ug_04	379	2.5066	8.1677	0	41
nougr04	379	0.8839	0.3208	0	1
fac_t04	379	57.7071	34.5561	12	206
un_unms	379	0.6807	0.4668	0	1
grad	379	0.0422	0.2013	0	1
accred	379	0.8654	0.3417	0	1
t_f03_ii	379	11054.8400	8943.9420	2032	31040
end03bps	379	22.7671	49.4409	0.2243	440.4491
sapp04ps	379	3775.8330	3374.1970	0	13880.67

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
sal_i04	141	94.2370	27.4692	54.5077	181.1892
p1050_04	141	0.7192	0.1109	0.2917	0.9286
p9050_04	141	1.3071	0.1669	1.0535	2.0838
vlsa04	141	0.0575	0.0446	0.0050	0.3677
gel_i04	141	0.0257	0.0181	0.0024	0.1240
gini_i04	141	0.1166	0.0402	0.0365	0.2658
atl_i04	141	0.0263	0.0190	0.0024	0.1420
union	141	0.0780	0.2692	0	1
resdoct	141	0.4539	0.4996	0	1
mba_04	141	3.6596	10.5396	0	47
nombar04	141	0.8440	0.3642	0	1
ug_04	141	2.2979	7.7577	0	41
nougr04	141	0.8794	0.3268	0	1
fac_t04	141	50.9575	36.8452	12	206
un_unms	141	0.7518	0.4335	0	1
grad	141	0.0851	0.2800	0	1
accred	141	0.8014	0.4004	0	1
t_f03_ii	141	21985.8100	4482.8940	10935	31040
end03bps	141	46.1366	72.9630	1.8264	440.4491
sapp04ps	141	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
sal_i04	238	87.0363	18.2203	56.6111	146.9013
p1050_04	238	0.6427	0.1271	0.3282	0.9023

p9050_04	238	1.2676	0.1232	1.0000	1.7185
vlsa04	238	0.0753	0.0436	0.0080	0.2539
gel_i04	238	0.0313	0.0172	0.0038	0.0925
gini_i04	238	0.1285	0.0388	0.0501	0.2425
atl_i04	238	0.0333	0.0184	0.0038	0.0979
union	238	0.2941	0.4566	0	1
resdoct	238	0.5546	0.4981	0	1
mba_04	238	2.7857	9.0768	0	47
nombar04	238	0.8992	0.3018	0	1
ug_04	238	2.6303	8.4147	0	41
nougr04	238	0.8866	0.3178	0	1
fac_t04	238	61.7059	32.5492	12	199
un_unms	238	0.6387	0.4814	0	1
grad	238	0.0168	0.1288	0	1
accred	238	0.9034	0.2961	0	1
t_f03_ii	238	4578.9330	1585.3360	2032	9636
end03bps	238	8.9222	15.3790	0.2243	130.6876
sapp04ps	238	6012.7760	2156.7790	1646.7770	13880.6700

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
sal_i04	298	91.1539	24.1995	54.5077	181.1892
p1050_04	298	0.6647	0.1241	0.2917	0.9286
p9050_04	298	1.2976	0.1437	1.0630	2.0838
vlsa04	298	0.0724	0.0454	0.0068	0.3677
gel_i04	298	0.0309	0.0178	0.0032	0.1240
gini_i04	298	0.1286	0.0387	0.0454	0.2658
atl_i04	298	0.0324	0.0191	0.0032	0.1420
public	298	0.5638	0.4968	0	1
resdoct	298	0.5537	0.4979	0	1
mba_04	298	3.8859	10.6793	0	47
nombar04	298	0.8490	0.3587	0	1
ug_04	298	2.9195	8.7147	0	41
nougr04	298	0.8624	0.3450	0	1
fac_t04	298	57.4094	34.7287	12	206
un_unms	298	0.6544	0.4764	0	1
grad	298	0.0537	0.2258	0	1
accred	298	0.8691	0.3378	0	1
t_f03_ii	298	12214.1900	9357.5460	2032	31040
end03bps	298	27.2430	54.3336	0.6244	440.4491
sapp04ps	298	3434.4020	3479.1790	0	13880.67

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
sal_i04	81	84.4222	12.2955	65.6692	140.3122
p1050_04	81	0.6949	0.1341	0.3924	0.8985
p9050_04	81	1.2260	0.1210	1.0000	1.5859
vlsa04	81	0.0551	0.0396	0.0050	0.1698
ge1_i04	81	0.0231	0.0158	0.0024	0.0612
gini_i04	81	0.1075	0.0390	0.0365	0.1881
at1_i04	81	0.0245	0.0170	0.0024	0.0698
public	81	0.8642	0.3447	0	1
resdoct	81	0.3827	0.4891	0	1
mba_04	81	0.2593	2.3333	0	21
nombar04	81	0.9877	0.1111	0	1
ug_04	81	0.9877	5.5034	0	41
nougr04	81	0.9630	0.1900	0	1
fac_t04	81	58.8025	34.1044	14	199
un_unms	81	0.7778	0.4183	0	1
grad	81	0.0000	0.0000	0	0
accred	81	0.8519	0.3575	0	1
t_f03_ii	81	6789.5930	5428.2180	2354	23340
end03bps	81	6.3004	15.5176	0.2243	130.6876
sapp04ps	81	5031.9620	2612.3990	0	10458.1

Descriptive Statistics for Panel Regressions—1998

Variable	N	Mean	SD	Minimum	Maximum
p1050_98	307	0.70759	0.12320	0.36978	0.97537
p9050_98	307	1.29218	0.14303	1	2.10356
vlsa98	307	0.06134	0.04037	0.00587	0.22955
ge1_i98	307	0.02629	0.01526	0.00234	0.08493
gini_i98	307	0.11787	0.03561	0.02607	0.22876
at1_i98	307	0.02751	0.01655	0.00260	0.08972
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_98	307	3.51466	10.15126	0	50
nombar98	307	0.85994	0.34762	0	1
ug_98	307	3.39739	9.87595	0	45
nougr98	307	0.85668	0.35097	0	1

fac_t98	307	59.40065	33.22432	11	194
un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_98	242	0.70760	0.12433	0.36978	0.97538
p9050_98	242	1.30263	0.15201	1	2.10356
vlsa98	242	0.06339	0.04181	0.00587	0.22955
ge1_i98	242	0.02736	0.01598	0.00234	0.08493
gini_i98	242	0.12031	0.03679	0.02607	0.22876
at1_i98	242	0.02853	0.01725	0.00260	0.08972
union	242	0.19008	0.39318	0	1
public	242	0.65703	0.47569	0	1
resdoct	242	0.60744	0.48933	0	1
mba_98	242	4.00413	10.59221	0	50
nombar98	242	0.83471	0.37221	0	1
ug_98	242	3.83884	10.40163	0	45
nougr98	242	0.83471	0.37221	0	1
fac_t98	242	62.78099	33.04752	13	194
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f97_ii	242	0.70760	0.12433	2027.569	28947.37
end97bps	242	1.30263	0.15201	0.166146	533.0652
sapp98ps	242	0.06339	0.04181	0	15769.34

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_98	83	0.72928	0.11077	0.46439	0.91806
p9050_98	83	1.34824	0.18342	1.05443	2.10356
vlsa98	83	0.06141	0.04170	0.00958	0.20836
ge1_i98	83	0.02753	0.01676	0.00469	0.08493
gini_i98	83	0.12141	0.03717	0.05188	0.22876
at1_i98	83	0.02810	0.01744	0.00455	0.08611
Union	83	0.06024	0.23938	0	1
Resdoct	83	0.50602	0.50300	0	1
mba_98	83	3.34940	8.72400	0	43
Nombar98	83	0.80723	0.39687	0	1

ug_98	83	3.08434	9.28177	0	40
nougr98	83	0.85542	0.35381	0	1
fac_t98	83	55.48193	35.16351	13	194
un_unms	83	0.72289	0.45029	0	1
Grad	83	0.10843	0.31282	0	1
Accred	83	0.96386	0.18779	0	1
t_f97_ii	83	20538.66000	4551.59700	11503.76	28947.37
end97bps	83	0.72928	0.11077	2.783772	533.0652
sapp98ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_98	159	0.69628	0.12975	0.36978	0.97538
p9050_98	159	1.27882	0.12698	1	1.69879
vlsa98	159	0.06442	0.04196	0.00587	0.22955
ge1_i98	159	0.02726	0.01562	0.00234	0.07890
gini_i98	159	0.11973	0.03670	0.02607	0.22275
at1_i98	159	0.02876	0.01720	0.00260	0.08972
union	159	0.25786	0.43884	0	1
resdoct	159	0.66038	0.47508	0	1
mba_98	159	4.34591	11.45823	0	50
nombar98	159	0.84906	0.35913	0	1
ug_98	159	4.23270	10.94821	0	45
nougr98	159	0.82390	0.38211	0	1
fac_t98	159	66.59119	31.32965	17	183
un_unms	159	0.55346	0.49871	0	1
grad	159	0.02516	0.15710	0	1
accred	159	0.98113	0.13649	0	1
t_f97_ii	159	3860.69700	1354.12900	2027.569	7724.311
end97bps	159	9.44990	14.58892	0.166146	107.7472
sapp98ps	159	7691.55600	2604.56800	3233.686	15769.34

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_98	196	0.704639	0.124466	0.369775	0.918058
p9050_98	196	1.321628	0.14987	1.070137	2.103564
vlsa98	196	0.065676	0.042105	0.009582	0.229551
ge1_i98	196	0.028544	0.016058	0.00469	0.08493
gini_i98	196	0.1239	0.035533	0.05169	0.22876
at1_i98	196	0.029651	0.01731	0.00455	0.08972

public	196	0.602041	0.49073	0	1
resdoct	196	0.627551	0.484695	0	1
mba_98	196	4.571429	11.08892	0	50
nombar98	196	0.806122	0.396347	0	1
ug_98	196	4.331633	10.93136	0	45
nougr98	196	0.811225	0.392332	0	1
fac_t98	196	62.5051	34.17849	13	194
un_unms	196	0.586735	0.493681	0	1
grad	196	0.066327	0.249489	0	1
accred	196	0.979592	0.141754	0	1
t_f97_ii	196	10520.95	8857.985	2134.085	28947.37
end97bps	196	32.73552	65.03481	0.291222	533.0652
sapp98ps	196	4695.117	4354.611	0	15769.34

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_98	46	0.720218	0.124335	0.422556	0.975376
p9050_98	46	1.221688	0.134725	1	1.698785
vlsa98	46	0.053642	0.039501	0.005868	0.17394
ge1_i98	46	0.022295	0.014777	0.00234	0.05939
gini_i98	46	0.104998	0.038492	0.02607	0.18569
at1_i98	46	0.023777	0.016335	0.0026	0.06955
public	46	0.891304	0.314696	0	1
resdoct	46	0.521739	0.505047	0	1
mba_98	46	1.586957	7.787671	0	46
nombar98	46	0.956522	0.206185	0	1
ug_98	46	1.73913	7.487574	0	45
nougr98	46	0.934783	0.249637	0	1
fac_t98	46	63.95652	28.02139	19	146
un_unms	46	0.717391	0.455243	0	1
grad	46	0	0	0	0
accred	46	0.956522	0.206185	0	1
t_f97_ii	46	5575.052	4583.31	2027.569	19862.16
end97bps	46	4.972539	6.581269	0.166146	30.50874
sapp98ps	46	6580.749	3224.322	0	14139.99

Descriptive Statistics for Panel Regressions—1999

Variable	N	Mean	SD	Minimum	Maximum
p1050_99	307	0.69977	0.12659	0.35865	0.96406
p9050_99	307	1.28992	0.14369	1	1.92666

vlsa99	307	0.06141	0.03933	0.00586	0.25240
ge1_i99	307	0.02665	0.01564	0.00240	0.09186
gini_i99	307	0.11886	0.03687	0.02767	0.23924
at1_i99	307	0.02775	0.01668	0.00263	0.09443
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_99	307	3.45603	10.00166	0	49
nombar99	307	0.86319	0.34421	0	1
ug_99	307	3.39739	9.87595	0	45
nougr99	307	0.85668	0.35097	0	1
fac_t99	307	59.24756	33.51457	14	190
un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_99	242	0.70050	0.13081	0.35865	0.96406
p9050_99	242	1.29994	0.15425	1	1.92666
vlsa99	242	0.06412	0.04158	0.00586	0.25240
ge1_i99	242	0.02791	0.01653	0.00240	0.09186
gini_i99	242	0.12146	0.03860	0.02767	0.23924
at1_i99	242	0.02900	0.01761	0.00263	0.09443
union	242	0.19008	0.39318	0	1
public	242	0.65703	0.47569	0	1
resdoct	242	0.60744	0.48933	0	1
mba_99	242	4.08678	10.64422	0	49
nombar99	242	0.83471	0.37221	0	1
ug_99	242	3.83884	10.40163	0	45
nougr99	242	0.83471	0.37221	0	1
fac_t99	242	62.15289	33.39574	14	190
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f98_ii	242	9819.67400	8680.43000	2074.663	29436.96
end98bps	242	31.20010	67.00723	0.210305	602.4871
sapp99ps	242	5180.28800	4348.63600	0	16668.75

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_99	83	0.73077	0.11800	0.43223	0.92444
p9050_99	83	1.34366	0.18741	1.05695	1.92666
vlsa99	83	0.05927	0.03876	0.00771	0.21153
ge1_i99	83	0.02723	0.01721	0.00380	0.09186
gini_i99	83	0.12055	0.03922	0.04638	0.23924
at1_i99	83	0.02753	0.01735	0.00368	0.09374
union	83	0.06024	0.23938	0	1
resdoct	83	0.50602	0.50300	0	1
mba_99	83	4.12048	10.24266	0	44
nombar99	83	0.79518	0.40602	0	1
ug_99	83	3.08434	9.28177	0	40
nougr99	83	0.85542	0.35381	0	1
fac_t99	83	54.80723	34.42470	14	190
un_unms	83	0.72289	0.45029	0	1
grad	83	0.10843	0.31282	0	1
accred	83	0.96386	0.18779	0	1
t_f98_ii	83	21118.65000	4598.72900	11884.95	29436.96
end98bps	83	70.15618	101.72550	3.18853	602.4871
sapp99ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_99	159	0.68469	0.13469	0.35865	0.96406
p9050_99	159	1.27711	0.12858	1	1.87083
vlsa99	159	0.06665	0.04287	0.00586	0.252400
ge1_i99	159	0.02826	0.01621	0.0024	0.07998
gini_i99	159	0.12193	0.03840	0.02767	0.20969
at1_i99	159	0.02978	0.01774	0.00263	0.09443
union	159	0.25786	0.43884	0	1
resdoct	159	0.66038	0.47508	0	1
mba_99	159	4.06918	10.87973	0	49
nombar99	159	0.85535	0.35286	0	1
ug_99	159	4.23270	10.94821	0	45
nougr99	159	0.82390	0.38211	0	1
fac_t99	159	65.98742	32.29512	17	169
un_unms	159	0.55346	0.49871	0	1

grad	159	0.02516	0.15710	0	1
accred	159	0.98113	0.13649	0	1
t_f98_ii	159	3921.46400	1371.89600	2074.663	8023.256
end98bps	159	10.86454	16.27090	0.21031	124.1012
sapp99ps	159	7884.46300	2718.23300	3328.442	16668.75

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_99	196	0.69548	0.13050	0.35865	0.92444
p9050_99	196	1.31803	0.14847	1.06966	1.92666
vlsa99	196	0.06718	0.04186	0.00771	0.252400
ge1_i99	196	0.02938	0.01648	0.00380	0.09186
gini_i99	196	0.12586	0.03692	0.04638	0.23924
at1_i99	196	0.03044	0.01760	0.00368	0.09443
public	196	0.60204	0.49073	0	1
resdoct	196	0.62755	0.48470	0	1
mba_99	196	4.91327	11.53357	0	49
nombar99	196	0.80102	0.40026	0	1
ug_99	196	4.33163	10.93136	0	45
nougr99	196	0.81123	0.39233	0	1
fac_t99	196	61.84184	34.38709	14	190
un_unms	196	0.58674	0.49368	0	1
grad	196	0.06633	0.24949	0	1
accred	196	0.97959	0.14175	0	1
t_f98_ii	196	10795.13000	9099.73100	2145.655	29436.96
end98bps	196	37.18775	73.12567	0.33407	602.4871
sapp99ps	196	4807.11200	4476.14800	0	16668.75

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_99	46	0.72186	0.13143	0.41379	0.96406
p9050_99	46	1.22284	0.15619	1	1.87083
vlsa99	46	0.05107	0.03809	0.005861	0.15757
ge1_i99	46	0.02163	0.01541	0.0024	0.059560
gini_i99	46	0.10270	0.04038	0.02767	0.19125
at1_i99	46	0.02287	0.01643	0.00263	0.06528
public	46	0.89130	0.31470	0	1
resdoct	46	0.52174	0.50505	0	1
mba_99	46	0.56522	3.83349	0	26
nombar99	46	0.97826	0.14744	0	1

ug_99	46	1.73913	7.48757	0	45
nougr99	46	0.93478	0.24964	0	1
fac_t99	46	63.47826	29.09734	17	133
un_unms	46	0.71739	0.45524	0	1
grad	46	0.00000	0.00000	0	0
accred	46	0.95652	0.20619	0	1
t_f98_ii	46	5663.37600	4786.98700	2074.663	20354.96
end98bps	46	5.68750	7.27023	0.21031	35.1636
sapp99ps	46	6770.33900	3356.14800	0	14672.2

Descriptive Statistics for Panel Regressions—2000

Variable	N	Mean	SD	Minimum	Maximum
p1050_00	307	0.67954	0.12679	0.36049	0.90248
p9050_00	307	1.28593	0.13747	1	1.84419
vlsa00	307	0.06670	0.04110	0.00614	0.23481
ge1_i00	307	0.02840	0.01613	0.00300	0.08919
gini_i00	307	0.12281	0.03696	0.04029	0.23623
at1_i00	307	0.02983	0.01733	0.00297	0.09107
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_00	307	3.33551	9.83033	0	48
nombar00	307	0.86645	0.34072	0	1
ug_00	307	3.26710	9.53735	0	41
nougr00	307	0.85994	0.34762	0	1
fac_t00	307	59.57980	33.85488	15	197
un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_00	242	0.67659	0.12975	0.36049	0.90248
p9050_00	242	1.29635	0.14525	1	1.84419
vlsa00	242	0.06993	0.04234	0.006138	0.23481
ge1_i00	242	0.02988	0.01663	0.00300	0.08919
gini_i00	242	0.12609	0.03770	0.04029	0.23623
at1_i00	242	0.03133	0.01783	0.00297	0.09107
union	242	0.19008	0.39318	0	1

public	242	0.65703	0.47569	0	1
resdoct	242	0.60744	0.48933	0	1
mba_00	242	3.96694	10.57079	0	48
nombar00	242	0.83884	0.36844	0	1
ug_00	242	3.59504	9.77088	0	41
nougr00	242	0.83884	0.36844	0	1
fac_t00	242	62.87603	33.47770	17	197
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f99_ii	242	9890.84200	8805.14800	1974.148	29745.91
end99bps	242	32.57994	68.44022	0.26351	611.8783
sapp00ps	242	5186.23400	4322.29300	0	15530.5

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_00	83	0.70517	0.11484	0.37480	0.90000
p9050_00	83	1.33298	0.17195	1.05423	1.84419
vlsa00	83	0.06462	0.03923	0.01284	0.20434
ge1_i00	83	0.02883	0.01681	0.00587	0.08919
gini_i00	83	0.12426	0.03775	0.06034	0.23623
at1_i00	83	0.02954	0.01721	0.00595	0.09107
union	83	0.06024	0.23938	0	1
resdoct	83	0.50602	0.50300	0	1
mba_00	83	4.40964	10.52643	0	48
nombar00	83	0.78313	0.41462	0	1
ug_00	83	3.43374	9.97093	0	41
nougr00	83	0.84337	0.36566	0	1
fac_t00	83	57.37349	36.06624	17	197
un_unms	83	0.72289	0.45029	0	1
grad	83	0.10843	0.31282	0	1
accred	83	0.96386	0.18779	0	1
t_f99_ii	83	21393.98000	4545.65600	12115.16	29745.91
end99bps	83	72.73986	103.57870	3.04464	611.8783
sapp00ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_00	159	0.66167	0.13484	0.36049	0.90248
p9050_00	159	1.27723	0.12555	1	1.61653

vlsa00	159	0.07271	0.04374	0.00614	0.23481
ge1_i00	159	0.03043	0.01657	0.00300	0.07986
gini_i00	159	0.12704	0.03776	0.04029	0.21254
at1_i00	159	0.03226	0.01813	0.00297	0.09089
union	159	0.25786	0.43884	0	1
resdoct	159	0.66038	0.47508	0	1
mba_00	159	3.73585	10.61969	0	48
nombar00	159	0.86793	0.33964	0	1
ug_00	159	3.67925	9.69557	0	41
nougr00	159	0.83648	0.37101	0	1
fac_t00	159	65.74843	31.78388	19	171
un_unms	159	0.55346	0.49871	0	1
grad	159	0.02516	0.15710	0	1
accred	159	0.98113	0.13649	0	1
t_f99_ii	159	3886.05700	1318.40700	1974.148	8153.937
end99bps	159	11.61596	16.94674	0.26351	134.7711
sapp00ps	159	7893.51400	2644.06800	3620.89	15530.5

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_00	196	0.675064	0.130453	0.360487	0.902482
p9050_00	196	1.3144	0.14442	1.063342	1.844186
vlsa00	196	0.072432	0.04267	0.011282	0.234805
ge1_i00	196	0.031156	0.016688	0.00518	0.08919
gini_i00	196	0.129673	0.036611	0.05293	0.23623
at1_i00	196	0.032539	0.017904	0.00539	0.09107
public	196	0.602041	0.49073	0	1
resdoct	196	0.627551	0.484695	0	1
mba_00	196	4.755102	11.44042	0	48
nombar00	196	0.806122	0.396347	0	1
ug_00	196	4.056122	10.28327	0	41
nougr00	196	0.816327	0.388209	0	1
fac_t00	196	63.05102	34.84879	17	197
un_unms	196	0.586735	0.493681	0	1
grad	196	0.066327	0.249489	0	1
accred	196	0.979592	0.141754	0	1
t_f99_ii	196	10880.05	9222.147	2088.132	29745.91
end99bps	196	38.74747	74.65374	0.426117	611.8783
sapp00ps	196	4839.159	4458.066	0	15530.5

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_00	46	0.68308	0.12793	0.42897	0.90145
p9050_00	46	1.21944	0.12304	1	1.61653
vlsa00	46	0.05928	0.03958	0.006138	0.14798
ge1_i00	46	0.02445	0.01542	0.00300	0.05545
gini_i00	46	0.11080	0.03885	0.04029	0.17883
at1_i00	46	0.02617	0.01673	0.00297	0.06213
public	46	0.89130	0.31470	0	1
resdoct	46	0.52174	0.50505	0	1
mba_00	46	0.60870	4.12838	0	28
nombar00	46	0.97826	0.14744	0	1
ug_00	46	1.63044	6.94217	0	41
nougr00	46	0.93478	0.24964	0	1
fac_t00	46	62.13043	27.18464	19	140
un_unms	46	0.71739	0.45524	0	1
grad	46	0.00000	0.00000	0	0
accred	46	0.95652	0.20619	0	1
t_f99_ii	46	5675.94800	4925.04900	1974.148	21045.83
end99bps	46	6.30090	7.98121	0.26351	38.56184
sapp00ps	46	6665.07900	3342.33800	0	14515.8

Descriptive Statistics for Panel Regressions—2001

Variable	N	Mean	SD	Minimum	Maximum
p1050_01	307	0.68175	0.12191	0.39222	0.91229
p9050_01	307	1.28432	0.13985	1	1.96602
vlsa01	307	0.06651	0.04042	0.00499	0.22669
ge1_i01	307	0.02837	0.01611	0.00230	0.09527
gini_i01	307	0.12289	0.03700	0.03718	0.24406
at1_i01	307	0.02978	0.01713	0.00234	0.09702
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_01	307	3.79153	10.67993	0	50
nombar01	307	0.85668	0.35097	0	1
ug_01	307	3.27687	9.57452	0	41
nougr01	307	0.85994	0.34762	0	1
fac_t01	307	60.04886	34.07260	15	199

un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_01	242	0.68240	0.12543	0.39222	0.90947
p9050_01	242	1.29355	0.14563	1	1.96602
vlsa01	242	0.06944	0.04245	0.00773	0.22669
gel_i01	242	0.02962	0.01676	0.00367	0.09527
gini_i01	242	0.12553	0.03788	0.04846	0.24406
at1_i01	242	0.03108	0.01787	0.00373	0.09702
union	242	0.19008	0.39318	0	1
public	242	0.65703	0.47569	0	1
resdoct	242	0.60744	0.48933	0	1
mba_01	242	4.54132	11.51367	0	50
nombar01	242	0.82645	0.37951	0	1
ug_01	242	3.60744	9.81651	0	41
nougr01	242	0.83884	0.36844	0	1
fac_t01	242	63.37190	33.63476	16	199
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f00_ii	242	9906.07700	8814.78800	1933.856	29984.3
end00bps	242	36.97012	81.32699	0.26381	670.1931
sapp01ps	242	5161.37100	4340.29700	0	16800.75

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_01	83	0.71715	0.10379	0.45455	0.90081
p9050_01	83	1.32323	0.17210	1.05203	1.96602
vlsa01	83	0.06032	0.03747	0.01017	0.21838
gel_i01	83	0.02711	0.01628	0.00487	0.09527
gini_i01	83	0.12062	0.03718	0.05433	0.24406
at1_i01	83	0.02770	0.01655	0.00482	0.09702
union	83	0.06024	0.23938	0	1
resdoct	83	0.50602	0.50300	0	1
mba_01	83	3.96386	9.73358	0	45
nombar01	83	0.79518	0.40602	0	1
ug_01	83	3.46988	10.10233	0	41

nougr01	83	0.84337	0.36566	0	1
fac_t01	83	57.36145	34.92451	16	199
un_unms	83	0.72289	0.45029	0	1
grad	83	0.10843	0.31282	0	1
accred	83	0.96386	0.18779	0	1
t_f00_ii	83	21441.48000	4490.78700	12159.51	29984.3
end00bps	83	83.49899	124.00770	2.63800	670.1931
sapp01ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_01	159	0.66425	0.132064	0.392216	0.909472
p9050_01	159	1.27806	0.127565	1	1.740263
vlsa01	159	0.074202	0.044203	0.007734	0.22669
ge1_i01	159	0.030934	0.016906	0.00367	0.08609
gini_i01	159	0.128088	0.038114	0.04846	0.2279
at1_i01	159	0.032838	0.018327	0.00373	0.09369
union	159	0.257862	0.43884	0	1
resdoct	159	0.660377	0.475078	0	1
mba_01	159	4.842767	12.35986	0	50
nombar01	159	0.842767	0.36517	0	1
ug_01	159	3.679245	9.695569	0	41
nougr01	159	0.836478	0.37101	0	1
fac_t01	159	66.50943	32.61414	19	176
un_unms	159	0.553459	0.498705	0	1
grad	159	0.025157	0.157097	0	1
accred	159	0.981132	0.136488	0	1
t_f00_ii	159	3884.449	1288.514	1933.856	8290.358
end00bps	159	12.68147	19.40806	0.263811	155.9157
sapp01ps	159	7855.672	2726.66	3255.005	16800.75

Non-ionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_01	196	0.68064	0.12587	0.39222	0.90081
p9050_01	196	1.31149	0.14461	1.05882	1.96602
vlsa01	196	0.07093	0.04104	0.01017	0.22138
ge1_i01	196	0.03071	0.01672	0.00487	0.09527
gini_i01	196	0.12875	0.03710	0.05335	0.24406
at1_i01	196	0.03199	0.01762	0.00482	0.09702
public	196	0.60204	0.49073	0	1

resdoct	196	0.62755	0.48470	0	1
mba_01	196	5.19898	12.03440	0	50
nombar01	196	0.79592	0.40406	0	1
ug_01	196	4.07143	10.33615	0	41
nougr01	196	0.81633	0.38821	0	1
fac_t01	196	63.03061	34.21110	16	199
un_unms	196	0.58674	0.49368	0	1
grad	196	0.06633	0.24949	0	1
accred	196	0.97959	0.14175	0	1
t_f00_ii	196	10903.26000	9218.49900	2012.332	29984.3
end00bps	196	44.13262	88.81002	0.54513	670.1931
sapp01ps	196	4818.73400	4491.16400	0	16800.75

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_01	46	0.68986	0.12461	0.41565	0.90947
p9050_01	46	1.21714	0.12487	1	1.66336
vlsa01	46	0.06308	0.04797	0.00773	0.22669
gel_i01	46	0.02497	0.01628	0.00367	0.06146
gini_i01	46	0.11182	0.03854	0.04846	0.18766
at1_i01	46	0.02720	0.01859	0.00373	0.07281
public	46	0.89130	0.31470	0	1
resdoct	46	0.52174	0.50505	0	1
mba_01	46	1.73913	8.51257	0	50
nombar01	46	0.95652	0.20619	0	1
ug_01	46	1.63044	6.94217	0	41
nougr01	46	0.93478	0.24964	0	1
fac_t01	46	64.82609	31.37395	19	153
un_unms	46	0.71739	0.45524	0	1
grad	46	0.00000	0.00000	0	0
accred	46	0.95652	0.20619	0	1
t_f00_ii	46	5657.19400	5009.41600	1933.856	21367.71
end00bps	46	6.45163	8.28246	0.26381	39.55055
sapp01ps	46	6621.30400	3285.27900	0	13779.98

Descriptive Statistics for Panel Regressions—2002

Variable	N	Mean	SD	Minimum	Maximum
p1050_02	307	0.66593	0.12599	0.35461	0.90975
p9050_02	307	1.28596	0.13982	1	1.96408

vlsa02	307	0.07149	0.04325	0.00856	0.27563
ge1_i02	307	0.03036	0.01705	0.004	0.09908
gini_i02	307	0.12717	0.03819	0.04947	0.24466
at1_i02	307	0.03192	0.01826	0.00409	0.10973
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_02	307	3.43648	9.93566	0	49
nombar02	307	0.86319	0.34421	0	1
ug_02	307	2.91857	8.96233	0	43
nougr02	307	0.86971	0.33718	0	1
fac_t02	307	61.28990	34.68953	15	204
un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_02	242	0.66559	0.12937	0.35461	0.90975
p9050_02	242	1.29711	0.14348	1	1.96408
vlsa02	242	0.07448	0.04516	0.00856	0.27563
ge1_i02	242	0.03174	0.01764	0.004	0.09908
gini_i02	242	0.13013	0.03885	0.04947	0.24466
at1_i02	242	0.03330	0.01894	0.00409	0.10973
union	242	0.19008	0.39318	0	1
public	242	0.65703	0.47569	0	1
resdoct	242	0.60744	0.48933	0	1
mba_02	242	4.15703	10.85744	0	49
nombar02	242	0.83471	0.37221	0	1
ug_02	242	3.34298	9.44091	0	43
nougr02	242	0.84711	0.36063	0	1
fac_t02	242	64.46694	34.25316	16	204
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f01_ii	242	10081.02000	8891.80700	1902.045	29847.15
end01bps	242	33.61100	73.04183	0.26930	588.8809
sapp02ps	242	4873.27100	4109.25800	0	16580.55

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_02	83	0.70776	0.10378	0.43913	0.89270
p9050_02	83	1.32893	0.16934	1.05030	1.96408
vlsa02	83	0.06212	0.03706	0.01280	0.21749
ge1_i02	83	0.02842	0.01669	0.00616	0.09305
gini_i02	83	0.12390	0.03694	0.06128	0.24150
at1_i02	83	0.02879	0.01667	0.00619	0.09581
union	83	0.06024	0.23938	0	1
resdoct	83	0.50602	0.50300	0	1
mba_02	83	3.86747	9.45048	0	39
nombar02	83	0.79518	0.40602	0	1
ug_02	83	3.48193	10.04425	0	43
nougr02	83	0.84337	0.36566	0	1
fac_t02	83	58.89157	37.18510	16	204
un_unms	83	0.72289	0.45029	0	1
grad	83	0.10843	0.31282	0	1
accred	83	0.96386	0.18779	0	1
t_f01_ii	83	21742.16000	4403.18500	12368.14	29847.15
end01bps	83	75.66621	111.28940	3.29372	588.8809
sapp02ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_02	159	0.64358	0.13607	0.35461	0.90975
p9050_02	159	1.28049	0.12533	1	1.66678
vlsa02	159	0.08094	0.04770	0.00856	0.27563
ge1_i02	159	0.03347	0.01793	0.004	0.09908
gini_i02	159	0.13338	0.03954	0.04947	0.24466
at1_i02	159	0.03565	0.01967	0.00409	0.10973
union	159	0.25786	0.43884	0	1
resdoct	159	0.66038	0.47508	0	1
mba_02	159	4.30818	11.54954	0	49
nombar02	159	0.85535	0.35286	0	1
ug_02	159	3.27044	9.14212	0	43
nougr02	159	0.84906	0.35913	0	1
fac_t02	159	67.37736	32.35966	20	182
un_unms	159	0.55346	0.49871	0	1
grad	159	0.02516	0.15710	0	1

accred	159	0.98113	0.13649	0	1
t_f01_ii	159	3993.75800	1346.41200	1902.045	8280.947
end01bps	159	11.65764	17.19900	0.26930	131.367
sapp02ps	159	7417.18000	2601.62300	3227.041	16580.55

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_02	196	0.66384	0.12981	0.35461	0.90842
p9050_02	196	1.31395	0.14230	1.05782	1.96408
vlsa02	196	0.07677	0.04559	0.01102	0.27563
ge1_i02	196	0.03289	0.01768	0.00521	0.09908
gini_i02	196	0.13324	0.03792	0.05224	0.24466
at1_i02	196	0.03439	0.01902	0.00528	0.10973
public	196	0.60204	0.49073	0	1
resdoct	196	0.62755	0.48470	0	1
mba_02	196	4.79082	11.47314	0	49
nombar02	196	0.80612	0.39635	0	1
ug_02	196	3.72449	9.85462	0	43
nougr02	196	0.82653	0.37962	0	1
fac_t02	196	64.27551	35.07290	16	204
un_unms	196	0.58674	0.49368	0	1
grad	196	0.06633	0.24949	0	1
accred	196	0.97959	0.14175	0	1
t_f01_ii	196	11085.66000	9287.89100	1932.185	29847.15
end01bps	196	40.11288	79.73576	0.64844	588.8809
sapp02ps	196	4546.15200	4260.21200	0	16580.55

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_02	46	0.67307	0.12861	0.41629	0.90975
p9050_02	46	1.22536	0.12650	1	1.66678
vlsa02	46	0.06475	0.04238	0.00856	0.17507
ge1_i02	46	0.02682	0.01680	0.004	0.06597
gini_i02	46	0.11688	0.04039	0.04947	0.19783
at1_i02	46	0.02864	0.01810	0.00409	0.07344
public	46	0.89130	0.31470	0	1
resdoct	46	0.52174	0.50505	0	1
mba_02	46	1.45652	7.19168	0	43
nombar02	46	0.95652	0.20619	0	1
ug_02	46	1.71739	7.29281	0	43

nougr02	46	0.93478	0.24964	0	1
fac_t02	46	65.28261	30.85858	22	145
un_unms	46	0.71739	0.45524	0	1
grad	46	0.00000	0.00000	0	0
accred	46	0.95652	0.20619	0	1
t_f01_ii	46	5800.37000	5146.93900	1902.045	21862.22
end01bps	46	5.90733	7.30498	0.26930	35.15702
sapp02ps	46	6267.08400	3055.24200	0	13214.51

Descriptive Statistics for Panel Regressions—2003

Variable	N	Mean	SD	Minimum	Maximum
p1050_03	307	0.66568	0.12754	0.24255	0.92983
p9050_03	307	1.28288	0.14310	1	2
vlsa03	307	0.07120	0.04475	0.008229	0.35406
ge1_i03	307	0.03024	0.01745	0.00393	0.10887
gini_i03	307	0.12664	0.03875	0.04921	0.2429
at1_i03	307	0.03179	0.01874	0.004	0.13073
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_03	307	3.33876	9.83770	0	50
nombar03	307	0.86645	0.34072	0	1
ug_03	307	2.72964	8.47306	0	39
nougr03	307	0.87296	0.33356	0	1
fac_t03	307	61.59283	34.72215	14	200
un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_03	242	0.66694	0.13196	0.24255	0.92983
p9050_03	242	1.29233	0.14480	1	2
vlsa03	242	0.07376	0.04640	0.00823	0.35406
ge1_i03	242	0.03143	0.01796	0.00393	0.10887
gini_i03	242	0.12913	0.03937	0.04921	0.2429
at1_i03	242	0.03298	0.01933	0.00400	0.13073
union	242	0.19008	0.39318	0	1
public	242	0.65703	0.47569	0	1

resdoct	242	0.60744	0.48933	0	1
mba_03	242	4.03306	10.75177	0	50
nombar03	242	0.83884	0.36844	0	1
ug_03	242	3.10744	8.87469	0	39
nougr03	242	0.85124	0.35659	0	1
fac_t03	242	64.69421	33.87978	16	200
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f02_ii	242	10514.70000	9132.41600	1877.615	30470.71
end02bps	242	29.43762	62.84015	0.23099	479.2128
sapp03ps	242	4455.27900	3756.75800	0	14431.61

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_03	83	0.71259	0.11080	0.43750	0.90748
p9050_03	83	1.32234	0.17249	1.04845	2
vlsa03	83	0.06142	0.03931	0.013978	0.21472
gel_i03	83	0.02802	0.01747	0.00608	0.09385
gini_i03	83	0.12219	0.03848	0.05735	0.24194
atl_i03	83	0.02841	0.01759	0.00631	0.09553
union	83	0.06024	0.23938	0	1
resdoct	83	0.50602	0.50300	0	1
mba_03	83	3.68675	9.74045	0	45
nombar03	83	0.80723	0.39687	0	1
ug_03	83	2.93976	9.09483	0	39
nougr03	83	0.85542	0.35381	0	1
fac_t03	83	59.96386	37.75513	16	200
un_unms	83	0.72289	0.45029	0	1
grad	83	0.10843	0.31282	0	1
accred	83	0.96386	0.18779	0	1
t_f02_ii	83	22522.78000	4329.29600	12859.83	30470.71
end02bps	83	65.73668	95.53497	2.58784	479.2128
sapp03ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_03	159	0.64311	0.13611	0.24255	0.92983
p9050_03	159	1.27667	0.12578	1	1.62650
vlsa03	159	0.08020	0.04858	0.008229	0.354064

gel_i03	159	0.03321	0.01801	0.00393	0.10887
gini_i03	159	0.13276	0.03945	0.04921	0.24290
at1_i03	159	0.03536	0.01981	0.00400	0.13073
union	159	0.25786	0.43884	0	1
resdoct	159	0.66038	0.47508	0	1
mba_03	159	4.21384	11.26907	0	50
nombar03	159	0.85535	0.35286	0	1
ug_03	159	3.19497	8.78540	0	39
nougr03	159	0.84906	0.35913	0	1
fac_t03	159	67.16352	31.51409	20	173
un_unms	159	0.55346	0.49871	0	1
grad	159	0.02516	0.15710	0	1
accred	159	0.98113	0.13649	0	1
t_f02_ii	159	4246.32900	1482.23700	1877.615	8920.502
end02bps	159	10.48906	15.26590	0.23099	110.3018
sapp03ps	159	6780.99000	2378.38200	2987.592	14431.61

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_03	196	0.66423	0.12915	0.37372	0.90748
p9050_03	196	1.30953	0.14518	1.05753	2
vlsa03	196	0.07539	0.04266	0.01019	0.21472
gel_i03	196	0.03252	0.01714	0.00525	0.09385
gini_i03	196	0.13245	0.03736	0.05426	0.24194
at1_i03	196	0.03391	0.01816	0.00511	0.09553
public	196	0.60204	0.49073	0	1
resdoct	196	0.62755	0.48470	0	1
mba_03	196	4.70918	11.55687	0	50
nombar03	196	0.81123	0.39233	0	1
ug_03	196	3.62755	9.55787	0	39
nougr03	196	0.82653	0.37962	0	1
fac_t03	196	64.66837	34.87850	16	200
un_unms	196	0.58674	0.49368	0	1
grad	196	0.06633	0.24949	0	1
accred	196	0.97959	0.14175	0	1
t_f02_ii	196	11562.03000	9520.50600	1877.615	30470.71
end02bps	196	35.10297	68.56142	0.78145	479.2128
sapp03ps	196	4128.73800	3869.21000	0	14431.61

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_03	46	0.67847	0.14428	0.24255	0.92983
p9050_03	46	1.21905	0.11906	1	1.57358
vlsa03	46	0.06679	0.05986	0.008229	0.35406
ge1_i03	46	0.02680	0.02068	0.00393	0.10887
gini_i03	46	0.11501	0.04471	0.04921	0.2429
at1_i03	46	0.02898	0.02348	0.00400	0.13073
public	46	0.89130	0.31470	0	1
resdoct	46	0.52174	0.50505	0	1
mba_03	46	1.15217	5.46491	0	27
nombar03	46	0.95652	0.20619	0	1
ug_03	46	0.89130	4.44336	0	27
nougr03	46	0.95652	0.20619	0	1
fac_t03	46	64.80435	29.59326	20	147
un_unms	46	0.71739	0.45524	0	1
grad	46	0.00000	0.00000	0	0
accred	46	0.95652	0.20619	0	1
t_f02_ii	46	6052.16500	5361.99000	1882.845	22782.43
end02bps	46	5.29830	6.59197	0.23099	33.37699
sapp03ps	46	5846.62800	2875.32400	0	11739.84

Descriptive Statistics for Panel Regressions—2004

Variable	N	Mean	SD	Minimum	Maximum
p1050_04	307	0.65520	0.12647	0.29167	0.95589
p9050_04	307	1.28763	0.14374	1	2.08377
vlsa04	307	0.07430	0.04637	0.003916	0.36769
ge1_i04	307	0.03128	0.01822	0.00193	0.12398
gini_i04	307	0.12861	0.04005	0.03373	0.26584
at1_i04	307	0.03301	0.01948	0.00189	0.14199
union	307	0.18893	0.39209	0	1
public	307	0.70358	0.45742	0	1
resdoct	307	0.55700	0.49755	0	1
mba_04	307	3.46906	10.09084	0	47
nombar04	307	0.86319	0.34421	0	1
ug_04	307	2.98697	9.02320	0	41
nougr04	307	0.86645	0.34072	0	1

fac_t04	307	61.78502	34.97720	14	206
un_unms	307	0.64495	0.47931	0	1
grad	307	0.04560	0.20896	0	1
accred	307	0.96091	0.19412	0	1

All institutions not missing data with imputation

Variable	N	Mean	SD	Minimum	Maximum
p1050_04	242	0.65654	0.12896	0.29167	0.90227
p9050_04	242	1.29711	0.14927	1	2.08377
vlsa04	242	0.07683	0.04868	0.00801	0.36769
ge1_i04	242	0.03250	0.01901	0.00383	0.12398
gini_i04	242	0.13114	0.04115	0.05014	0.26584
at1_i04	242	0.03421	0.02036	0.00382	0.14199
union	242	0.19008	0.39318	0	1
public	242	0.65703	0.47569	0	1
resdoct	242	0.60744	0.48933	0	1
mba_04	242	4.16529	10.93348	0	47
nombar04	242	0.83471	0.37221	0	1
ug_04	242	3.25620	9.15521	0	41
nougr04	242	0.84711	0.36063	0	1
fac_t04	242	65.03719	34.24992	16	206
un_unms	242	0.61157	0.48840	0	1
grad	242	0.05372	0.22593	0	1
accred	242	0.97521	0.15582	0	1
t_f03_ii	242	10912.79000	9154.94300	2354	31040
end03bps	242	27.59255	58.49584	0.22431	440.4491
sapp04ps	242	4132.37800	3506.62700	0	13225.27

Private Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_04	83	0.69948	0.11670	0.29167	0.88793
p9050_04	83	1.33085	0.17865	1.05346	2.08377
vlsa04	83	0.06687	0.05152	0.01155	0.36769
ge1_i04	83	0.02959	0.02029	0.00566	0.12398
gini_i04	83	0.12523	0.04207	0.05906	0.26584
at1_i04	83	0.03041	0.02149	0.00553	0.14199
union	83	0.06024	0.23938	0	1
resdoct	83	0.50602	0.50300	0	1
mba_04	83	4.59036	11.67762	0	47
nombar04	83	0.79518	0.40602	0	1

ug_04	83	2.61446	8.29903	0	41
nougr04	83	0.85542	0.35381	0	1
fac_t04	83	59.95181	38.22778	16	206
un_unms	83	0.72289	0.45029	0	1
grad	83	0.10843	0.31282	0	1
accred	83	0.96386	0.18779	0	1
t_f03_ii	83	22959.01000	4247.52400	13154	31040
end03bps	83	60.81387	89.01493	2.57214	440.4491
sapp04ps	83	0	0	0	0

Public Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_04	159	0.63412	0.12971	0.32825	0.90227
p9050_04	159	1.27950	0.12850	1	1.71849
vlsa04	159	0.08203	0.04645	0.00801	0.25394
ge1_i04	159	0.03402	0.01818	0.00383	0.09252
gini_i04	159	0.13422	0.04045	0.05014	0.24253
at1_i04	159	0.03619	0.01952	0.00382	0.0979
union	159	0.25786	0.43884	0	1
resdoct	159	0.66038	0.47508	0	1
mba_04	159	3.94340	10.55561	0	47
nombar04	159	0.85535	0.35286	0	1
ug_04	159	3.59120	9.57992	0	41
nougr04	159	0.84277	0.36517	0	1
fac_t04	159	67.69182	31.78328	20	186
un_unms	159	0.55346	0.49871	0	1
grad	159	0.02516	0.15710	0	1
accred	159	0.98113	0.13649	0	1
t_f03_ii	159	4624.51600	1567.13900	2354	9274
end03bps	159	10.25060	14.98591	0.22431	108.2021
sapp04ps	159	6289.53100	2258.89300	2588.961	13225.27

Non-unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_04	196	0.65171	0.12602	0.29167	0.90227
p9050_04	196	1.31166	0.15161	1.06301	2.08377
vlsa04	196	0.07984	0.04944	0.00801	0.36769
ge1_i04	196	0.03392	0.01919	0.00383	0.12398
gini_i04	196	0.13492	0.04034	0.05014	0.26584

atl_i04	196	0.03560	0.02056	0.00382	0.14199
public	196	0.60204	0.49073	0	1
resdoct	196	0.62755	0.48470	0	1
mba_04	196	5.03571	11.89629	0	47
nombar04	196	0.80102	0.40026	0	1
ug_04	196	3.61225	9.52905	0	41
nougr04	196	0.82653	0.37962	0	1
fac_t04	196	65.34184	35.50226	16	206
un_unms	196	0.58674	0.49368	0	1
grad	196	0.06633	0.24949	0	1
accred	196	0.97959	0.14175	0	1
t_f03_ii	196	11968.54000	9533.22800	2500	31040
end03bps	196	32.85316	63.82408	0.80315	440.4491
sapp04ps	196	3814.32000	3601.19100	0	13225.27

Unionized Institutions

Variable	N	Mean	SD	Minimum	Maximum
p1050_04	46	0.67711	0.14042	0.39243	0.88929
p9050_04	46	1.23512	0.12196	1	1.58590
vlsa04	46	0.06403	0.04351	0.00925	0.16982
ge1_i04	46	0.02643	0.01712	0.00452	0.0612
gini_i04	46	0.11501	0.04107	0.05361	0.18652
atl_i04	46	0.02826	0.01852	0.00447	0.06983
public	46	0.89130	0.31470	0	1
resdoct	46	0.52174	0.50505	0	1
mba_04	46	0.45652	3.09628	0	21
nombar04	46	0.97826	0.14744	0	1
ug_04	46	1.73913	7.24626	0	41
nougr04	46	0.93478	0.24964	0	1
fac_t04	46	63.73913	28.60881	20	129
un_unms	46	0.71739	0.45524	0	1
grad	46	0.00000	0.00000	0	0
accred	46	0.95652	0.20619	0	1
t_f03_ii	46	6414.39100	5431.49400	2354	23340
end03bps	46	5.17777	6.27921	0.22431	30.48723
sapp04ps	46	5487.58400	2709.06700	0	10458.1

APPENDIX C

INTERVIEW PARTICIPANT RESPONSE SUMMARY

Interview 1

Types of Faculty Hired

- Primarily newly minted PhDs
- Where we have a unique opportunity or a special need, we would be open to bringing in more senior people.
- Looking for a blend of research and teaching.

Strategy in Setting Salaries

- Try to estimate what the market is and move us down a little bit.
- We try to be competitive.
- Utilize AACSB salary surveys and try to hit the median for private accredited schools
- We give out zeros [raises] to about 10% of the non-performers.
- The idea is to try and have people compensated at a level that they think is fair and to enjoy what they are doing so it takes more to move them. I am trying to raise the switching costs.

Environmental Forces

- We tend to ignore inversion and compression.

College-Level Strategy

- I create a target salary for each person based on how they are performing. That becomes their market.
- Salary is an important element in achieving our goals because we are expecting people to perform at a higher level.

College Culture

- There are no cultural differences; they are all market differences by specialty.

Departmental Differences

- We have zero differences [by department].
- They are all market-based and I don't allow egalitarian activity.
- It was all performance-based and market-driven.
- There were no egalitarian things between departments.

Biggest Compensation Challenges

- Right now, the biggest challenge is overcoming a lot of the inertia from a different culture.

- But, ultimately, the biggest challenge will be bidding wars from rich deans.
- Trying to recruit and keep your high performers like finance.
- How do you ensure a sense of fairness without being equal?
- People need to think they have to be individually fairly compensated and the best way to do that is to essentially sit down with each person and discuss where the market is and let them deal with it.

Strategy for Handling Outside Offers

- Have to decide how badly we want to keep them. [It depends.]

Innovative Salary Packages

- Release time for chairs.
- We have faculty fellows.
- We initiated competition for summer support

Compression/Inversion

- The senior faculty have seen the performance of the new hires and have seen their credentials and don't have much of a struggle with it at all.

Interview 2

Types of Faculty Hired

- [Areas need to] understand what your needs are, whether they are senior or junior, because we have some areas that are completely needing senior leadership and we have some areas that are pretty heavy on seniors and really need young junior blood.

Strategy in Setting Salaries

- With respect to the juniors, we need to be at the top, where the other top schools are.
- We understand what the market is and we essentially match the market
- With respect to the hiring someone that already has tenure at another institution, clearly you can't pay them less than what they have at the other institution. There are transaction costs and moving and so we look at AACSB data for the top 10 business schools and try to get a salary number based on that.
- We provide a ranking to every single faculty member. The dean takes this information, along with any competitive information that might be available to him and makes the final salary determination.
- There is clearly a wide range [for raises]. We clearly believe in rewarding good performance and not rewarding mediocre performance.
- We always have to think about salary at the individual level. It's always, why do we need to keep this person at this university.

Environmental Forces

- Clearly, anyone that we are hiring will have offers from other top schools.
- There is a marketplace for faculty talent and we have to cognizant of that.

College-Level Strategy

- Our overall strategy has intellectual capital and its impact as the base. On top of that...we must develop great teaching to disseminate our intellectual capital. So, at the end of the year, p people who are overall great researchers or great teachers get pretty god raises.
- If people are lacking in one dimension, they get less well raises, but still reasonable.

College Culture

- We are a business school and people understand market forces. So, certainly people understand that there is a market for faculty talent.
- Clearly no business school in the U.S. has [egalitarianism] and I think people understand and accept that.

Departmental Differences

- I'm not sure [salary variance] is a departmental phenomenon. I think that's an individual phenomenon. If you have a tenured faculty member that keeps up on research but doesn't do a good job teaching, the person has tenure, we can't fire them. So, the only mechanism the Dean has is basically not rewarding them. And yet, because you have people like them, you should actually hire a few superstars to balance them out and pay them high salaries and suddenly when people look at it, they say "Oh my God, there is really salary inequality." But it was all because of the performance of the individuals. It exists only to the extent you have poorly performing tenured faculty members.

Biggest Compensation Challenges

- Faculty salaries are increasing every at a rate that is reasonably fast. Top faculty talent is not cheap and it is getting expensive in more ways that one.
- Clearly, the actual salary numbers are increasing. But the other is, how much teaching faculty are top research faculty and how much of a teaching appointment you give them.
- Clearly, getting some faculty talent is not cheap and it is not in abundance.

Strategy for Handling Outside Offers

- If this is a person who is really a great researcher and teacher, we absolutely do everything we can to keep the person.
- If they have been made an offer from what we don't consider a peer school that might have a higher salary, I really don't take that into account.

Innovative Salary Packages

- We want to think about this as creating the environment for you to do your best work.
- We created our sort of internal national science foundation where we are looking at proposals, but the nice thing is really at the end of the day, people are not competing against each other.

Compression/Inversion

- With respect to salary inversion, I mean people talk about that existing and to some level, assistant professor's salaries are rising every year, while associate professor or full professor salaries only rise if you continue to perform.

Interview 3

Types of Faculty Hired

- We have actually reduced the size of our tenure-track faculty and built a more diverse faculty.
- I have hired a couple of women who were at very good schools, pre-tenure, like three years into their positions and we have professorships and they are kind of bright stars.
- We have hired people who are fresh out of PhD programs, but ... in general for us, I think the better strategy is to hire somebody who has got a proven record.

Strategy in Setting Salaries

- I look at AACSB averages. Then I look at our history and consider the compression factor as well.

Environmental Forces

- We're unionized... basically I have no discretion over any faculty raises.
- I was on the management side of the last union negotiations. That's where all the salary does happen.

College-Level Strategy

- A key element of our strategy is to improve the quality of our faculty.
- I don't know how well I am able to [connect compensation strategy with the college strategy]. Our academic entities have a fair amount of autonomy in terms of what they do.

College Culture

- [No response given.]

Departmental Differences

- We have zero departments. We did away them with about 15 years ago.

Biggest Compensation Challenges

- The university doesn't have enough money to pay them what they should be paying them.
- We are just underfunded.

Strategy for Handling Outside Offers

- I have to decide how much I want to keep them.

Innovative Salary Packages

- We let them do a three/two/zero [teaching load] so they have a research term.

Compression/Inversion

- Compression is a huge issue for their [union] members.

Interview 4

Types of Faculty Hired

- Historically, this school has gravitated much more to the teaching side. Frankly, we have some people here that are doing absolutely no research.
- I have been trying to push that more on the research side. I have made the point to the two hires we've made this year that the standards are going to be going up and the bar has been raised in terms of getting tenure and expectations that you do publish consistently and in a reasonable quality journal.
- My old dean always told me that research--research faculty--is what drove the excellence in your school. Forget about the rankings, the correlation is with better researchers.

Strategy in Setting Salaries

- Everyone always assumes they are going to get the minimum [raise]. It really was driven by how well you did across teaching, research, and service. There were some [zeros] and so some people got no salary increases.

Environmental Forces

- Our constraints are more internal because our endowment is very weak relative to our peer and aspirant schools.

College-Level Strategy

- I have been making a push to improve the quality of our research. We need to make that a more important component of what we are doing.
- I have also been looking at some of those faculty that I think have the potential. I am trying to reduce their teaching loads to free up some time for them to do more research.

College Culture

- We are dealing with a long standing tradition of egalitarianism.
- My philosophy, frankly, is to reward those that are indeed advancing the business school and I am going to be less inclined to worry about those who are sitting on the sidelines.

Departmental Differences

- I think they all differentiate because they all use the system of allocating the annual pay increases based on the point system that reflects the output of each faculty member.

Biggest Compensation Challenges

- For us to get there [near our aspirant schools], we really have to make a lot more investment and one of my big concerns is whether or not we can compete with obtaining the type of faculty that those schools have.
- Providing funding to faculty puts us at a competitive disadvantage.
- The other thing is we are not as generous when it comes to providing discretionary funds for travel and research and so forth.
- Our course load also puts us at a disadvantage.
- On the finance side you know again I was looking -- we had actually a fellow who left [a top ranked private school] and he went off to do some private industry things for three years, so he no longer had tenure [there] and then he lives like, right around the block. I've looked at him and knowing that [they] were paying the guy close to \$ 200,000 and our highest faculty was at \$120, I realized there is no way in the world, I could pull off anything like this so I -- if I brought him even -- even at that 20% discount from what he made before, it was going to throw my salaries way out of whack, so, I couldn't pursue that at all. So, that certainly puts me at a disadvantage.

Strategy for Handling Outside Offers

- I will do what I can to keep somebody that's worth keeping. That includes trying to come up with some guarantee that I will change their salary at the next year...but you know that all has to be within reason too.

Innovative Salary Packages

- I am going to provide some opportunities that are outside of specifically the research side. So, there are some initiatives underway on the teaching side and then the curricular innovation side.

Compression/Inversion

- When you start bringing some people in and you are paying them more than folks that you really respect, that have been around.

Differences Between Schools

- It is amazing the inequity that is in our industry from the prestige schools to the other schools.

Interview 5

Types of Faculty Hired

- First and foremost, they are great scholars that have been out, or if they are new PhDs, they have got the potential to be great scholars.
- They have to be good teachers, although research drives this place just like it drives everything else.
- I think we have hired junior faculty more than full professors. In the time I've been here, we've only hired two fulls, because, obviously, they are more expensive and you have to be very careful when you hire in senior faculty in how do they fit with the culture of the place.

Strategy in Setting Salaries

- The markets are different, so you know, starting salaries for accounting and finance are going to be at the top, and then marketing, and then management is a bit lower. So, it creates some inequities, but I think from a salary and administration process, you have to pay attention to the marketplace realities.
- We absolutely have to look at the AACSB salary data. We try to look at our peer schools so we have a really good sense of what's the market.
- We're no different than most other places, you know resources are scarce and we have to be careful. We want to be at the market, but we also want to make sure we don't do something stupid.
- We will sit down [for raises] with each department chair and go through every single faculty member--what were their raises, what is the chair recommending, how does it fit with our evaluation here. So, it is very, very, very performance-driven and we give out a lot of zeros if we don't think people are performing well.

Environmental Forces

- The salaries are just, they keep growing, and they are getting out of control. I think we are going to find because of these pressures on salary, that business schools are going to increase the number of professors of practice or teaching specialists. That is one of the things that is going to start as a way to handle this insatiable demand for salary.
- I think what is going to happen down the road, is we are going to be pricing ourselves out of the market.
- I think in some of the other disciplines, it is really problematic [growing gap in salaries]. You know this egalitarian nonsense [in humanities, etc.]--there's no

pay for performance and it's really problematic. There needs to be more of that [across universities] and there needs to be much more accountability. Nobody has pulled it off; people have been talking about it for a decade. I don't know anybody that does post-tenure review that means anything.

- I am sure there are a handful of people--if there wasn't tenure--there would certainly be a handful of people here that wouldn't be around anymore because they are not doing research and they are lousy in the classroom.

College-Level Strategy

- Like every business school, research drives the place. We are trying to put a little more weight on the teaching side of it.

College Culture

- [No response]

Departmental Differences

- This place, it's bizarre; each department has by-laws, and so the annual review criteria vary a bit from department to department. I have been trying to get some conformity on the weights.
- I think it's more pay-for-performance. Absolutely. I just don't believe in an egalitarian model. That's what screws up universities. You've got to have an incentive system that is linked to performance.
- Business schools are probably a little better [at differentially rewarding faculty], because of the competitiveness of the marketplace, and our mission is more complex because you've got to be good in scholarship, but you've also got to be good in the classroom.

Biggest Compensation Challenges

- One of the [biggest challenges] is salary compression, obviously. If I was hired two years ago and I was a good performer, has my salary kept up with the person we just hired this year.
- The shortage of faculty and everybody is trying to steal everybody and you don't want people to have to go out and get an offer in order to get an increase.
- When a line becomes open, somebody leaves or somebody retires, the amount of money in that line isn't near enough to hire another senior faculty member or seasoned associate.
- In the rest of the university, when someone retires, you might be able to hire one and a half or two faculty. In a business school, if somebody has been in that position for a long time, that might necessarily be the case...I think this is going to be a big issue for a lot of business schools.
- One of the unanticipated consequences [of rewarding people differentially] is that you've got a salary position and the person has been in that position hasn't

been a top performer then he hasn't been getting the level of raises to keep that position competitive within the marketplace.

Strategy for Handling Outside Offers

- We make the decision if we want to keep them or not and then we try and see what we can do.

Innovative Salary Packages

- We picked the 20 faculty who were most at risk at being hired away, people we'd really want to keep, and we said, we would like to get them to about the 90th percentile [of our peer institutions]. That was going to take something like \$400,000. The University gave us \$215,000 in new, recurring money to move those 20 faculty forward.
- We are trying to get more long-term support for summer research funding.
- We are in the middle of a capital campaign right now. The campaign has been all about faculty research; we are trying to get more chairs.

Compression/Inversion

[No response]

Differences Between Schools

- The state isn't going to come to the table with more money. So, the public universities are going to have to be more like private universities. The privates have their own problems. How long can you keep raising tuition once you get into \$40,000 bucks per year? But I think the whole financing issue is going to be a huge one, across universities and probably exacerbated a little bit more in business schools.

Interview 6

Types of Faculty Hired

- It's a mix...we try to bring in some junior faculty because I want to keep a steady stream of young people who are just starting their careers and with all the strength and weaknesses that entails, but we also need to do some hiring at the very senior levels when we want to cap off an area or we think we need some leadership in an area.

Strategy in Setting Salaries

- The outside [hiring], it's simply market-driven. It's whatever it takes to move the individual and that is partly a function of what other schools are offering. So, we will pay whatever the market is to get those kinds of people who we think will add to the quality of our programs.

- [For raises], we identify 10 to 12 schools we think of as our competitors for faculty. We rely on AACSB data for the current salaries of faculty members by rank and by areas of specialization. Then, each year, we map onto our evaluation system, our assessment of where our faculty stand relative to his or her peers in their specialty area and those peer institutions.
- We then have three different elements in our compensation system: The first is standard performance on knowledge creation and knowledge dissemination. The second element is the individual's contribution to college priorities established each year by the Dean's Office. The third is market equity and market equity adjustment issues.
- It's conceivable that someone can have a rolling three-year window where they haven't been very productive and they haven't been teaching particularly well, and they could wind up with a zero [raise]. My guess is that with a faculty of 100, maybe 4 or 5 in a given year, would wind up with no increase.

Environmental Forces

- The market is the primary one. There is a second part--the scarcity which is reflected in the market.
- Here is an example of the problem: There may have been last year - I don't know the exact number, maybe 80 or 85 PhDs in Accounting awarded nationally, alright? Of that 80 or 85 of the top 40 schools, those just use it. However, you define top 20, my guess is those 20 schools alone are looking for probably a total of maybe 40 or 50 people in Accounting. So you are already have just with the top 20 schools you have consumed better than half of the available new supply of faculty. Now, the problem is, of that 80 to 85 there is probably no more than about 40 that can produce at levels that will be desired by the top 20 schools. So, there is just an incredible shortage, almost quite literally by area of specialization.

College-Level Strategy

- The compensation system allows us to reward those faculty members who are making particular contributions to the goals and strategic objectives.

College Culture

- [No response]

Departmental Differences

- We don't put any limits on the differences in salary that could exist between different functional specialties. So we could literally have - take Assistant Professors across our college, alright. And let's just talk about incoming Assistant Professors just to get a standard measure; we could literally have \$60,000 difference in what we pay one Assistant Professor versus another Assistant Professor, simply as a function of the market for their specialty.

Biggest Compensation Challenges

- [Laughs]. Finding the money to pay them. The faculty salaries have just exploded and it's a very real issues--it's a very real concern. We are all chasing an increasingly small pool of talent and that - so the ability to generate the resources that are necessary to be competitive is probably the biggest problem, particularly for those of us who define a very important and very significant research mission.

Strategy for Handling Outside Offers

- Well everything is the case-by-case basis. So I will start from there, we have some general rules we use which is, we assume that the 10% transaction cost for any move so assuming that comparable institutions we probably - we normally won't match within 10% of another offer. So if an individual gets an offer and that's within 10% of their current salary, we won't do anything special for that. If the difference is beyond 10%, then we will make an adjustment for it. If the offer is from a non-comparable institution, we will often just ignore it.

Innovative Salary Packages

- We, like everybody else, do the Clinical Faculty appointments to help leverage faculty resources.

Compression/Inversion

- We do what we can to put to move salaries up, but the fact of the matter is there are different markets. The faculty who've been here for a while, or has been at any other institution don't command a same kind of premiums as young PhDs do in Finance.

Interview 7

Types of Faculty Hired

- Kind of a blend. A number of the departments chose the strategy of trying to find people who had been out 3-5 years. Generally, it doesn't cost you a lot more to hire somebody who you know a lot more about than a brand new rookie. The trickiest part about this is it's a lot harder to find people like that. The rookie market is very clear. It's easy to compare them. It's an easily accessible market.

Strategy in Setting Salaries

- For new people we pretty much try to play in the market. We certainly were not leading the market. In some case, I guess on average we probably lagged the market by \$5 or \$10 thousand.
- Now in a few cases we did, we said this person is 75% percentile and let's go to the AACSB survey and find out what 75% percentile salary is among our peer

groups and hire a person at that level. And sometimes that creates inequity, inversion you know, hiring an associate professor at more than a full professor is making. But it was felt that was what we needed to hire good people.

- Before I took [over the job], most of the departments had a model of internal equity. You got full professors in one band and associate in another band and assistant in another band and there are exceptions. If you got an associate professor who has been there for 20 years and he is clearly not going to be promoted full, they are probably lagging even behind the assistant professors. Their pay just caps out. But what I shifted more to was a model of rewarding the high performers and creating some inequity based on rank but being responsive to how good people are. That made some people unhappy, but I think it also helps you keep the best people.
- It was much more of a [raise] strategy of probably 10 to 20% getting a healthy bump. Another 20-30% getting a modest bump, 40-50% getting nothing. So really clearly it was more of a targeted effort and over a number of years we were actually able to make some pretty good progress with people using that strategy.
- So, there is kind of a constant balance there of how much to give your good people. I am not talking about your superstars but your good people to keep them here, to keep them happy enough so that you don't incur the turnover and disruption expense.

Environmental Forces

- [No response]

College-Level Strategy

- In the past, I think it was much more driven purely based on research and now, there are some people that got rewarded because they were okay researchers, stellar teachers, and fantastic citizens.

College Culture

- The culture, I guess it would be more department culture that played a role there. There are some departments that are much more focused on keeping the balance and harmony within that department.

Departmental Differences

- The tricky part I guess about this is determining who you really want to keep, is a function of both the person but also the shape of their department. You can take more of a balanced perspective of how replaceable is this person? I think something that I gained awareness of over the years that I did this; I came to realize more and more that actually a lot of people are replaceable. We talked about some of our faculties being irreplaceable but most of them are replaceable. There are a few that would be extremely difficult to get somebody of that quality but generally most people are replaceable

- I would say that the majority are the pay for performance star model and there is really only a couple with the equity model. I think that has to do with the fact that in most of our departments we do have big differences in quality.

Biggest Compensation Challenges

- Balancing that internal and external equity issue is huge. You know, faculty, business faculty especially know what the market is. Business faculty, almost always feel underpaid because of this perception of where the market is. And just trying to decide to what extent do we play in that market but we still try and maintain some internal equity.

Strategy for Handling Outside Offers

- The way I wanted to react to each and every one of those is to say ‘Good luck. Enjoy it.’ And for the majority I did. I tried to adopt that strategy at the college level and in general you can expect that you do get these people, these keepers, these people that you just want to hold on to and so in a few cases we did respond to external. I think that can send a bad signal to people because they start to think that’s how they get raises is to go and get an offer.

Innovative Salary Packages

- Junior faculty expect 2/9s. We also introduced faculty fellowships, endowed fellowships for associate professors.
- Sometimes we would guarantee a person an evening or weekend MBA class for additional compensation.

Compression/Inversion

- A number of senior faculty that really felt that they should be rewarded because they are senior faculty. It is really about what are they contributing all around. But that’s really hard. The more senior faculty tend to have been brought up academically in a model of hierarchies and bands of pay based on those hierarchies and I pissed some people off by breaking up that model; I clearly did. I still have enemies in the college for that.
- In a couple of cases what I did is to try and limit that inequity problem. I gave somebody a raise promised over a period of time.

Differences Between Schools

- Being a public institution exacerbates that [comparisons between faculty] because those who are motivated can find out what their colleagues in the business school are making and they do. I have had faculty come into me with lists of what everyone they want to compare themselves with is making and they will lay the list down in front of me.

Interview 8

Types of Faculty Hired

- I actually put most of the emphasis on brand new assistant professors but we hired some associate professors and we hired a full professor, but my primary emphasis is on the entry level.

Strategy in Setting Salaries

- I want a hire at the upper quartile of AACSB peer schools and the peer schools aren't going to be peers, they are going to be better than us.
- I always feel there is times when you are a beneficiary and you are benefactor and when you come in without tenure, sure you get more but it's highly risky. When you are a full professor with tenure, unless you do terribly you are not going to get fired. So it's lower risk you know and so you should make more than an assistant but you shouldn't make too much more because frankly you have a risk-free job and faculty don't like to hear that, but I think its true.
- We did it [raises] on a very selective basis. We basically looked at people in terms of-- they had to be contributing both locally and nationally... and at risk of losing. And frankly if they were at risk of losing nationally but they weren't good citizens, hell they could go. I mean we never told them that but we were not going to cry about it either. On the other hand, if they were just great local citizens but weren't visible nationally, I couldn't pay the national market because those are national markets.
- So, everyone gets an equal amount [of raise], because you know I won't be on the committee next year, but you'll be on the committee.

Environmental Forces

- [It's hard] to gauge the quality of the business school. So you have these kind of branded faculty. It helps you do that.

College-Level Strategy

- At our school, we needed the change a culture. It was a very good culture but it was a little bit too heavy on just being a teaching school and so we tried to move it towards a kind of what we ended up calling kind of scholar-teacher model.
- I had argued for the ability to hire at the upper quartile because we had the stated goal within ten years to be among the top 50 business schools in America that offer both an undergraduate and a MBA...and all the resources were directed on that.

College Culture

- [No response]

Departmental Differences

- [No response]

Biggest Compensation Challenges

- I think the other issue and I don't know if it's come up and I don't know if it really fits in. I had a senior faculty member at Private Gulf who was paid really well and he had quit doing research and he was 68 years old and we had a light teaching load and he was making \$200,000 basically working 20 hours a week. I don't mind the faculty that are productive, and I think it's good that people aren't forced to retire. But people can take advantage of that and in a university they have a tenure position and if they retire on the job, but they do the minimum....
- Managing expectations. We were expecting more of the faculty and so now the real star performers really got, ended up getting more under this new system. But everybody worked hard even the weak performers worked harder and at the end of the day there wasn't more money.

Strategy for Handling Outside Offers

- [Finance faculty] always thought they were substantially underpaid because they were trained with this market-based model. And they would say well the market is this and therefore I ought to make that. And I would say Sir then you ought to go on the market you know. But you it's the same thing in corporate America. I mean you are never at the market except the day you come in. If you always want to be in the market you are going to be moving constantly.
- Yeah. I have real clear guidelines on that and it basically is two-fold. If you feel you need to go on the market I would like to know early because perhaps there is something we can do about it. And I want to know and I also want to be able to tell you well maybe I don't think I can do something. But then what I want to agree to is that once you then go onto the market ,you know tell me if you are leaving, but don't come in to negotiate about it.
- Or give the faculty member a reality check and say gee, you know, I wish you wouldn't look around but if you look around and get a better job, you have to do what's best for your family and I wish you well and so on. But I want to have a chance to stop that person that I really want to keep.

Innovative Salary Packages

- Term fellowships where they get an extra salary supplement.
- 2/9s summer support

Compression/Inversion

- So we immediately created huge equity problems and inversion problems on salary. And so if you want to hire people that are not making more for you we can hire those people. It's like buying swimsuits at the end of the season. They are deeply discounted and so on.

Interview 9

Types of Faculty Hired

- There is no set policy. It depends upon the particular need in the particular department...the particular needs of the college.
- They kind of got a choice--having kind of the choice that you take the rookie right out of the PhD program or a more senior rookie, if you will, or a more senior faculty member who is already tenured and we use all three strategies depending upon a particular need of the department.

Strategy in Setting Salaries

- We study the market. Well, first of all, we get the data that the AACSB provides and what we look at is the collection of peer institutions, of those that would likely be -- that we are competing with and including also aspirant schools, schools that are you know, a little bit above us and we are trying to catch and so we try to judge the market that way just with the data from last year salaries.
- We also talk to other faculty and other department heads to get a sense of what the market feels like to them and for the salary.
- In the market component [for raises], the department heads evaluate the individual faculty members and place them within the distribution of salaries that we get from AACSB.
- The department head will put them where they think they should be in the distribution.
- We do try to use the zero, if somebody is not performing and they will get a zero raise. It's more often, I suppose, that if you are not performing up to standards, they will get a very small raise but we do use the zero from time-to-time and I would say it's a very low percent.
- When it happens, I never should use the word always-- it is typically an associate professor who will likely remain an associate. They are tenured and they are associate and they are not able to get the full--that's the category that most often would get a zero or a very low raise.

Environmental Forces

- It depends upon who is the provost, you know the upper administration.

College-Level Strategy

- When I arrived here, the salary offers were probably on the lower end of market and now we are trying to stay right with them. We would look at places...that we've been in competition with for faculty. We know that whatever they are doing we got to make sure we are at that level.
- So we push very hard and, as a result, you get some inversion in your salaries, and you get some big gaps but there you have to try correct over time. But if you

want to get the best young faculty into your business school you need to pay at market rates.

- The most important raw material we have, are the faculty. And you've got to get the best you possibly can.

College Culture

- The culture in the sense that this is a research institution. Where we pride ourselves on our research, on our writing, and we pride ourselves and that is our strength. And we also pride ourselves on good teaching but the market is driven by research much more than it's driven by teaching.

Departmental Differences

- [No response]

Biggest Compensation Challenges

- It's we can't hire as many faculty as we would like. As many tenure track faculty as we would like, because of the salaries. And that's not true in many other parts of any of our Universities. Look at English or Physics or History or Sociology or Psychology and all of those places, the salaries are much lower.
- So the University is paying over \$200,000 [for an assistant professor, including benefits and summer support] and getting three courses taught. Now is that, you can hire a lecturer -- a full time lecturer for maybe \$70 -- \$60, \$70, \$80, \$90,000 and get six courses taught. So, you'll see that the business schools across the country are using more lecturers because they have to use more lecturers.
- In my ideal model, you've gotta view your faculty as a portfolio, as a collection of assets. And they have different skills and different talents and different motivations and incentives and they should be treated differently. So you need a whole collection of faculty.
- I would be happy to see us reach a point where we had faculty who taught not at all. Really top researchers doing nothing but research and then we have some faculty who taught two, some taught three courses, some taught four.

Strategy for Handling Outside Offers

- I prefer if they came to me before that and I encourage them to do that, and -- and again the way that the Merit Review System works, that I was talking about. We are able to try to react proactively before -- we don't want them to go on the market. As soon as somebody goes on the market, there is a good chance of losing them.

Innovative Salary Packages

- Doing summer support and reduced teaching loads.

- If you talked to [top 50 dean], they have a system. They will make a high starting offer for an incoming faculty member and then that person doesn't get a raise for 'x' years, it's built in to that initial offer.

Compression/Inversion

- You feel pressure during the Merit Review Process each year. You might have a faculty member makes an appointment, comes in and talks to me or comes in and talks to one of our Associate Deans about the issue. You know they are concerned, they fall on \$20,000, \$30,000, \$40,000 behind others particularly in the Finance and Accounting, where the salaries have just the sky rocketed.
- You have somebody who has been like a faculty for five or ten years or fifteen years and he just -- you know they are just left in the dust with some of these moves and you have to make the move to get the Assistant Professors. You can't say, oh well I'm not going to do it. I'm just not. Market is the market.
- What I tell the senior faculty and others that are getting bypassed by some of these salaries, in the long run it is good for them. And you kind of doubt that, but it is true. And those salaries goes up, the others will benefit from that. They will be pulled up in fact over time by the market.

Differences Between Schools

- And those market rates in lot of cases are being driven by private schools with more money than [list of several top 50 publics]. And while you can't always match the private schools but you got to stay with -- lets' say the top 20 public Business Schools.
- The difference between places like [top publics] and places like [unranked regional schools] is the research. We are research institutions first and the research feeds of the teaching. And, the lower level institutions, I don't mean lower level in a bad sense, but they are just different.

Interview 10

Types of Faculty Hired

- It's a mix and it depends a lot on—we have eight departments—and it depends a lot on the demographics of the department.
- Overall I hire more Assistant Professors than tenured Professors but probably in the last three years it's been close to a 50-50 split between new assistants and tenured faculty members.

Strategy in Setting Salaries

- I don't have a strategy because I don't believe that we deans set compensation levels. I think the markets set the compensation when you are bringing people in.

- So what I try and do is, provide a salary that is equivalent to what they are receiving in the market, not too high above although if it's somebody, I really want, we have a supra-market salary.
- My strategy is -- I am bringing in somebody new, I have got to pay at market price and that's true assistant through chaired professors.
- We do use the AACSB salary survey data. But frankly, for the most part, faculty salaries accelerate so fast that it provides a benchmark, but we're almost always over.

Environmental Forces

- There were two things going in opposite directions. One is that, that, that state funding in almost every state, state support of Universities is declining. Business schools are especially hit by it because the first thing Presidents do, if they are savvy, is they say business schools have other ways of making money, We're going to give less and less to the business school make them stand on their own and we'll take that money and spread it around the University, okay?
- So the business schools, then, in reaction to that they say okay, we've got to be teaching a lot more executive education and a lot more MBA because that's where we make money.
- But now you've got a squeeze because the other thing that's happening is that the competition for research faculty is getting increasingly intense. And research faculty are not going to teach eight courses a year. They are going to teach three courses a year, max, okay. So, now you've committed to teaching more and more students, either in MBA or undergrad.

College-Level Strategy

- In other cases, what I have done is like dealt with whole units. For example, Assistant Professors in Finance, I'm going to deal with you in a particular way and every year I'm going to ensure that you are always at market. I will have individual faculty members that I know are under market and are moveable and I will make a preemptive offer.

College Culture

- [No response]

Departmental Differences

- There is a quite a bit of difference. I wouldn't say any of them are low variance, but the range of variance goes from, literally in one department, \$80,000 Full Professor, \$220,000 Assistant--that's in one department. And in another department we have a range where you do have an \$80,000 Full Professor but the Assistant Professors aren't making \$220, the Assistant Professors are all making below \$130,000.

Biggest Compensation Challenges

- [No response]

Strategy for Handling Outside Offers

- At that point you know if they go out and come back, I'm going to lose a lot more money because then if they were at \$130 and they are getting offer at \$165 you know if I'd have given them \$20,000 I could have precluded them from going out and looking for that other offer. Now, I've got, you know, now they are saying, that now I've got to match at least to \$165 offer and you don't want to get into bidding wars for the most part. That's a bad situation in my view.
- At that point you are paying at market rate, so conceivably I can hire somebody just that good if this person leaves and so if they start paying \$10,000 more than the other school to keep the guy or the woman, then I've overpaid.
- And often times we've said, you know, in the past -- in the past two years when it's happened, I have refused to match

Innovative Salary Packages

- [No response]

Compression/Inversion

- We differentiate a lot. I mean we have got Full Professors making \$80,000 and we have Assistant Professors that are making \$220,000. And so it's -- and you know I think our faculty are pretty used to the idea that I mean -- we are going to have not compression -- we are going to have inversion in a lot of cases.
- And so what they have to understand is, it's kind of like the dividends and capital gains argument. And the reputation goes up, then their market goes up. But they better not ask me for a dividend every time that happens. Because that will -- that will bring down the whole enterprise. I cannot possibly keep everybody up to market. I can keep a set of premier researchers at market that I cannot afford to lose. I will compete for Assistant Professors and always try to keep those people as close to market as I can.

Differences Between Schools

- We have a list of peer schools and we have a list of aspirant schools. We don't rely much on the data that all 400 schools provide because for a school like us it's just irrelevant. I mean that the salaries are so much lower than what top schools are paying, the average is meaningless.

Interview 11

Types of Faculty Hired

- I started recruiting at the senior level, because they became the maypole of it and you know we never bring into junior people when we don't have senior people to mentor them.

Strategy in Setting Salaries

- I look at the distribution of salaries from the AACSB; they give that information on the average, by the deciles, by rank and by discipline. It's the most detailed data for any school or college that you can get, any discipline on campus, business schools have more detailed information. So we use that.
- So I know for example, for the top 10 BusinessWeek or US new schools that all but one is private, in the top 10. I know what the mean and median, the top quartile 75 percentile, what the salaries are. I know how many people are in each one of those positions. I know whether they have been newly hired or whether they it's the people that are not newly hired, by rank.
- It's different, in this university system; it's different in that there can be automatic increases in a year that go across the whole campus. This is true for the whole university system. Every third year a faculty member has an automatic review, in that -- in that automatic review -- and during the third year they would be considered for promotion. Within ranks there are steps and I don't know any other place in the world that has this.

Environmental Forces

- They historically have been in certain disciplines; finance for example. It still true that the accounting but more finance, due to lots of reasons, the salary structures have really been inflated. And it's not a marginal difference between what you pay for a rookie in finance, for us to say even a senior person in organizational behavior.
- There are huge disparities but you have to make it as a rule, you have to say the market rules, if you are not market competitive, you can't ask people to stay with you just because they are good Samaritans.

College-Level Strategy

- There is the recruiting strategy and that is again hiring senior people that will be builders because then you can hire more junior people but you need to have, as I say, head turning type of individuals.
- We raised endowment, or chair money, while we were doing this.

College Culture

- We believe that scholarship and achievement goes hand-in-hand with being a great educator. I mean for us you can't just do one. And so, we require people to

really deliver for our students. So, our culture is really engaging the student as the partner in the process and engaging the faculty as the partner in the process.

Departmental Differences

- No and I'm not going to either [have departments], no matter what our size. I didn't have them at my last school either.

Biggest Compensation Challenges

- The University system is the challenge. Schools in our system wanted to behave more like [the top publics] and to be given more autonomy in defining how they raise money, the tuitions that they set, how much they keep. And in turn they didn't want to take money from the state but they didn't want to give money to the state.

Strategy for Handling Outside Offers

- Well, you need to make a judgment in terms of whether you want to match. This system here, actually it's so structured that it encourages that type of behavior. So you make a decision, do you want to match or try to match that; can you match it, and that really is a matter of valuing the individual. You are looking at all of the implications of doing something like that. So -- would we try to do something, yes, probably.
- There will be individuals who will come in and say that they have a salary offer from the outside and the response will be, I think you should take it.

Innovative Salary Packages

- In addition to that, you just have to make sure that there is not just the nine months base salary, there are lot's of other things to go into the discussion that allow you to be either market competitive and not market competitive.
- It's the summer support and the commitment to summer support, what they need to do to get summer research support and in certain areas like finance and so forth it is simply understood they going to get it at least two months of summer support.
- A competitor school has been giving three months of summer support. They have been giving an extra one month support and then on top of that it's the research environment. Well, how many, what courses will they teach and when do they teach them? All of this really is the package that they look at.
- So, this individual makes a salary that looks like any in industry, simply because of executive education, teaching, and you know overload in Executive Degree Programs. And so, kind of the issue is do you have something that will allow them to supplement their salary if this is something that's of interest to them. What else can you do?

Compression/Inversion

- [No response]

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