2. Professors as Knowledge Workers in the New, Global Economy

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Historically, the configuration and working conditions of professors in the United States have been profoundly influenced by fundamental patterns and shifts in the larger political economy of the country. At the turn of the twentieth century, the industrialization of the American economy and rationalization of the nation-state had profound implications for the changing character of the professorate. Similarly, in the post-World War II era, the rise of the military-industrial complex at the heart of a burgeoning and dominant corporate economy globally had significant consequences for the growth and paths of further development experienced by the academic profession in the United States. Subsequent social movements demanding changes in the demographics of the larger labor force, and the expansion of a broad middle class, also had a major impact on the demographics and expansion of the country's teaching profession. Now, with the latter part of the twentieth century and the turn of the twenty-first century the country is going through a shift to a knowledge and information based global economy, which augurs corresponding and complementary changes in the workforce of the academic profession.

Our review of the literature on faculty opens with a section tracing historical changes in the academic profession in the U.S., from the late 1800s to the present. That background sets the stage for and frames our review of the literature on faculty, which examines scholarship in the following areas: faculty time allocation in the U.S.; faculty salaries and

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labor markets in the U.S.; international patterns of professorial employment and professional power; and socializing faculty as individuals and faculty acting collectively as agents of social change. We see professors as knowledge workers in the new, global economy. That perspective plays out in part in some of the topical divisions of our chapter. For example, we have a section on international patterns, and one on faculty involvement in social change. And in each of the four topical areas we pay attention to change over time. The perspective that grounds our work also plays out in the emerging issues that we identify within each of the four substantive sections in the body of our chapter. In addition to literature reviews that concentrate on the most heavily researched areas on faculty, we target some less studied issues that we believe offer much promise for understanding professors in the new political economic context in which we find ourselves. Those less studied issues reflect the importance of understanding professors as knowledge workers. The new directions we identify also reflect directions that the authors are taking in their own work. Thus, the chapter offers not only review of the literature, but also new conceptualizations of professors and their work.

Historical Overview of the Academic Profession in the United States

With the industrialization and urbanization that characterized the U.S. economy in the late 1800s and early 1900s came several changes in higher education generally and in the character and configuration of the instructional workforce in particular. Most obviously the development of new institutional types such as research universities and later community colleges, and the expansion of teacher training colleges to prepare teachers for the growing public schools, changed the sorts of settings in which faculty members worked. Equally importantly, and correspondingly, the professorate also experienced professionalization, increased specialization, and rationalization.

The turn of the twentieth century saw the rise of professionals in the U.S. (Bledstein, 1976). College teaching provides one of the major examples of what this transformation meant. The occupation of college teaching became consolidated as a full-time career (Finkelstein, 1984), with defined ranks in the roles of faculty members (e.g., assistant professor, full professor) and a defined track of preparation that involved extended education, increasingly the PhD, in a particular subject

(Metzger, 1987). That made for a marked contrast with liberal arts college professors, many of whom had only bachelors degrees, often in divinity, and in a sense who were "amateurs" when it came to the emerging fields in academe. The struggle over who would define and shape these new fields, and would constitute the professorate has been analyzed in the case of several social sciences by Silva and Slaughter (1984). They track the emergence of professional associations in economics, history, sociology, and political science, and examine the leadership and membership of these associations, and the ways in which they define the roles and purposes of academics. What they find is a contest between a rising group of specialists who are aligned with the emerging forces of power in the larger economy, in the rising national, corporate, bourgeoisie, and in the growing national and imperialistic nation-state. In their words, the rising professionals in the academy gained power by "serving power" with their claimed expertise. The political positions this emerging group of academics took on various issues of relevance to industrialists and imperialists, and their conceptions of the roles that academics would play in and outside of the academy differed considerably from the pre-existing group of college teachers, who were much more connected to local, regional, and landed elites. In short, part of professionalization was a redefinition of the nature, position, and purposes of academic expertise.

A key part of the redefinition had to do with the increasingly specialized knowledge which academics came to develop and master. As Weber (1946) clarified, part of industrialization is the ascendance of the specialist over the generalist. And as many scholars have argued, a key claim of professionals is to mastery of a specialized body of knowledge and expertise. Metzger (1987) has traced the extraordinary proliferation of academic fields in the late 1800s and early 1900s, the burgeoning "substantive" growth, through various processes of increasingly specialized and advanced bodies of knowledge, which were being offered in the new higher education institutions (as well as increasingly in the liberal arts colleges — see Geiger, 2000). By virtue of this growth, entry into the academic profession increasingly was a path defined by doctoral education, in many cases in Germany, before the U.S. higher education system had a substantial number of universities with graduate study.

A key part of the transformation of occupations into professions was the channeling of their entrants through advanced education in universities, which became the gatekeepers for all the liberal professions. And this, too, was a key part of the change in the academic profession. Not only were increasing numbers of faculty members working in new

types of higher education institutions, they were working in new sorts of organizational settings within universities (Geiger, 1986). Growing numbers of faculty members were working in professional schools. The most substantial site for this professional education in the first decades of the twentieth century was schools of education within larger universities, for example, Teachers College at Columbia University. Specialized professors in pedagogy, educational psychology, and educational administration proliferated, as the public school system grew and was professionalized.

Finally, during this time period, the academic profession, like the economy and workforce generally, came to be rationalized. In the realm of industrial production in the larger economy what that meant was a standardization of measures and outputs from one part of the country to the next, to enable mass production. Parts needed to conform to standard configurations, and from one industry to the next, national standards for weights, measures, and the like were established. In many ways, the same sort of standardization came to the academy, with the same rationale of scientific efficiency. Barbara Scott (1983), for example, has traced the profound impact in this regard of private philanthropists like Carnegie on the academy generally, and on academics in particular. Two examples capture the essence of this influence. One is the establishment of the so-called Carnegie units, the three and four credit unit measures that still structure most of the coursework we offer in the academy. The standard algorithm for calculating how many hours and how much seat time goes into a unit and into courses enabled and facilitated transferability across colleges and universities nationally. It was a way of standardizing inputs and outputs for the industry of higher education; indeed, that is just how the creators of these units characterized their development. Such standardization had an obvious impact on the structure of faculty work, and the calculation of time allocation in that work in terms of courses offered, and even student credit hours generated. The second example is the portable pension plan for academics that the Carnegie Foundation established in the early twentieth century, which eventually transformed into the corporation, TIAA-CREF. The rationale for creating what was essentially a national retirement system for professors was to enable and facilitate their movement from one institution and state to another; with a national system their mobility would not be constrained and inhibited by their investment in state retirement plans. Part of standardization was ensuring the portability, mobility, and interchangeability of the workforce (the faculty), not only of the work products (the students and courses). Such a retirement plan

also had an obvious impact on making college teaching a lifetime career, considerably more attractive than it had been previously.

Another sort of public philanthropy contributed to the next stage in academe's development, enhancing its mobility, national identity, and influence. In their classic study of the academic profession, Jencks and Riesman (1969) emphasize the profound significance of the post World War II investment by the federal government in the funding of research. The extraordinary level of federal investment in science and engineering in particular, and also in some other fields, such as area studies, contributed to another major transformation in the academic profession, in the places of their work, the purposes and orientation of their work, and in their professional power.

Just as the rise of the industrial economy changed the sorts of fields in which academics were employed, so too, the Cold War economy of the post-WWII era contributed to the growth of new fields of science and engineering (Geiger, 1993). The development and escalation of what President Eisenhower came to refer to as "the military-industrial complex" had spin-off effects for academe, as examined by Stuart W. Leslie (1993) in tracking what he has called the "military-industrial-academic complex." Increasing numbers of professors were employed in fields that were receiving massive federal research subsidies from the newly created National Science Foundation and entities such as the Department of Defense, Department of Energy, and NASA. The biggest winners in this regard were various fields of science and engineering (e.g., Physics, Math, Aerospace Engineering, Electrical Engineering, Nuclear Engineering). However, there were also significant beneficiaries in the social sciences, where, for example, new area studies programs were housed (ironically, and significantly, instead of in humanities departments, which focused on the language and culture of these societies), programs designed to battle communism by contributing to a better understanding of political and economic development in the Third World. Scott (1983) traced the influence of such "public sector philanthropy", as well as of ongoing private foundation philanthropy, on the emergence and growth and location of these new fields of study.

In a very real sense, these new fields were serving power in a Cold War era, just as the emergent social sciences served the nation-state and imperialism at the turn of the century. One of the down sides to that service has been traced by several authors who have detailed the various ways in which academics engaged in self-censorship and censorship of their colleagues (e.g., see Logan Wilson, 1942). Part of the price of orienting the profession to serving power is that it can come to be seen

as dangerous in this context to criticize power, to bite the hand that is feeding you. Thus, Schrecker (1986) and Lewis (1988) have detailed how the academy was "no ivory tower" during the McCarthy era, and how there was a "cold war on campus," which compromised and undermined the academic freedom of faculty members in general.

Another dimension of the changed orientation of professors was that they developed a more national perspective. Therein lies a central thesis of Jencks and Riesman's (1969) study of "the academic revolution." As more and more faculty members received more and more research support from federal agencies, their orientation came to be more national in scope. Correspondingly, their work came to focus increasingly on issues of national concern, issues that would receive support from national, federal agencies. This national orientation is identified by Jencks and Riesman, as well as others, as being essential to the professional belief system; the argument is that a "universalistic" set of professional values is promoted over more parochial, context specific values. Thus, in their book, Jencks and Riesman recognize the continued existence of "other," more locally and less universalistically oriented institutions, such as denominational colleges, women's colleges, "Negro" colleges, and community colleges (or in their words, "anti-university" colleges). None of these "other" types of colleges is regarded very favorably by Jencks and Riesman, to put it mildly. They are characterized as being narrow and parochial, and their instructional personnel are tarred with the same brush. The preferred and dominant part of the academic profession lies in the nationally oriented universities, with their faculty members who are part of national associations and a national community, and who are as or more committed to their "cosmopolitan" associations as to their local institution and community (Gouldner, 1957).

With this more national orientation, in the post World War II era the academic profession came to be characterized by a national labor market. The classic study by Caplow and McGee (1958) captures some of the key features of that labor market. Focusing on an elite institution, a national research university, they aptly detail the norms and mechanisms of the academic labor market. For example, they emphasize that faculty recruitment is shaped not only by abstract, universalistic measures of merit but by a sense of whether in the national community a candidate is regarded as an attractive hire.

The existence of such a national labor market provides individual faculty members with an important source of independence and leverage *vis-à-vis* their employing institution. So, too, as Jencks and Riesman note, do the external grant funds that some faculty members can secure

from federal agencies. Those features of the profession are important for understanding the professional power of academics, within and outside of their institutions. And increasingly, those aspects of the profession become important to study — the nature of labor markets for the national and mobile segment of the profession, versus of other members of the professorate, and the areas and ways in which these nationally oriented, mobile, and grant getting faculty exercise professional authority within the institutions of higher education in which they work.

As many commentators have noted, the title and timing of Jencks and Riesman's work were ironic. Coming out in the late 1960s, "the academic revolution" could easily have been interpreted as referring particularly to the student protests, the civil rights movement as it was impacting the academy, faculty activism and the response it was generating from governance bodies, or simply to the rapid growth of student numbers at the time which transformed the country's higher education system to, in Trow's (1973) terms, one that had virtually "universal" access. This period, and subsequently the 1970s, was one in which the social movements and rapid economic growth and crises of the day, profoundly influenced the configuration and life of the American professorate.

The rapid growth not only of student numbers, but also of institutional numbers during this time period created a demographic "bulge" in the profile of the academic workforce (Finkelstein, 1984; Rhoades and de Francesco, 1987). Large numbers of faculty were hired in what was a job seekers market in the 1960s. And increased proportions of faculty members were working in the rapidly expanding sector of community colleges and comprehensive state institutions (Stadtman, 1980).

Not only were the numbers of faculty members growing, but there was an accompanying growing differentiation among types of faculty, in terms of their orientation to their work as well as their political views. Large numbers of faculty came into the profession with teaching as their primary interest and orientation. Working in the growing sector of locally oriented community colleges, and also comprehensive masters granting state colleges and universities, they were less tied to the federal agencies and national professional associations than were research university professors (Fulton and Trow, 1975). They also generally lacked the corresponding leverage and power on campus that these faculty members had. Ladd and Lipset (1975) further traced the divergent political views that characterized "the divided academy," though as a group faculty continued to be more liberal than other occupational groups (Finkelstein, 1984).

Another significant change that came to characterize the academic profession was the pressure to diversify the demographic profile of the professorate, particularly by ethnicity and gender. The civil rights and women's movements that were influencing employment practices in the larger society were also affecting the academy, where as Lionel Lewis (1975) so clearly demonstrated in his analysis of letters of recommendation, more than merit came into play. The so-called "culture wars" (Shor, 1986) that were played out in educational curricula also played out in the hiring of new faculty members, in affirmative action, tenure cases, and issues of chilly climate for new faculty members (Baez, 2002; Finkelstein, 1984). Moreover, increasing numbers of women began to be hired into the ranks of academe, an occupational realm that had provided limited opportunity to women generally, and particularly to women in science (Rossiter, 1995).

More than just changes in the ethnic and gender profile of faculty began to take effect. Just as increasing numbers of working class students began to enter the academy, so, too increasing numbers of people from working class backgrounds entered the academic profession. As with the students, they came to experience a culture shock of their own, feeling like "strangers in paradise" (Sackrey and Ryan, 1984).

Very shortly after the push to diversify the academy came the fiscal crises of the 1970s, and a constriction in the hiring of faculty. The academic labor market quickly became an employers' market in which in some fields there were literally hundreds of applicants for every position. The dramatically altered conditions of the labor market had a profound influence on the types of faculty who were taking positions in less prestigious, teaching oriented sectors of the academy. Such institutions were able to hire research oriented applicants who a decade earlier would not have considered such positions. Finnegan (1993) has traced the effect of these labor market changes in the differing strata of faculty in comprehensive universities, detailing how different cohorts of faculty in the same institution have very different orientations to teaching and research. Broad labor market developments then, like national and global social movements, can play out in profoundly important ways in the daily existence of and interaction among professors.

Now we have experienced yet another significant transformation in the larger economy. We have moved from an industrial to a post-industrial economy (Bell, 1973), in which the growth sector of industry is services. The shift to an information and knowledge based economy has involved the development of new sorts of production processes. Just as the existence of three and four credit unit courses based on the

Carnegie unit were a product of the industrial economy and standardized, mass production, so the new emphasis, particularly in the less prestigious sectors of higher education, on customized, interchangeable modules that can be delivered at various sites can be linked to the growth of high tech, just-in-time, individualized delivery of services in the broader economy. The structure of work in the academy is influenced by the structure of work in the larger economy. Increasingly, for example, the instructional activities of faculty members are being structured by course management software produced by companies such as Blackboard and WebCT; as education becomes another service to be managed and delivered through advanced information technologies.

In addition to a shift in the structure of the economy, there has been a significant shift in the political ideology that shapes the organization of that economy. The dominant perspective shaping public policy is neo-liberalism, emphasizing the reduction of public sector subsidies, the increased intersection between public and private sectors, with public entities becoming more responsible for generating more of their own revenues, and more accountable for their productivity and efficiency. The result is what Slaughter and Rhoades (2004) have described as "academic capitalism and the new economy." The orientation and purposes of academic work are changing, with profound implications for faculty members' commitments in teaching, research, and service.

Those changing purposes are particularly evident in the instructional programs of community colleges. If historically it made sense to contrast faculty members working in general studies/academic fields, with those who worked in vocational fields of employment, that simple bifurcation no longer captures the reality of community college faculty (Grubb, 1999; Seidman, 1985). Now it is necessary to disaggregate within the vocational programs between those that are connected to old economy occupations such as auto mechanic and those growing numbers of programs that are connected to new economy occupations, such as in many high tech and service sector programs in community colleges, many of which are more selective than the general, academic studies fields, and from which larger proportions of students transfer to four year institutions. At the same time, there is a tight connection between the preparation of students in these new economy fields and the workplaces in which they will be conducting their work. Necessarily, then, as the numbers of these faculty members grow, the orientation of faculty as a workforce in this sector is changing.

Moreover, the very production processes for developing and delivering courses, and for engaging in research and service, are changing

with the shift to an information-based economy. Part of that has been described by Rhoades (1998a) as a process by which academics are increasingly "managed professionals," with academic managers exercising increased discretion in an expanded range of realms in the academy, including the basic strategic orientation of the academy (Keller, 1983). Part of it is also a process by which the internal managerial capacity of colleges and universities to connect with the market has been expanded, with the growth of non-academic, managerial professionals who are involved in producing and generating wealth from the intellectual work of professors and in a range of auxiliary services on campuses (Rhoades, 1998b; Rhoades and Sporn, 2002; Slaughter and Rhoades, 2004). The production of a course, or a student credit hour, now often involves a range of professionals in addition to professors. And the same is true of research, and of research products that are moved to the marketplace.

In short, the nature of the professional workforce in the academy has been changing dramatically. So has the nature of the professorial workforce. As in the new economy the general workforce saw an increase in part-time employment, so too in the professorial ranks, where the proportion of part-time faculty more than doubled in the last quarter of the twentieth century, from 22% of all faculty to around 45% (in some sectors, such as in community colleges, the figure is much higher, in the neighborhood of two-thirds of all faculty). Part-time faculty have received some scholarly attention from researchers seeking to identify different categories of part-timers, such as those who are otherwise employed and teach part-time on the side, and those who hold multiple part-time positions at multiple institutions (Gappa and Leslie, 1993; Leslie *et al.*, 1982). They also have received increased attention from faculty unions, which have been successful in mobilizing faculty in less prestigious sectors of higher education generally, and now are moving to organize less prestigious segments of the academic profession.

Indeed, the growth of various categories of academic employment off the tenure track has led to a new term, "contingent faculty," and to a new energy in the labor movement. It is evident in the "new academic generation" (Finkelstein *et al.*, 1998) of new hires, a growing percentage of which are off the tenure track, and are women and minorities, meaning that there is a gendered and raced dimension to the changing working conditions of professors in the new economy, and in the negotiation between employees and employers to define those conditions. The growth areas of unionization are in these contingent sectors of professorial employment, including in graduate employees such as teaching assistants (Schmid and Herman, 2003). What is happening in this regard to

the faculty is what is happening to the larger workforce in the new economy.

Our purpose in providing this historical overview of the U.S. academic profession is to highlight the connection between developments in the larger society and developments in academe. We hope it has served to set the stage for the topical areas of literature that we review, which also build in a time dimension and a connection to the larger workforce and society. And we also hope it has framed and clarified for the reader why we now see faculty members as knowledge workers in the new, global economy.

ORGANIZATION OF THE CHAPTER

The body of our chapter opens with a treatment of one of the most heavily researched issues with regard to faculty, their time allocation between various work activities. Nearly 40 years of national surveys, dating back to the Carnegie survey of the late 1960s, have gathered data on the patterns of faculty time allocation by institutional type, faculty field, and various faculty demographics and characteristics. For the most part, that work has concentrated on the time allocated to teaching and to research, reflecting an enduring public policy issue. For decades, policymakers and academic managers, and correspondingly higher education scholars, have studied the balance of faculty effort allocated to various instructional and research activities. A central focus of our review, then, is to consider those issues and studies over time. What are the patterns over time in faculty time allocation by institutional type, and by demographic and other characteristics of faculty members? And what are the trend lines, if any, in terms of faculty preferences as to how they would like to allocate their time?

In addition, however, in recent years some studies have addressed faculty's involvement in relatively new activities, largely surrounding patenting and technology transfer. As universities have become more entrepreneurial, and have increasingly encouraged their professors to intersect more directly with the private marketplace, it makes sense to study the extent to which faculty are engaged in a range of such activities. Although there are a limited number of studies, they are important in that they expand our understanding of the new kinds of work activities in which professors are involved.

Finally, we offer some thoughts about how to enhance our understanding of faculty members' work. In conceptualizing faculty members

as knowledge workers in the new, global economy we suggest some new directions in thinking about when and where faculty members are conducting their work. For in the new economy, increasing amounts of work are being conducted at different times and work sites than has traditionally been the case.

A second set of research topics we focus on, which has also been heavily researched, is faculty salaries and labor markets, with a special emphasis on pay inequality. In the larger workforce in the U.S., the level of pay inequality has increased drastically. Because the forces driving these changes may also impact higher education, and because colleges and universities must compete with other employers for faculty, these general changes are quite important for the labor market for professors. We discuss these trends in the overall labor market and also outline trends and changes over time that are specific to higher education, and that could alter salary inequalities among faculty.

We review the literature on changes in pay inequality within the academic labor market. In detailing overall changes in inequality, we also focus on how differences in pay across institutional types and within the same institution have changed. In addition, we focus on patterns of variation and stratification by academic field, gender, and race/ethnicity of the faculty member. As well, we consider research that has focused on segmented labor markets.

Finally, in this section, we map some possible directions for future research. In particular, we discuss the need for research on the process by which pay inequality is increasing. For example, how is the compensation structure of professors influenced by initial salaries, merit adjustments, market adjustments, equity adjustments, and faculty retention packages? And to what extent do forces emanating from the greater economy shape these practices? Further, we offer thoughts about how to analyze the impact of the general shift to a knowledge-based economy. For example, is it useful to define areas of faculty work as more or less closely intersecting or representing new economy areas of employment, and then examining salaries and labor markets accordingly?

The third topical area that we explore with regard to faculty is international patterns of professorial employment and professional power. Although this is an area that has been far less studied empirically than the first two, we believe it holds increasing significance for understanding faculty and higher education in a global economy. A recent international survey of faculty was modeled on national surveys in the United States, and offers insight into various aspects of faculty life across countries.

However, in order to fully understand the findings of such surveys, it is important to address the very different organizational structures and historical patterns of professorial employment and power that define higher education systems in other parts of the world. In turn, that should shed light on the nature of professorial employment and power in the United States. We draw on two literatures to provide this perspective. Starting with work that defines the organizational configuration of professorial employment in European systems, we review comparative research on the different sorts of structures in which faculty members are employed in that system and beyond. We also review the considerable scholarship on patterns of professional power in the governance of higher education systems and organizations.

Finally, we map out possibilities for future research in this area. We point to the particular significance of professors' roles in higher education policy in some developing countries, using the cases of Latin American countries to highlight this role as well as to emphasize the importance of their linkages with various international organizations. In addition, we review literature that highlights the international networks of professors and the ways in which these can impact higher education systems. In both of these cases, we underscore the importance of attending to the global dimensions of faculty work, whether that consists of the international connections and activities of faculty members, or their involvement with various types of international agencies and organizations.

The fourth set of topics around which we review literature combine two quite different levels and foci of analysis: studies of the socialization of individual faculty members, and research on the collective involvement of professors in social and institutional change efforts. We juxtapose these two sets of perspectives to highlight the significance of the analytical approach that is adopted in studying faculty members. The more heavily researched of the areas is the growing literature on preparing the next generation of faculty members. Some of that work addresses the longstanding focus on attracting the best and the brightest into the academy — the driving questions of this work are how to most effectively replenish and prepare the next generation of faculty. Such questions are particularly important given the changing conditions of faculty work. Other work on socialization focuses particularly on the experiences of women and minority faculty members. Here the driving issues have more to do with the experiences of demographically diverse faculty in a profession that has been dominated by Anglo males.

A quite different perspective on the academy comes from literature

that addresses the collective activities of professors, particularly as they relate to promoting various sorts of social change in the working conditions and character of higher education institutions. This is a less heavily adopted perspective. But important examples exist of studies that speak to the collective efforts of women faculty and faculty of color to change the academy. Similarly, there is a small but important literature on the involvement of various types of instructional personnel, including graduate teaching assistants, part-time and contingent faculty members, and full-time, tenure track faculty members, in various unions. Such work highlights the changing character and growth areas of professorial employment in the new economy. And it highlights the role of employees not as simply being subject to such changes but as also taking an active role in shaping institutional direction and change.

Our chapter concludes with a brief discussion of the implications of the conceptualization we are utilizing to frame this chapter. We contrast our perspective with the dominant conceptual frames that have been adopted, and trace the implications of these for the sorts of questions we ask about professors. We then identify some alternative questions that could serve to enrich our understanding of faculty members, and of the changes we are witnessing in their employment, working conditions, and activities. In particular, we emphasize the significance of analyzing faculty members in the context of the broader political economy in which they are situated. In short, we conclude by offering thoughts about what we are coming to know and need to know about professors as knowledge workers in the new, global economy.

FACULTY TIME ALLOCATION IN THE U.S.

A major focus of research on faculty in the U.S. addresses the time allocation of faculty members between teaching and research responsibilities. Our review of this literature begins by briefly setting the stage with the historical roots of the faculty role as teacher and researcher. We then examine studies of faculty members' time allocation between teaching and research activities over the past four decades. Finally, we consider faculty work responsibilities in the recent political economic context of entrepreneurial colleges and universities in the new economy, offering some examples of new directions of research on faculty time allocation that may stem from a conceptualization of faculty as knowledge workers in a post-industrial world.

FACULTY WORK ALLOCATED IN THE U.S.: HISTORICAL CONTEXT

U.S. scholars have discussed varying historical periods from which emerged the academic profession in the U.S., ranging from the late 1700s to the early 1900s. In each of these time periods, significant changes in society and in higher education institutions led to changes in faculty roles and responsibilities and in the allocation of professors' time among various activities. Such structural changes laid the foundations of tensions among work responsibilities that would become heightened in contemporary times.

The 18th century marked the very early shaping of faculty roles, which were almost entirely focused on college teaching. Early American colleges followed a British model, and the instructors were tutors, who had various responsibilities for working with and overseeing students, including teaching them. Generally the tutors were graduates of the institutions who moved right into their tutorial role (Morison, 1936). By the late 1700s there were very few permanent faculty members, an estimated 105 in the entire country, serving in professorships that were often endowed in a particular subject area (Carrell, 1968; Finkelstein, 1984). Originally, these older professors' role was to oversee the more numerous tutors rather than to take on and teach classes themselves.

The 1800s brought a change in faculty roles, as professors came to outnumber tutors in American colleges, due in part to the growth in the size of colleges (Finkelstein, 1984; Rudolph, 1962). Moreover, throughout the 1800s there was an increasing emphasis on specialized knowledge in particular disciplines, coming in considerable part from the of German universities, where increasing numbers of professors had done their training (Tucker, 1984). As the curriculum expanded, presidents appointed professors to teach within specialized fields, changing the earlier pattern of hiring tutors who taught every single subject, in a college version of the little red schoolhouse where one teacher was responsible for all subjects and students. Increased college enrollments furthered this process. For much of the 19th century, most professors continued to be drawn from other careers (especially from the liberal professions of the clergy, law, and medicine). Yet over the second half of the 19th century specialized training and knowledge increasingly took hold (Finkelstein, 1984; Geiger, 2000). With these changes, the significance of the knowledge, relative to the moral and spiritual development and instruction of undergraduate students, became more and more important.

With the turn of the twentieth century came changes that would

make professors' responsibilities quite different from the past and augur the issues that now dominate policymakers' perspective with regard to the faculty role and time allocation. At this time, graduate education and academic research emerged as significant parts of the academic role (Clark, 1995), and the college curriculum expanded even further beyond its past as "a closed box" (p. 119) that had impeded specialized inquiry. Universities and colleges became places not just of instruction in subjects (which would come to displace the emphasis on moral and spiritual development) but also of inquiry (Clark, 1995). The period marked the establishment and development of public and private research universities, the purpose of which was in part "to advance knowledge" (Geiger, 1986). The German model of discipline-specific research took hold in the U.S. (Edwards, 1999; Veysey, 1965), where institutions developed the distinctive American organizational form of instruction-based graduate education. Research university professors were now involved in graduate and undergraduate instruction, and in research as well as teaching.

Moreover, particularly in the recently established land grant universities, professors were also responsible for various service and outreach activities. For some years, in most institutions professors had been involved in what Finkelstein (1984), building on Light (1974) refers to as the "external career" of professors, activities undertaken outside the institution in a professors area of expertise. However, much of this activity in the 19th century, for the significant majority of professors who engaged in it, consisted of involvement in civic affairs. With the turn of the century, the nature of this service was transformed as faculty members were called on to use their expertise in public service, for municipal, state, and federal government (Finkelstein, 1984).

Later developments between the two World Wars, and in the post World War II era would serve to further these patterns. Out of the increased governmental use of and investment in specialized university expertise came increased prominence of the academic profession (Clark, 1995; Geiger, 1993; Jencks and Riesman, 1969). Their expertise was in demand. And their scholarship was increasingly being valued as being relevant knowledge, for military and health purposes, as well as in other realms.

One of the central engines driving many of these changes was industrialization. As discussed earlier, Scott (1983) identified significant mechanisms by which corporate philanthropists effected the rationalization of academe, facilitating student and faculty mobility. Similarly, Damrosch (1995) suggests that the industrial revolution was the key

catalyst in the rise of the academic profession, which he describes as "the industrialization of academic life and work" as the academic field became "a new division of labor" (p. 28). Institutional missions changed from preserving culture to producing knowledge. And what was particularly valued was knowledge that had economic utility (Veysey, 1965), as epitomized by land grant universities that had schools of agriculture and mining. Damrosch also stressed the influence of free market competition spawned by the industrial revolution. Knowledge and curricula were connected to the demands of the rising industrial economy.

Eventually, particularly in post-industrial era in which state budgets became increasingly constrained, competition for external funding extended well beyond the pursuit of federal research dollars. In the latter half of the 20th century, private sector support of university research became more significant. Moreover, colleges and universities began to look more and more to generating their own revenues through entrepreneurial activities in the realms of research, instruction, and service (for a fee, instead of for free) (Slaughter and Leslie, 1997; Slaughter and Rhoades, 2004). As we shall address later, these developments have added another dimension of scholarly activity that needs to be explored in terms of time allocation — entrepreneurial activity.

The model of the research university affected other sectors of higher education. It also at the same time, along with private research universities, came to be increasingly separated from these institutions in terms of faculty work. A division of labor emerged in the missions of various institutions of higher education, with some focusing more on research and graduate education, and others, like the community colleges and public comprehensive colleges and universities that expanded in the latter half of the 20th century, focusing much more on teaching and undergraduate education. Despite this division of labor, there has been a countervailing pattern of "academic drift," in which in the snakelike procession of American higher education (Riesman, 1958; Trow, 1984), the tail consistently tries to follow, and be like, the head institutions. Thus, colleges and universities that offer baccalaureate degrees seek to offer graduate programs, first at the masters and then the doctoral level. Institutions where faculty have historically done relatively little research encourage faculty members to undertake research.

Although different scholars offer different accounts and explanations of the emergence of academic departments and of the academic profession in American higher education, all of them agree that the faculty profession is influenced by various changing social and academic conditions. The major stimuli include the increase in student enrollment,

early German influences on research and scientific knowledge, the emergence of graduate programs, the industrial revolution, and growth in private and public funding for research. As a result, faculty members gained increasing prominence outside of their immediate institutional walls, thereby developing allegiance to a new and sometimes more prominent guardian, the academic discipline. The concomitant competing loyalties and overseers have resulted in the multiple, and sometimes competing, expectations of faculty work. These historical changes and institutional patterns have laid the foundation for the professor as teacher-scholar to experience an increasing tension between the range of work activities in which they are engaged.

Many of the contemporary issues facing higher education are rooted in these historical origins of the academic profession. Faculty are often criticized for their dualistic loyalties — to the discipline more than to the institution. Concerning the research university, Edwards (1999) explains that the way these institutions have developed has resulted in tensions between some institutional needs and goals, on the one hand, and some departmental activities and capabilities, on the other hand (Edwards, 1999). In a period of entrepreneurial higher education, in which managers emphasize productivity and efficiency, in the case of research universities faculty in a given department may align themselves more with the larger scholarly community in that field than with the revenue generating goals of the institution. Or they may come to identify themselves as entrepreneurial small businesspersons, whose innovation and creativity is being stifled by the bureaucracy and "taxation" of the central administration. Within institutions that are more teaching oriented there may be similar tensions between the goals of the faculty and the direction of the institution being charted by academic managers. Faculty members may align themselves more with the functions of the academic profession in providing quality education than with goals promoted by the institution to generate more credit hours in larger classes and more distance education.

In its present state, the organizational structure of a college or university has become increasingly complex and specialized as departments continue to divide and function relatively independently. The continuing growth of departments in modern day institutions has become a response for growing intellectual needs and concerns, through an accretion of additional units as opposed to extensive restructuring. Indeed, the specialization is such that Becher (1989) argues the historical developments of the 20th century have undermined any hope of developing a collective university culture. He reasons that the semiautonomous

department has become the basic element of most institutions with the broader national disciplines as the most strongly determining factor affecting how faculty operate. Similarly, Boyer (1990) maintained that as a result of departmentalism, the curriculum had become fragmented, leaving the educational experience lacking coherence. Out of such sentiments have come the recurrent policy deliberations and managerial initiatives over the past thirty years in relation to faculty members' allocation of time between teaching and research.

FACULTY RESEARCH AND TEACHING ALLOCATION

With the preceding in historical context in mind, in this section we review recent research and examine data in exploring how faculty work can be understood in contemporary times. Key questions that are addressed include, Are there any significant differences in faculty time allocation to research and teaching by disciplinary field or institutional type? How might demographics (i.e., gender, and race/ethnicity) differentiate patterns of time allocation among faculty members?

Faculty work allocation, for the most part, has been examined in terms of time spent on research and teaching. Most of the higher education literature treats the two activities as discrete dimensions of work, in contrast to Clark's (1995) understanding of the teaching/research nexus, or Colbeck's (1998) analysis of joint production activities that combine teaching and research (e.g., working with a student in a lab). For instance, using the 1988 National Survey of Postsecondary Faculty (NSOPF), Fairweather (1996) points to a negative relationship between time spent on research and time spent on teaching ($-.62$) among faculty from all types of institutions.

The findings about time on teaching over time are more mixed than the general perception among policymakers would lead one to believe. Consistent with the general view, in examining this relationship over time, Finkelstein, Seal, and Schuster (1998) utilize NSOPF data to report that faculty time spent on teaching declined while time conducting research increased when comparing faculty in 1969 to faculty twenty years later. They also note that from 1969 to 1989, the percentage of faculty indicating a primary interest in teaching dropped from 76 percent to 72 percent, and faculty indicating teaching effectiveness should be the primary criterion for promotion dropped from 77 to 69 percent. They add that faculty in 1989 prefer to spend less time on teaching and more time on research compared to faculty two decades ago. Milem *et al.*

(2000) on the other hand, utilize ACE and HERI data and find that faculty time spent on research and on teaching activities both increased from 1972 to 1992 in all types of four-year institutions.

The findings about time on teaching depend on the measure one uses, and on the time frame. The data above refer to time on all activities related to instruction. But if the measure is classroom hours or student contact hours, not including class preparation or time spent advising, and if the time frame is 1975 to 1992, faculty time spent teaching undergraduates has remained essentially the same in research and doctoral granting universities, and has declined slightly in comprehensive universities (Finkelstein, 1995). And from 1987 to 1992, a time of considerable public criticism of faculty time spent on teaching, classroom and contact hours increased in all four year institutions except liberal arts colleges, where the time allocation remained the same (Allen, 1996).

More recently, 1989–90 and 2000–01 Higher Education Research Institute's (HERI) faculty survey of a different national sample of institutions show that between 1989 and 2001, time spent on teaching decreased while time spent on research increased (Astin, Korn, and Dey, 1991; Lindholm, Astin, Sax, and Korn, 2002). However, the percentage of faculty with a primary interest in teaching has remained relatively steady, even increasing very slightly from 72 percent in 1989 to 73 percent in 2001 (Astin, Korn, and Dey, 1991; Lindholm, Astin, Sax, and Korn, 2002). Moreover, another study of public research universities during this same time period found that a substantial minority of departments actually implemented increased teaching loads during this time, whereas very few reduced faculty members' teaching loads. And most units experienced an increased emphasis on the importance of teaching in the promotion and tenure process, though research remained the most important factor (Leslie, Rhoades, and Oaxaca, 1999). Finally, analyzing ACE and HERI data, Milem *et al.*, (2000) call into question the prevailing view about faculty and teaching, finding that where there are decreases, in research universities, they are due to reduced time spent on student advising.

The trend line data also tend to underplay the fact that overwhelmingly the academic profession is still a teaching profession (Finkelstein, 1984). As the data above indicates, the vast majority, upwards of two-thirds of faculty members nationally, have a primary interest in teaching and believe that it should be the primary criterion in their review. Moreover, in terms of absolute hours, the time spent on teaching still generally outweighs that spent on research, even in public research universities.

As might be expected, there are significant disciplinary differences in the allocation of time between research and teaching. Some scholars define those disciplines in terms of level of consensus about the paradigm defining knowledge in that realm. Studies tend to find that faculty members in so-called "high consensus fields" (i.e., chemistry, physics, and mathematics) generally tend to be more research-oriented than are faculty in so-called "low-consensus fields" (i.e., social sciences), who tend to have heavier teaching loads (Braxton and Hargens, 1996). (As we discuss below, other scholars attribute some of these variations to the demographics of faculty members in those fields; and still others define these fields more in terms of their relationship to external markets than to internal epistemological characteristics.)

Some additional analyses utilizing the 2000–01 HERI Faculty Survey elaborate these differences, as well as the overriding pattern, which policymakers often overlook. Faculty in the humanities spend significantly more hours per week teaching and preparing for teaching (i.e., English mean = 8.62), than do faculty in the social sciences (i.e., Social Sciences mean = 7.34) and sciences (i.e., Engineering mean = 6.82). Conversely, faculty in the sciences spend significantly more hours per week engaging in research (i.e., Engineering mean = 3.83) than do faculty in the social sciences (i.e., Social Sciences mean = 3.33) and humanities (i.e., English mean = 2.65). However, as the mean figures reveal, regardless of the field, faculty spend far more hours per week on instructional than on research activities, more than twice as much in the humanities and social sciences, and nearly twice as much in engineering.

Several explanations can be posed for the discipline-based differences. The amount of resources and value placed on discovering new knowledge correlates with the amount of time apportioned for research (Clark, 1987). Faculty in resource-poor departments, such as the humanities, are more involved with teaching and less involved with research in contrast to the resource-rich fields of physics and biology. The differences reflect the vastly different investment of the federal government in research in these fields. The humanities are less subsidized federally than are the sciences. Thus, faculty in the science fields (especially in research universities) tend to have a higher proportion of faculty with research grants, more research and teaching assistants, costly laboratories and equipment, and quite often, lighter course loads than faculty in the humanities and social sciences. Science faculty are also more likely to teach smaller-sized graduate courses, which are not only specialized but are inclined to relate to the faculty member's research. For many scholars working out of any of a number of functionalist

Table 2.1: Comparing Teaching and Research Means by Institutional Type

Number of hours per week	Institutional type		
	Two-year colleges (N = 3,787)	Four-year colleges (N = 25,794)	Universities (N = 20,381)
Teaching (including preparing)	8.94*	7.97*	6.61*
Research	1.58*	2.53*	3.90*
*P < cleaned_tag differences include rank, tenure status, level of education completed, family responsibilities, and age.			

perspectives, particularly those working out of a human capital perspective in economics, discipline based workload variations reflect different "production functions". As the argument goes, it is more expensive to teach engineers because of the equipment and in some cases because of class sizes that are required. Other scholars, working out of critical and feminist perspectives point out that those differences reflect different socially constructed valuations of what sorts of knowledge society chooses to subsidize and support. Above and beyond the effect of productivity and production functions, they refer to the halo effect of being in certain fields.

Differences in faculty time allocation can also be found by the type of institution in which the faculty member works. Consistent with the institutional missions, in comparing research and teaching by institutional types, faculty members in research universities spend more time on research than do those in other types of institutions (comprehensive, liberal arts, and two-year colleges), whereas faculty members in two-year colleges spend more time on teaching than do their colleagues in research universities (Boyer, 1990; Finkelstein, Sears, and Schuster, 1998; Sax, Astin, Korn, and Gilmartin, 1999). As shown in Table 2.1, the ANOVA results compare hours teaching and researching by institutional type. Clearly, faculty in two-year colleges engage in more teaching and less research than faculty in four-year colleges and university.

Nevertheless, holding such variables constant, there still is a gender effect in faculty time allocation. It remains to be determined the extent to which that effect is a matter of differential preferences or differential treatment in workload assignments.

There has also been a growth of faculty of color across all institutional types and disciplinary fields, although the increase has not been

Table 2.2: Comparing Mean Hours per Week Teaching by Race

		Subset for alpha = .05		
Race	N	1	2	3
African American/Black	1200	7.11		
Asian American/Asian	1940	7.28	7.28	
Mexican American/Latino	1277		7.44	
White/Caucasian	44833		7.49	
Native American	628			7.80

as significant as in the case of women faculty, who have increased from 17 percent to 40 percent of all faculty members (Finkelstein, Seal, and Schuster, 1998). As with women, it appears that faculty of color are characterized by distinctive patterns in time allocation in comparison to white faculty. Some research in comparing white versus nonwhite faculty suggests that although white faculty tend to produce a higher number of publications than nonwhite faculty, some groups of nonwhite faculty spend more time on research than white faculty (Antonio, 2002). Tables 2 and 3 further detail differences in faculty hours conducting research and teaching when disaggregated by race/ethnicity.

As with women faculty, the above differences are partly attributable to factors such as institutional type, disciplinary field, rank, and the like. Still, it appears worth exploring the distinctive effects of race and ethnicity on faculty time allocation, and to determine the extent to which they are matters of differential preference or differential treatment.

In closing this section on faculty time allocation between teaching and research, it should be mentioned that research on service is less available. Service is not only largely overlooked in faculty evaluations and in promotion and tenure decisions, it is also largely overlooked in

Table 2.3: Comparing Mean Hours per Week Research by Race

		Subset for alpha = .05		
Race	N	1	2	3
Native American	626	2.82		
African American/Black	1200	2.86		
White/Caucasian	44108	2.93	2.93	
Mexican American/Latino	1263		3.10	
Asian American/Asian	1927			3.96

the literature. One of the added difficulties in measuring service is a lack of consensus on what activities constitutes "service." While some may consider faculty contact hours with students outside of class as one form (Milem, Berger, and Dey, 2000), others include paid consulting in the same category of "service" (Fairweather, 1996; Finkelsten, 1984; The Carnegie Foundation for the Advancement of Teaching, 1989). In essence, almost any professional activity outside of teaching and research can be labeled as "service." Although the general term of service remains ambiguous, questions that directly ask about service provide us with some insight. According the 2001–2002 HERI Faculty Survey National Norms Report (Lindholm, Astin, Sax, and Korn, 2002), when asked to report the average number of hours per week spent on "community or public service," about a third of all faculty report spending 0 hours, slightly over 50 percent of all faculty spend 1 to 4 hours, approximately 10 percent of all faculty spend 5 to 8 hours, and the remaining 4 percent spend 9 hours or more.

As with teaching and research, there are some differences by gender and race/ethnicity. When comparing men versus women, men participate in less "community or public service" than do women (65 percent versus 70 percent, respectively) (Lindholm, Astin, Sax, and Korn, 2002). Another survey reports a similarly sized gender gap, of more women faculty having "performed service/volunteer work in the community" than men (Antonio, Astin, and Cress, 2000). The same study indicates that faculty of color are more involved in service and volunteer work than white faculty. Also, Antonio (2002) reports that 49.6 percent of faculty of color have advised student groups involved in community service in comparison to 37.4 percent of white faculty. More faculty of color view providing services to the community, engaging in outside activities, influencing social change as "very important" than do white faculty (Antonio, 2002). Such differences by gender and race and the little value given to service when making promotion and tenure decisions may be a factor in the concentration of faculty of color in lower ranked positions with lower salaries.

While the lines distinguishing time spent on research versus teaching can be fuzzy, so can time spent on service versus teaching, particularly in the case of service learning. Faculty members who teach service learning classes not only educate students, but also tend to serve local needs within the institution or community. Questions arise as to how to recognize such efforts: Should service learning "count" towards teaching, or service, or both? And if faculty members conduct research on their service learning projects, how should time spent on a service learning

class be classified? Such ambiguity about the role of service learning in the reward structure might help explain why so few faculty are involved in service learning (Ward, 1998).

Difficulties in categorizing research, teaching, and service are further perpetuated when taking into account revenue-generating activities. While industry-sponsored activities are most often in the form of research, consulting can take the form of service. Increased pressures to generate revenue has the potential to largely reshape faculty work. Leslie, Rhoades, and Oaxaca (1999) found that in public research universities, external grant and contract funding has a negative effect on time spent on instruction and a positive effect on time spent on teaching ad service. They also note that external grant and contract funding increases the probability of engaging in joint production, which supports the notion of the interrelatedness between teaching and research

FACULTY WORK IN THE NEW ECONOMY

The restricted focus of most research on faculty time allocation, on a simple dichotomy between teaching and research, ironically features a more industrial era focus on efficiency that does not sufficiently address post-industrial era changes in faculty work. In conceptualizing faculty as knowledge workers in the new economy, we suggest three basic paths that future research on faculty work should follow. One has to do with the type of activities research should address. A second has to do with the types of faculty employees research should address. And the third has to do with where and when faculty members are engaged in their work activities. Each of the above points speaks to patterns that define work in the new economy.

For the most part, not only do time allocation studies largely adopt a bifurcated focus on research versus teaching, they also adopt an insufficiently disaggregated focus on what is meant by research and teaching. Consider the case of involvement in entrepreneurial activities. The extent and impact of faculty entrepreneurial activity is arguably greater today than ever before (Slaughter and Leslie, 1997; Slaughter and Rhoades, 2004). However, thus far, the work that we find in this realm concentrates only on faculty involvement in entrepreneurial research or in consulting, and on the extent to which such activity takes away from time on teaching. Thus, some scholars question whether faculty members are able to maintain a commitment to the teaching while engaging in entrepreneurial research activities, adopting the same trade-off perspective as

that characterizing most studies of time allocation (Fairweather, 1996, 2002; Lee and Rhoads, 2004; Slaughter and Leslie, 1997). For example, Fairweather (2002) found that only 22 percent of university faculty members were productive in both teaching and entrepreneurial research, whereas about 50 percent of faculty members in research universities were productive in either entrepreneurial research or teaching. Bird, Hayward, and Allen (1993) found conflicts between academic and entrepreneurial activity in that that among research science faculty, time spent on teaching and the number of courses taught diminishes the likelihood of being involved in entrepreneurial ventures. Conversely, faculty who obtain external funds for their research are often able to "buy out" of their teaching load and thus be able to devote more time to their research project. Institutions often hire less expensive instructors, sometimes part-time, and sometimes graduate employees, to fill in the teaching load. And these groups constitute a growing percentage of faculty members nationally.

Similarly, consulting has been negatively linked to time on instruction. Marsh and Dillon (1980) point out that the amount of supplemental income from consulting activities positively relates to research productivity but negatively relates to teaching activities. Perna (2002) finds that the percentage of time faculty members devote to teaching is negatively related to the likelihood of earning consulting funds. With increased entrepreneurialism, undergraduate and graduate students can be negatively affected as entrepreneurial and consulting faculty may be absent from the institution for extended periods of time. Such evidence is worrisome as The Carnegie Foundation for the Advancement of Teaching (1989) reports that the percentage of faculty having served as a consultant to private business or industry has increased steadily since 1975.

Too little research explores the nature of involvement and time allocation to various types of entrepreneurial research activities. Some of the exceptions chart the way for future scholarship. For example, Slaughter and Rhoades (1990) have examined the social relations surrounding science that are "re-normed" as faculty members get involved in entrepreneurial research; the nature of their involvement with students changes. Subsequently, Slaughter *et al.*, (2002) explored the ways in which faculty involvement in entrepreneurial research led to a "traffic in students" that redefined interactions between faculty and students. And Louis *et al.* (1989) studied life sciences faculty involvement with entrepreneurial research across a range of activities. Yet most of the above studies do not focus particularly on time allocation. We believe it is

important to get a more refined sense not only of what sorts of entrepreneurial research activities faculty are engaged in, and how that is affecting their relations with students (and with each other), but also what sorts of time they are spending on these activities.

The prevailing trade-off focus is interesting because part of the push for faculty members and higher education institutions to engage more directly with the private sector is grounded in the belief that such involvement will serve students well, by making faculty members, curricula, and higher education more responsive and relevant to the so-called real world. There are all sorts of joint production and mutual benefit studies that need to be done to explore that belief, and to understand faculty time allocation in more complex ways. For example, faculty members engaged in entrepreneurial research may spend less time with students in the classroom, but more time with students in important out-of-class realms. It's important to know the extent to which faculty interaction with students outside the classroom is in office hours on campus or is in off-site settings, or in settings that incorporate parties from the private sector.

The case of community colleges helps clarify the significance of this point, as well as of another, about the significance of exploring time spent on entrepreneurial instructional activities. One of the selling points of community colleges is that they have large numbers of faculty with experience in the private sector, who can more effectively prepare students for work in the "real world". Students are said to benefit from faculty engagement in consulting activity, for instance. Huber (1997) reports that 78 percent of community college faculty indicated having worked in some form of consulting, over half with educational institutions, one third with industry or business, a fifth with the local government, and a fifth with social services. Almost 30 percent of community college consulting faculty members were paid and about 25 percent perceived consulting as an economic necessity. That range of activity is important for understanding how faculty members spend their time. Rather than seeing it simply as a trade-off, as something that takes away from instruction, it is worth considering the extent to which there are joint production or mutual benefit dimensions to this involvement.

The case of community college faculty also raises the significance of focusing on entrepreneurial instructional activities. Slaughter and Rhoades (2004) see this as one of the key dimensions of "academic capitalism and the new economy"; partly through the expansion of instructional technologies, entrepreneurial activity in instruction is a

booming business. The most obvious example of this is distance education, and on-line, for profit ventures that have been and are being run by research universities such as Columbia University and the University of Maryland, College Park. But colleges and universities are also increasingly investing in high tech, on campus instruction, developing educational materials and software programs for managing courses that can be sold in the private marketplace. There is very little exploration of this high tech, new economy activity in the literature, which would help us more fully understand the dimensions of entrepreneurial activity in the academy. For the work on research on entrepreneurial activity has focused on quite a restricted range of disciplines. But there are other types of entrepreneurial activity in other fields, as Lee and Rhoads' (2004) work has demonstrated. They found that research entrepreneurial activities tend to take place most often among faculty in these sciences (i.e., Biology, Engineering, and Physical Sciences). However, faculty members in applied fields (i.e., Engineering, Education, Business, and Health Sciences) tend to participate in more consulting than faculty in the basic academic fields (i.e., Humanities, Math, English, and Biology) (Boyer and Lewis, 1985; Kirshstein, Matheson, Jing, and Zimbler, 1997; Lee and Rhoads, 2004). And a large proportion of faculty in fields such as Fine Arts do so as well: Lee and Rhoads (2004) demonstrate that entrepreneurialism is an institution-wide issue: approximately 40 percent of faculty in the Fine Arts had engaged in some form of consulting activity.

The point is that our understanding of faculty involvement in entrepreneurial, new economy activities is incomplete. We have an inadequately disaggregated understanding of involvement in a range of activities, and of the relationship between that involvement and interaction with students. We also have an insufficient understanding of the time that faculty members are allocating to those activities.

Another gap in the time allocation literature lies in the types of faculty we focus on. Overwhelmingly, the focus is on full time, tenure track faculty. Yet the growth sectors in academic employment lay elsewhere, in part-time faculty members, and in a range of "contingent" faculty positions such as non tenure-track, full-time faculty members (Baldwin and Chronister, 2001). These map onto the growth areas of employment in the new economy, which is characterized by an increasingly casualized and contingent workforce. Although these faculty members may be more difficult to gather data on, they are an increasingly important part of the academic workforce, in instruction, research, and service. It is important for us to follow Baldwin and Chronister's lead in

focusing on the characteristics and work patterns of full-time, non-tenure track faculty members, exploring the time allocation patterns of these members of the academic workforce, by institutional type, discipline, and demographics.

It is also important to not simply treat these categories of faculty members as discrete, isolated members of the workforce. There are various questions surrounding the joint production activities of these faculty members, who often work in relation to or under the supervision of full time, tenure track faculty. Again, rather than viewing these faculty members as a trade-off, separated off from full-time, tenure track faculty, to fully understand faculty as knowledge workers in the new economy we need to examine their allocation of effort in realms involving joint work with the traditional faculty workforce.

Finally, we offer a few thoughts about the issue of work site. One of the defining features of new economy work is the increasing fluidity of the boundaries between work and personal space. In the general workforce, concepts such as 24/7 and telecommuting, facilitated by various communications technologies, point to the fact that more work is being done outside the formally defined workplace of an organization. Similar patterns apply to faculty members. The average hours per week that faculty members report working has been around the mid to upper 50s for several decades. And faculty members have long done some of their work in places and spaces outside of their offices and labs, and off campus. But with the increased use of new technologies, particularly in the realm of instruction, and interaction with students, we believe there is reason to believe that increasing amounts of time are being allocated to work that takes place off campus and outside of what would be regarded as normal working hours. Similarly, with the growth of sectors of faculty members such as part-timers, who have far less access to office space, there is good reason to believe that an increasing amount of academic work is being conducted out of the office and off the campus site. At the very least, there is good reason to gather data on time allocation that concentrates on when and where work time is allocated. How many hours per week are faculty members spending interacting with students on e-mail or on course management systems, and what proportion of those hours are spent in the office during daytime work hours versus at home or other off campus sites and/or outside of typical working hours? It is when we start conceptualizing faculty members as knowledge workers in the new economy that such questions come to mind.

FACULTY SALARIES AND LABOR MARKETS IN THE U.S.

Many of the fundamental changes in the economy discussed earlier could directly impact the structure of compensation at colleges and universities. In this section we examine the extent to which salary differences among professors have changed, with an emphasis on the level of salary inequality. Because this chapter's central theme is that any analysis of faculty work requires consideration of forces that affect the labor market in general, we start by reviewing how salary inequality has changed for all workers.

The level of wage inequality in the U.S. has increased dramatically over the last thirty years (Card and Dinardo, 2002; Deere, 2001). Some disagreement exists over whether the increase occurred exclusively in the 1980s or the increase was spread over three decades. However, all scholars agree that wage inequality is much higher today than it was in the early 1970s.

Past research has provided two general explanations for this increase, with much disagreement existing over the relative importance of each. The first focuses on changes in institutions and policies such as the fall in unionization rates, the decline in the real value of the minimum wage, and expanded economic deregulation. A large body of literature provides evidence suggesting these forces were responsible for a substantial part of the overall increase in wage inequality (for example, DiNardo, Fortin, and Lemieux, 1996; Fortin and Lemieux, 1997).

The second explanation, commonly called the Skill-Biased Technological Change (SBTC) hypothesis, claims that a fundamental change in the economy has occurred that altered the relative demand for different types of workers. In particular, employers have increasingly valued skilled workers, driving up their wages relative to others. There is some variation among SBTC scholars in terms of whether they claim there has been an increase in demand along every dimension of skill (Juhn, Murphy, and Pierce, 1991, 1993) or whether there has been an increase in demand mostly for those workers who use computers (Autor, Katz, and Krueger, 1998).

Although it is likely that both explanations contribute to the increase in wage inequality among workers generally, the exact share to assign to each may not be crucial for our purposes because some of these explanations are not especially relevant for the specific case of the academic labor market. For example, the wages of faculty are not substantially affected by changes in the minimum wage. In addition, changes in the demand for different types of employee skill likely differ between

higher education and the general economy. Researchers have long suggested that the production process within colleges and universities is fundamentally different than other organizations precisely because it is so labor-intensive and not amenable to technological changes that enhance efficiency (Baumol, 1967; Bowen, 1967).

At the same time, some of these factors are quite relevant for academic labor. For example, there has been an increased valuation of techno-science, and a bias towards investment in these fields of academe (and thus in faculty working in those fields), both within higher education institutions and within federal and state government (Slaughter and Rhoades, 2004). In addition, the direction of unionization among faculty is the reverse of unionization in the general workforce — the ranks of unionized faculty have increased over the past forty years (unionization in academe emerged and expanded in the 1960s and 1970s — see Rhoades, 1998a). Finally, although in many ways colleges and universities are increasingly monitored by government in regards to quality and productivity, in other regards, particularly with respect to revenue generation, they have been deregulated, enabling them to act and become more like private sector enterprises.

Perhaps most importantly, the overall increase in wage inequality in the general labor market is quite important for higher education institutions because they must compete with other employers for faculty. We would expect those professors who possess skills that are increasingly rewarded elsewhere in the labor market to enjoy the greatest increases in academic salaries and those with less rewarding employment options to lag behind. In short, we would expect compensation practices in the academic labor market to respond and correspond to such changes in the larger labor market.

Other trends specific to higher education may also have served to promote greater inequality. For example, the increasing use of corporate management practices within academe has likely contributed to increased salary inequalities. There is some evidence that salary adjustments for faculty are increasingly based on not just merit but also on market criteria, which would heighten salary inequalities. Rhoades (1998a) has found that to be the case for unionized institutions. And in many non-unionized colleges and universities, across the board cost of living adjustments, as a share of total salary increases have declined, as adjustments are increasingly based on merit, and merit is increasingly defined in ways that limit the number of faculty who can receive increases. Moreover, in a period of increasingly entrepreneurial colleges and universities focused increasingly on revenue generation, the criteria used to

define what fields and faculty are seen as valuable and worthy of increased investment are also changing; fields of study that are perceived to have greater potential to generate revenue are especially favored, and this differential valuation has likely contributed to greater salary inequality among faculty (Slaughter and Leslie, 1997; Slaughter and Rhoades, 2004).

A change in the relative economic strength of different colleges and universities likely has played an important role as well. The stagnation in state appropriations has caused public institutions to fall substantially behind their private peer institutions (Alexander, 2001). Even within institutional type, inequality across institutions in their financial resources appears to be increasing, and the very different saving patterns across institutions will likely cause these disparities to grow in the future. These points have been demonstrated in a series of papers in the Williams Project on the Economics of Higher Education (www.williams.edu/wpehe).

Such trends are likely to be important for at least two reasons. The first reason is obvious: institutions are constrained in their salary offerings by their level of financial resources. A second, less obvious effect may be the response of those institutions that are falling behind financially, but wish to remain competitive with wealthier institutions. Many of these institutions are increasingly seeking to provide competitive salaries for top faculty in only a few fields while forgoing increases for faculty elsewhere (Alexander, 2001; Leslie, Oaxaca, and Rhoades, 2002).

Changes in Salary Inequality Among Faculty in the U.S.

We now turn to a review of past research that details how the level of inequality in faculty salaries has changed over time. Very little work has thoroughly examined the overall level of pay inequality among professors, but a paper by James Monks (2003) that uses data from the National Study of Postsecondary Faculty (NSOPF) recently filled that void. Monks first demonstrates that salary inequality among professors grew between 1987 and 1992 and even more substantially between 1992 and 1997. He finds that the variance of the natural log of earnings, a common measure of pay inequality, increased by 40% between 1987 and 1998. Much of the increase was driven by especially large increases in the upper tail of the distribution containing the highest paid professors. Bell (2000) provides additional evidence that the wages of faculty superstars are growing by demonstrating that the mean salary for professors was growing faster than the median.

Monks (2003) decomposes the overall inequality for each year into the share due to differences in average earnings across institutions and the share due to inequality within institutions. He finds that roughly two-thirds of the inequality in any given year is due to differences within institutions. In addition, within-institution inequality increased by 49% between 1987 and 1998 while between institution inequality only increased by 29%. Because most of the previous work examining salary inequality focused solely on the growing inequality between institutions, this finding suggests that the estimated increase in pay inequality is quite larger than previously thought.

Much of that previous work focused on the growing salary differential between public and private institutions. Salaries at private schools grew relative to their public counterparts for the 1980s and early 1990s, but this gap remained relatively constant during the late 1990s (Alexander, 2001; Hammermesh, 2002). The most extreme disparities were among Research I Universities (using the 1994 Carnegie classification), where by 1998 professors at public universities earned only 77.4 percent of what their counterparts at private universities earned. The corresponding figure for 1980 was 98.1 percent (Alexander, 2001). This trend is not surprising because state funding to public institutions stagnated during much of the 1980s and 1990s with a brief respite during the economic boom of the late 1990s. While publics did increase other sources of revenue, the increases did not close the private-public gap. Thus, tuition increased at similar percentages for both types of schools over the period, but private institutions benefited more from tuition increases because they had a larger increase in actual dollars because of their larger tuition levels at the beginning of the period (Ehrenberg, 2003a, 2003b).

Regardless of the cause, the growing salary gap between public and private institutions will make it difficult for publics to attract and retain top professors. Zoghi (2003) finds that the lower salary increases at publics were not offset by increases in other nonpecuniary benefits. Because Ehrenberg, Kapser, and Rees (1991) demonstrate that professors are less likely to continue at a school when their salaries are lower, it is not surprising that Ehrenberg (2003a, 2003b) finds that continuation rates were indeed lower at publics relative to privates during the 1990s.

Other work demonstrates that inequality in average faculty salaries is increasing across institutions within both the public and private sectors (Ehrenberg, 2003a, 2003b). Bell (2000) provides evidence that much of the increase in inequality is due to the highest-paying institutions moving even further ahead of the others. Closer examination of these trends

suggests that much of the increasing inequality across publics is due to growing inequality in state appropriations and much of the increase across privates is due to growing inequality in endowments (Ehrenberg, 2003a, 2003b).

We know much less about within-institution inequality, which is troubling because as discussed above, most of the inequality in any given year as well as most of the change in inequality between 1987 and 1998 is due to differences within institutions. Monks (2003) is the only author that attempts to directly tie the level and change in within-institution inequality to different faculty characteristics. He finds that when controls for a faculty member's rank, experience, tenure, and seniority are added, the within-institution variation of earnings is reduced by 40 percent and the increase in this measure over time decreases by approximately one-third. Adding controls for field or gender, race, and citizenship do not dampen the increase in within-institution inequality, though controls for field do reduce the level of inequality by approximately 10 percent.

Much more research has examined pay differences by these faculty characteristics as the central part of the analysis, as opposed to just a possible explanation for within-institution inequality. The annual survey by the College and University Professional Association for Human Resources provides the data most commonly used to describe salary differences across fields. A review of a survey from any individual year demonstrates tremendous heterogeneity across fields. For example, professors in legal professions and studies received $109,478 on average in 2003/04 while the counterparts in liberal arts and sciences, general studies, and humanities received an average salary of $52,234 (Smallwood, 2004). Pay inequality across fields grew between 1976 and 1987 (Hamermesh, 1988), and the trend continued into the 1990s (Rhoades, 1998a).

The most studied aspect of faculty salaries regards differences by gender. Aggregate data for all full-time faculty members at degree-granting institutions of higher education demonstrate that the average salary for women is around 20 percent lower than that received by men. This pay gap has been remarkably constant between 1972 and 1999, with a small increase in the early 1980s and a similar-sized decrease in the mid-1990s (National Center for Education Statistics, 2002, Table 235). These trends differ from the general labor market, which experienced a narrowing of the male-female pay differential during the 1980s and early 1990s (Blau and Kahn, 2000).

Barbezat (2002) provides a thorough review of the numerous studies that examine the size of the pay differential between genders that exists

after controls for other determinants are added. Unlike the aggregate trends discussed in the previous paragraph, these studies often focus only on faculty at four-year institutions. In general, once controls are added for other predictors of salary such as highest degree, experience, number of publications, field, and institutional type, a gap (often called the unexplained gap) of around 10 percent still exists. While the inability to add controls for important unobserved determinants of salaries may result in these estimates over-stating the degree of discrimination, under-estimates will occur if the included controls hide structural discrimination. For example, the low-wages exhibited by fields populated by women even after controls for outside job opportunities are included suggests that some of the differences by field reflect gender discrimination (Bellas, 1994, 1997).

The size of the unexplained gap has appeared to change somewhat over time. Estimate from 1969 provide a gap of 10–14% while estimates from various points during the 1970s produce a much lower range of 6–10% (Ashraf, 1996; Barbezat, 1989; Ransom and Megdal, 1993). Studies using data from the 1980s and early 1990s demonstrate that no substantial reduction in gender inequality occurred during this period (Ashraf, 1996; Barbezat, 1989; Ransom and Megdal, 1993; Toutkoushian, 1998a). Recent evidence, however, indicates that by 1998, the unexplained pay gap between men and women was down to approximately 5% when the above-mentioned controls are added (Toutkoushian and Conley, forthcoming).

Barbezat (2002) also reviews the literature examining differences by race and ethnicity for faculty. Much of the evidence suggests that African-American faculty earn slightly more than their white counterparts after controls are added (Ashraf, 1996; Barbezat, 1989, 1991; Bellas, 1993). The small number of African-American professors — recent estimates indicate they compose approximately 5 percent of full-time faculty — may be the driving force behind this premium as institutions attempting to diversify their faculty compete with generous salary offerings. Hence, the positive salary figures may not be especially comforting for those seeking racial equality. With the except of Monks and Robinson (2000) and Toutkoushian (1998b), very little work has examine salaries for other racial and ethnic minorities, so no general consensus has emerged on differences.

For levels and changes in both within- and between-institution pay inequality, it is important to consider whether or not the faculty members of an institution are unionized. Much research has examined the extent to which faculty at unionized institutions enjoy an earnings premium.

Among those studies that compare average salary levels across unionized and non-unionized institutions, no consensus emerges. Approximately half find a positive return to unionization and the other half find no significant impact on faculty salaries, or in a few cases, a negative impact (Monks, 2000). Studies that use individual-level data that allows controls for a faculty member's characteristics and productivity find more consistent results. In all cases, the return to unionization is positive, but the size of the premium varies between 0.5 and 14 percent (Ashraf, 1992, 1997; Barbezat, 1989; Monks, 2000).

Much less evidence exists regarding how unionization affects within-institution pay dispersion, but some impact is likely. Researchers have long believed that unions reduce the dispersion of worker's salaries within an institution or industry (Freeman, 1980). Differences in the average salary between unionized and non-unionized institutions of higher education in 30 fields of study provide some limited evidence supporting this claim. The five fields where faculty members enjoy the largest union premium (Liberal Arts and Sciences, Library Science, Philosophy and Religion, Arts and Music, and English) are all fields in the lower end of the pay scale at most institutions. At the same time, the two highest paid fields among the 30, Engineering and Business/Marketing, received the third and fourth smallest union premium (Clery and Christopher, 2004). It is important to note, however, that pay at unionized institutions is far from being completely standardized. Merit and market considerations are part of salary adjustments at unionized institutions, and market considerations are becoming increasingly important over time (Rhoades, 1998a).

Segmented Labor Markets

To this point, our discussion of salaries has treated faculty as members of one general labor market. Academic labor markets, however, are segmented along numerous dimensions, most notably, discipline, institutionalized tasks (teaching versus research), job status and institutional type (Breneman and Youn, 1988). With regard to the latter point, we have far too little understanding of the extent to which professors can move among different institutional types in the Carnegie Classification scheme — for example, from comprehensive masters granting to research universities, from non-selective to selective liberal arts colleges, and so on. Ted Youn (1992, p. 108) notes that segmentation causes "workers within a bounded area to engage in only limited competition with workers outside and/or to have only limited opportunity to

move outside these institutional boundaries". We discuss some of the implications of these divisions for faculty and how we study them.

As discussed above, discipline or field is a major determinant of salary and growing in importance. But salary is only one of several benefits that a faculty member receives, and one needs to consider additional items to fully understand the true distribution of resources across faculty members. To demonstrate the importance of this point, consider the size of start up costs incurred by Research and Doctoral universities after hiring a new professor. Ehrenberg, Rizzo, and Jakubson (2003) estimate that the mean start-up costs in several science disciplines (Biology, Chemistry, Engineering, Physics and Astronomy) vary from $390,237 to $489,000 for assistant professors and from $700,000 to $1,442,000 for senior faculty. In general, evidence suggests that institutional support for research in the sciences has expanded, restricting the funds available for other activities within the institution (Ehrenberg, Rizzo, and Jakubson, 2003; Slaughter and Rhoades, 2004). Faculty members in these fields are operating in quite a different labor market than are faculty members in fields like Education, English, and Sociology. More research is required on these dimensions of market segmentation.

Almost all of the work summarized earlier focuses on one segment of the academic labor market, that for full-time tenure-track faculty. Such analysis does not reflect the changing work patterns emerging in the new economy, most notably the increasing numbers of part-time and contingent employees. Colleges and universities have not been immune from this trend. Ehrenberg and Zhang (2004) find that between 1989 and 2001 at four-year institutions, there has been an increase in the share of full-time faculty that are non tenure-track, the share of all faculty that are part-time, and the share of new-hires that are non tenure-track. In each area, the increase has been substantial. For example, the ratio of part-time faculty to full-time faculty has increased from .269 to .365 for public institutions and from .499 to .622 at private institutions.

The growing share of faculty members that are not full-time and on the tenure-track means that the change in salary inequality among all faculty is quite different than the estimates presented above. The primary reason is that part-time faculty members receive much lower wages than their full-time counterparts. Gappa and Leslie (1996) find that in 1992 full-time faculty earn $4,000 per course while part-time faculty only earn $1,500. A question that arises is the extent to which the part-time, contingent, and full-time faculty members are working in separate labor markets. Although there is little research on this topic, it

is likely that institutional type matters. Thus, moving from part-to-full-time status is not uncommon in community colleges; but in doctoral and research universities, such a move is probably unlikely.

Salary differences by field and job status have important implications for female faculty. The share of faculty that are women varies dramatically across fields, from 6% in engineering to 51% in education for full-time faculty in 1992 (Toutkoushian, 1999). Job status also differed by gender. Among full-time faculty, women are more highly represented among those not on the tenure-track (52%) than those on the tenure-track (43%) (Perna, 2001). In addition, 51 percent of women faculty members were employed part-time in 1992, compared to 38 percent of men (Toutkoushian and Bellas, 2003).

In general, researchers need to consider the various labor markets for faculty within higher education and adjust the methodology used to address their existence. Recent work by Wagoner (2004) provides a good example because he considers differences by job status, field, and the interaction between them in his study on community college faculty. Wagoner examined how the demographics, compensation, and satisfaction vary between part-time and full-time community college faculty members. Importantly, he disaggregated all of his work by field groupings to capture a more nuanced understanding of how the well being of faculty differ by job status. In particular, a central part of that understanding was related to the new or old economy status of various occupational and technical fields.

Wagoner's satisfaction results are typical of his overall findings. First, he finds that in general, part-time faculty are much less satisfied than full-timers in more academic areas while the opposite occurs in more vocational areas. However, fields are further disaggregated within each of these categories to reflect the quite different external labor market opportunities across fields as well as the varying importance placed upon different fields by the institution. While differences are not as stark as those between the academic and vocational areas, some differences do exist. For example, the gap between part-time and full-time faculty is substantially smaller in the hard sciences relative to other academic areas. In addition, among the vocational fields, only part-time faculty in lower status, social service professional areas (such as education and nursing) are less satisfied than their full-time counterparts. Although the distinction between faculty in old economy vocational realms (e.g., auto mechanic, plumbing) and those in new economy fields (e.g., computer technicians) did not yield powerful differences, the method still offers considerable promise for future research. Overall, Wagoner's results

clearly demonstrate that any analysis treating faculty as one distinct labor market may simply produce the average of very different underlying labor markets.

FUTURE WORK ON FACULTY SALARIES AND LABOR MARKETS

Our review of the literature reveals that pay inequality across institutions and across faculty members at the same institution has grown in recent decades. The increased dispersion of faculty salaries in academe, and the existence of segmented labor markets that may to some extent contribute to that dispersion, match the pattern of the larger labor market in society. In tracking these changes, and relating them to developments in the new economy, we have offered a conceptualization of faculty members as knowledge workers in a knowledge based economy. Several lines of future research can be derived from this conceptualization.

Past work has provided several insights into the forces driving the increased inequality across institutions, yet there is much work left to be done. For example, there is a growing disparity between the salaries of faculty members in public and private institutions. At what point and in what types of institutions will this pattern lead to segmented faculty labor markets in the U.S. (one for the public sector and another for the private sector) which are found in some other countries, such as Mexico? And what are the ripple effects of competition between lower tiers of private universities with public research universities for faculty, in terms of salary distributions within institutions?

That leads to a second line of future research. We know relatively less about the forces driving increased salary disparities within institutions. There is much empirical work on the growing corporatization of higher education. There is a general sense that one of the changes that has come with more entrepreneurial colleges and universities is the rising use of corporate practices within higher education, and the greater reliance on merit and market considerations, relative to cost of living, in setting and adjusting faculty salaries. Although merit and market considerations have long been a part of the compensation process in higher education (Hansen, 1988), their importance has grown, as has their definition and operationalization (Rhoades, 1998a). Yet we need studies that will systematically track the application of merit and market criteria in faculty salaries. For all the talk about the importance of the market, there are virtually no studies that actually sufficiently incorporate

market considerations and mechanisms into their analysis of faculty salaries and substantiate the belief and clarify the processes by which external labor markets affect academic salaries (see Bellas, 1994 for an exception). Similarly, although cost of living adjustments remain a prominent part of faculty salaries in unionized settings, we lack studies that empirically track the proportionate weight of cost of living, merit, and market adjustments in faculty salaries, not to mention equity adjustments, in unionized versus non-unionized institutions, and in different Carnegie types. What types of institutions have increasingly relied upon merit and market considerations in setting salaries, and to what extent have they done so? Have definitions of merit or market substantially changed? And how is equity defined — is it in terms of faculty members' race and ethnicity, or gender, for example, or is it a matter of responding to phenomena such as salary compression?

The latter question points to a phenomenon of major policy significance in institutions that will be heavily influenced by increased reliance upon market mechanisms in setting salaries. New faculty members are getting paid more than faculty who have been at the faculty for several years, resulting in wage compression and small or negative returns to seniority. Most studies have found a negative return to seniority at the institution for professors, all else equal (for example, see Bratsberg, Ragan, and Warren, (2003) and Ransom (1993)). But we know little about how this form of compression is changing as market considerations increasingly determine salary levels.

Many institutions have implemented equity adjustment policies in recent years. Many of these policies have as much or more to do with redressing market-induced salary compression as with gender and race/ethnicity equity. Here too, lies another path of important future research. What is the balance among the monies allocated for equity adjustments versus for merit increases versus for market adjustments (e.g., for making counteroffers)? In the authors' institution, there have been years in which the monies for equity adjustments were one-tenth of those allocated in merit based increases, thereby almost ensuring the continued and even enhanced disparity among salaries. There have been other years in which faculty retention packages have constituted a substantial portion of all monies allocated for faculty salary increases. We lack systematic data on and study of these phenomena, within and across institutions.

Despite there being a good deal of work on minority and women faculty members' salaries, there is very little work that relates patterns of inequities to patterns in the larger workforce. Why does the gender

gap in faculty salaries in academe appear to be higher than it is for many other professions? If women and minorities are in such demand in external labor markets, a claim that we often hear in regard to the "difficulties" of finding and recruiting women and minority graduate students and faculty members, why has that apparently not translated into a market effect that raises the salaries of women and minority faculty? Again, we lack studies of the mechanisms by which such market considerations come into play in affecting faculty salaries.

A major feature of the post-industrial economy labor market is the increased prominence of part-time and contingent work. As we have indicated before, a similar pattern characterizes the academic labor market, and women are disproportionately impacted by that pattern. A larger proportion of part-time and contingent faculty are women than is the case for full-time faculty. That raises important questions about the segmentation and stratification of salaries for faculty according to the terms of their labor.

The configuration of the new economy labor market also offers some possibilities for field-based comparisons in faculty salaries. In looking at the salaries of faculty in four year institutions scholars have long focused on differences among academic fields, comparing discipline based fields, or comparing fields in terms of aggregations having to do with certain epistemological (e.g., hard/soft, pure/applied) and normative (high consensus/low consensus) dimensions of the fields. In looking at the salaries of faculty in two-year colleges scholars have often compared academic and vocational fields. By foregrounding the significance of transformations in the information based economy, we should begin to develop ways to categorize fields in terms of their connection to new versus old economy occupations, and compare salary patterns accordingly. Such categorization can be applied to the faculty of four as well as two year institution faculty.

In placing faculty salaries in the context of salaries in the larger labor market, we also offer a useful measure for describing and understanding patterns in wages. It might make sense to index faculty salaries against the salaries of comparable professionals in the larger labor force. It also might make sense to index them against the salaries of the increasing number of other, managerial professionals (Rhoades and Sporn, 2002) on campus, as well as of various types of campus administrators.

Finally, by way of segue to the next section of our literature review, we pose the following question. In a global economy, what can we say about global and regional labor markets? To what extent and in what

ways are faculty salaries in the U.S. affected by the fact that American colleges and universities recruit international students, postdocs, and scholars for faculty positions? And what are the patterns of salaries by the faculty members' nation of origin?

INTERNATIONAL PATTERNS OF PROFESSORIAL EMPLOYMENT AND PROFESSIONAL POWER

Scholars and policy makers in developed and developing countries often take the U.S. as the main reference point for analyzing the standards, organization, characteristics and production of national higher education systems. Even high-income countries such as the Netherlands and Sweden are in significant ways peripheral to the U.S. (Altbach, 2003). Certainly there are other influential systems historically and regionally, such as France, Germany, Japan, and the United Kingdom. And it is possible to refer to "gigantic peripheries" in the world system, such as India or China, and regionally, Brazil and Mexico in Latin America and South Africa among African nations. Nevertheless, the U.S. is still the principal worldwide "center" and defining model for higher education. And that centrality applies to understandings and studies of professors as well.

As we will point out throughout this section of our chapter, the Anglo-American bias of the literature is problematic given the nature of higher education systems and of academic employees in other parts of the world. We start then by contrasting the model of organization for U.S. professors, versus that which has predominated in Western Europe and much of the rest of the world. We then address a major empirical cross national study of faculty that remains largely embedded in this distinctive U.S. model. Subsequently, we delineate the ways in which the new global economy affects professors in other latitudes including high and low income countries. We discuss some of the implications of the idea of academics as global knowledge workers, some of the academic conditions and the new forces in higher education coordination around the world. Finally, we offer some thoughts about how adopting a different perspective on the role of faculty members internationally affords us new understandings of academics.

WORLDWIDE PATTERNS OF PROFESSORIAL EMPLOYMENT

Worldwide, there are at least 3.5 million professionals involved in postsecondary education worldwide, providing services to approximately

80 million students (Task Force on Higher Education Society, 2000). Not all of the 3.5 million are faculty members. Indeed the categories among professors are very different. The ranks vary, and comparisons among countries can be quite problematic. In some countries for instance, the concept of tenure does not exist in the way other nations have it; Russia is an example of this situation (Smolentseva, 2002, p. 354). In many countries, following a European model, professors have historically been civil servants, although this is beginning to change. In fact, the very term, academic "profession" is problematic.

The defining terminology in comparative higher education, like the dominant language, is Anglo-American. Scholars analyze the academic profession. Those professors work on "campuses" and in academic departments. They are "faculty". Yet most of the world follows a very different model of academic organization. Neave and Rhoades (1987) have detailed many of those differences. The idea of academics as independent professionals, autonomous from the state is a distinctly Anglo-American concept. It does not capture the essential reality of professors in other national systems of higher education, for these faculty members are quite explicitly employees of the state, with the protections of civil servant status. Although this is changing even for full-time academics, it is important to understand the differential starting point of academic organization globally. Similarly, professors in many parts of the world are organized according to a chair system, not a departmental one (Clark, 1983), with very important implications for career mobility and the organization of resources and work. In many systems, moving up the faculty ranks is not simply a matter of successfully passing through various reviews within the employing college or university. One can only become a professor, a chair, if one opens up. And the structure of the career path may be such that as in Germany, you must not only compete for the chair in a national process, you must change institutions. Moreover, resources and perks are far more concentrated in senior faculty in a chair than in a departmental system. In short, there is much to be gained from approaching comparative higher education not from a U.S. perspective, but from the standpoint of exploring very different ways of organizing academics and work.

Still, as Altbach (2003) observes, "with more than 600,000 academics, the United States is home to the world's largest academic community, perhaps 25 percent of the world's total" (p. 144). And the leading role of American higher education has to do not only with its size but also with its wealth and worldwide influence. That influence is partly

evident and expressed in prevailing models of comparative higher education.

The most recent and largest study of international faculty was conducted in Boyer, Altbach, and Whitelaw's (1994) International Survey of the Academic Profession. This particular survey follows the model of the Carnegie Foundation surveys of U.S. faculty members. It provides comparable data about faculty attitudes and activities across 14 countries (Australia, South Korea, Japan, Hong Kong, Brazil, Chile, Mexico, the United States, England, Germany, the Netherlands, Sweden, Russia, and Israel), all of which are in well-developed systems of higher education. The points of analysis reflect the prevailing focus of such survey research in the U.S.

Thus, there is a focus on demographics, and particularly on the relative positions of male and female faculty members. The findings reveal that most academics are male and that male faculty tend to hold the highest degrees and occupy the highest academic ranks in comparison to female faculty. They are also mostly middle-aged, employed full-time, and in the middle class in their respective countries.

Reflecting scholarly concerns and policy issues in the U.S., the survey also focused on job satisfaction and time allocation. Altbach and Lewis (1996) found that most academics across the globe share a positive sense about their working conditions, particularly in regards to the intellectual aspects of their job but are dissatisfied with classroom space, resources, and equipment. Faculty in Hong Kong, Netherlands, the United States, Sweden, and Germany, however, are less critical. In regards to how faculty allocate their time, teaching is the primary activity for most faculty members, although a significant proportion of faculty prefer research. Unlike the U.S. (and Brazil, Chile, and Russia), where faculty report a primary interest in teaching, the majority of faculty in Japan, Sweden, the Netherlands, Germany, and Israel, report a primary interest in research. Overall, the international respondents reported spending up to twenty hours per week in teaching activities and ten hours per week in research activities when classes are in session. Many faculty reported no hours at all on service, with the exception of Brazil and Mexico, where faculty spend up to ten hours or more in service activities, findings that are suggestive of a distinctive commitment to social service in Latin American universities. Although the survey does not enable us to detail types of service, there is good reason to believe that the nature of such service in Latin America is quite different from that in the U.S., and is more oriented to the community than to career.

Typical of the U.S. industrial model focus on individual employees'

productivity, the international survey provides cross-national comparisons in research output. While international faculty share a strong commitment to research, they publish relatively few books and articles. Half of the respondents had not published a book in the past three years and the mean number of articles published in the past three years was just under six (Altbach and Lewis, 1996). Reasons for the low rates of publication may include lack of research funds and equipment (Altbach and Lewis, 1996), promotion criteria (Altbach and Lewis, 1996), and the added task of translating articles in English (as most of the top-tier journals across fields are in English). It may also be a matter of different sorts of output, such as reports, being valued over publication in peer review settings.

If we turn to the issue of internationalization, perhaps the most disturbing results in regard to U.S. faculty have to do with their international interests, such as working or publishing in other countries. U.S. faculty are the next to lowest group supporting a more international curriculum with only 45% in favor of this orientation (Boyer, Altbach and Whitlelaw, 1994, p. 19). U.S. faculty also have the lowest percentage of academics reading books or journal articles published abroad. The survey raises some interesting questions about internationalization, as an institutional process of incorporating international and intercultural dimensions to the activities of higher education. As such, it is an important consideration in an increasingly global society, though it is best understood "as a response to globalization (not to be confused with the globalization process itself), and as including both international and local elements" (Knight, 2003).

The construction of international networks is a relevant aspect for these groups of scholars who are on the international crest of the wave, especially in developing countries. Having the chance to meet and work with prestigious international scholars does not, however, automatically mean building up a relationship with them or becoming part of their networks. For that step to occur, it is necessary to utilize cultural capital and other skills such as being fluent in another language (Maldonado, 2004).

The ways internationalization and globalization impact higher education are not only related to the production of knowledge, but also the shaping of policies, international, national and institutionally. The function that evaluation has played in the standardization of some indicators to value academic work and to make international comparisons is a topic that deserves more future research. And it requires us to move beyond the nation specific, cross-national focus to explore regional and

global entities, mechanisms, and processes, which have thus far been largely overlooked by scholars.

Relatively new, global instruments of influence, which emerged after World War II, are international organizations such as the World Bank and the OECD. Analyzing their agendas and recommendations addressed to developing but also developed countries show the extent to which the U.S. influences higher education policies around the world (Burnett, 1996; Kapur, Lewis, and Webb, 1997; Lauglo, 1996). In addition, there is a direct influence of the U.S. in the finance and governance of these organizations, which translates to the U.S.'s direct participation in these organizations. The U.S. influence can be recognized in the topics promoted, types of institutions, experts participating in the reforms, university organization and networks created (Maldonado, 2004; McGuinn, 1997; Samoff and Carrol, 2003).

Models of Professorial Power

It is important to recognize, however, that before the U.S. was consolidated as a hegemonic model, the first European universities, especially the University of Paris, and later the Humboldtian university, set the example for the rest of the world. Born in 1079, Abelardo was the first symbol of the university professor as an intellectual. According to Schachner (1938), the University of Paris reached a position of intellectual preeminence because of Abelardo. The example is significant since the Paris model became the hegemonic model worldwide. In Paris, faculty had the authority to rule the university, whereas in Bologna the students had the control of the university.

The differences between the concept of professors as intellectuals and professors as knowledge workers are significant, historical and contextual. They also begin to point us to one of the great benefits of comparative work, effecting fuller understandings of the various roles that academics can play in terms of exercising influence nationally, culturally, and politically. By looking at academe in other countries, we can in some cases more clearly see the ways in which faculty members can be more than employees of college and university enterprises, independent professionals. Instead, we come to see them as significant national players in the construction of culture, class, and social policy.

Knowledge workers is a category more similar to cultural and class based analysts than to the traditional idea of intellectuals. Gramsci (cited in Crehan, 2002) says "the mode of being of the new intellectual can no

longer consist in eloquence, which is an exterior and momentary mover of feelings and passions, but in active participation in practical life, as constructor, organizer, 'permanent persuader'" (p. 143). This notion of symbolic analysts corresponds more to concept of knowledge workers in non-peripheral universities around the world. Describing the "three jobs of the future," Reich (1991, p. 178) offers the conceptualization of "symbolic-analytic services" who:

> "[S]olve, identify, and broker problems by manipulating symbols. They simplify reality into abstract images that can be rearranged, juggled, experimented with, communicated to other specialists, and then, eventually transformed back into reality. The manipulations are done with analytic tools, sharpened by experience. The tools may be mathematical algorithms, legal arguments, financial gimmicks, scientific principles, psychological insights about how to persuade or to amuse, systems of induction or deduction, or any other set of techniques for doing conceptual puzzles".

(The other two jobs are routine production services and in-person services — both services in the new, service versus manufacturing based economy.)

In 1979, Gouldner divided intellectuals in two groups, the first formed by those whose intellectual interests are fundamentally "technical." The other are whose interests are "primarily critical, emancipatory, hermeneutic and hence often political" (Gouldner, 1979, p. 48). If the concept of intellectuals is used to understand the transformations from the first university professors to present, the current group is closer to the Gouldner's first category than to the second. And that matches the sort of economic transformations that we are witnessing globally.

If internationally, professors have had a more clear and significant national role in society, that pattern is changing. Previous sections have detailed transformations experienced by professors in the U.S., particularly from the industrialization era to the present — such as diversification of academic positions, professionalization, specialization, privileging of certain areas, and the rise of part-time and contingent faculty members. Such developments have also characterized academe in most of the countries around the world, though there are always important contextual variations.

Since the decade of the eighties, major changes took place because of the application of neoliberal policies, the global economy impact and the internationalization processes (Puiggrós, 1999). Neoliberalism has been defined as the resurgence of some of the principles derived from

classical economic liberalism, particularly the socio-economic aspects. Under neoliberalism, there is the belief that the free market is able to correct any distortion in society or the economy. Other main assumptions of neoliberalism are concerned with the need to reduce the role of the State and its responsibilities and fostering the privatization of all the public sectors possible, and the conviction that individual efforts are the main possibility of progress in society. Those patterns have profound implications for the role of professors.

The main impulse of neoliberalism worldwide took place initially in the United States and England, under the regimes of Ronald Reagan and Margaret Thatcher, at the beginning of the eighties (Ashford and Davies, 1991; Galbraith, 1987; Jiménez, 1992). In higher education, neoliberalism has represented in developing countries, the reduction of public expenses; these economic policies have obliged institutions to find alternative sources of financing and to increase the privatization policies. In this context, the commercialization of higher education services is a key topic, especially the regimes promoted by the General Agreement on Trade in Services (GATS) (Barrow, Didou-Aupetit, Mallea, 2003; García Guadilla, 2003).

Within the context of global competence, knowledge production has acquired some new dimensions. Specialization and integration are two main components in knowledge utilization and its economic impact (OECD, 2001). However, there are more profitable areas than others; *knowledge* is valued differently.

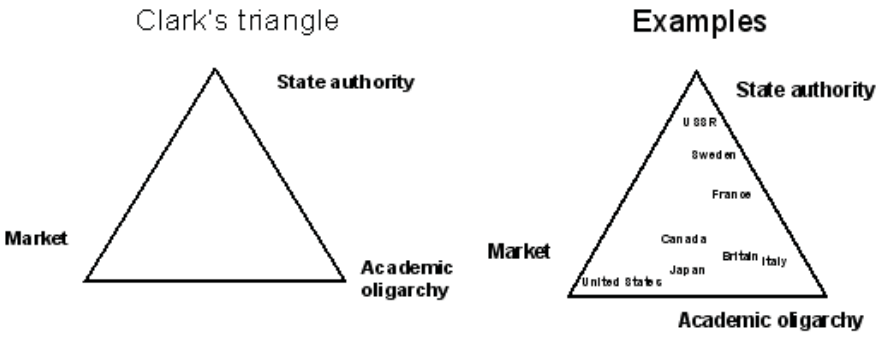
"Changing economic and social conditions have given knowledge and skills — human capital — an increasingly central role in the economic success of nations and individuals. Information and communications technology, globalization of economy activity and the trend towards greater personal responsibility and autonomy have all changed the demand for learning. The key role of competence and knowledge in stimulating economic growth has been widely recognized by economists and others" (OECD, 2001, p. 17).

There are two important themes to explore in regard to the global economy affecting faculty worldwide: (1) new forces influencing higher education systems and (2) the way these forces are transforming the organization and faculty classification in higher education institutions. The next subsection explores these two aspects.

Higher Education Forces: Old and New Tendencies

Clark (1983) suggests a triangular model of coordination in higher education, the three forces are: state authority, market and academic

Figure 2.1: Original Clark's model of higher education coordination and some examples



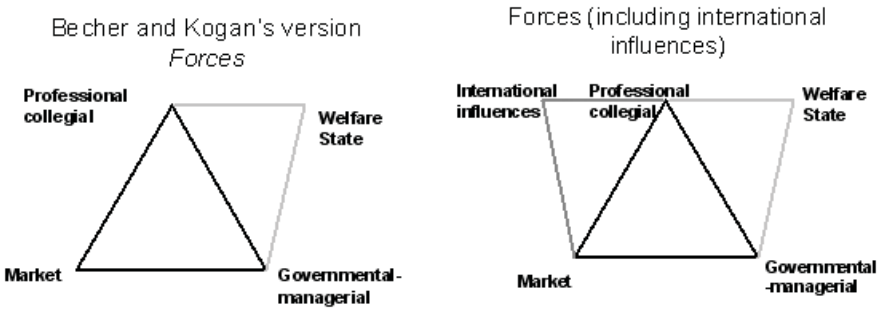
Note. From *The higher education system–Academic organization in cross-National perspective*, by B. Clark, 1983. Berkeley, Los Angeles and London: University of California Press.

oligarchy (see Figure 2.1). State authority refers to national higher education systems mainly organized by the State. It is related to the political and bureaucratic level. Market can be defined as competence. In Clark's model it is synonymous to non-governmental regulations in higher education; it is about market interaction at that educational level. Academic oligarchy is used originally by Clark to characterize the power of academics nationally, as well as in their institutions. Such academic oligarchy has historically had the predominant role in higher education systems, over the market or the state authority. Countries with chair systems typically are under this type of coordination (Clark, 1983).

According to the triangle model, scholars generally suggest that U.S. higher education is more oriented to the market than European countries such as France or Germany or Sweden, which are closer to State authority. Italy and Britain are closer to the academic oligarchy. The U.S. together with Japan and Canada are more oriented to the market.

Later, Becher and Kogan (1980) presented a new version of these forces including professional collegial, welfare state, governmental managerial, and market. This version suggests dividing what in Clark's version was originally the state authority in two: welfare state and governmental managerial. The difference is distinguishing the state power (which refers to the social responsibilities of the state) and the governmental managerial (which refers to the governmental and institutional governance) (see Figure 2.2). This division is particularly useful to explain European countries and at some extent Latin American countries because of the

Figure 2.2: Becher and Kogan's version and model including international influences



Note. From *Process and structure in higher education*, by T. Becher and M. Kogan, 1980. London: Heinemann Educational Books.

type of centralized national states that exist in most of these regions. And there is another element that other authors have suggested including: globalization forces. As Scott (2000) says: "Not all universities are (particularly) international, but all are subject to the same processes of globalization — partly as objects, victims even, of these processes, but partly as subjects, or key agents, of globalization (p. 122). Thus, authors such as Cloete (2002) have suggested globalization should be integrated in the original Clark's model (see Figure 2.2).

Some international influences affecting higher education can be understood as globalization or not, depending on the context. For instance, the impact of international organizations can be conceived as part of globalization processes, but it also can be analyzed as intervention or neocolonization (Bennell, 1996; Burnett, 1996; Coraggio, 2001; Samoff, 1996). Another force that has been added recently to the original Clark triangle is the civil society, which is also has had an important global dimension with the development of transnational NGO's.

In Clark's original model, the market has two dimensions, national and international. However, international powers can be defined beyond international markets; there are influences in terms of policies, financing, research agendas, and networks (Maldonado, 2004). This is a main reason to consider markets and international forces separately. Epistemic communities are an example of the complexities of new scenarios, where networks and influences go beyond the original representation of three settings (State authority, market and academic oligarchy) but to a more connected idea. Epistemic communities are defined as a "network of professionals with recognized expertise and competence in a particular domain an authoritative claim to policy relevant knowledge within that

domain or issue area" (Haas, 1992, p. 3). This concept suggests an emphasis in the interconnection among academic oligarchy, welfare state, and international influences (specially represented with supranational organizations). There are networks that interconnect these elements including the participation of more than one force. The point here again is to move beyond a model of professors as individuals in national systems, to conceptualizing them in terms of epistemic groups that exercise influence locally, nationally, regionally, and globally. Such a perspective leads us to very different questions about knowledge workers in a global society than come out of old industrial era models of time allocation, productivity, and pay.

Beyond the concept of "academic oligarchy," academics today can be conceived as knowledge workers, symbolic analysts, experts, and intellectuals. Considering oligarchy literally means a political system governed by a few people, as Clark's idea refers to the small group of academics that control the decision in their units or departments, it is about the group of faculty that are influential at the university (normally a small group). In some cases, the influential groups are those who are on the crest of the wave academically. In the new scenarios of evaluation and proliferation of international standards to define quality, the level of internationalization of a faculty member has become a very important element. And academics are playing very significant global roles in shaping practices in other national systems.

In this sense, some faculty can be defined as knowledge workers, but not in all contexts and not all current knowledge workers are exclusively academics in higher education institutions. The situation for most academics is different between developing and developed countries. It is important to place these knowledge workers within a global economic context. The goals of scholars in low-income countries are often related largely to survival, although in some regards they may be more influential in their own national systems than are faculty in more developed countries.

A good example, which relates to the changing stratification of faculty power, not only within Northern countries, but between the North and South is the numbers of part-time faculty members. Full-time professors are a category that has become rare in some nations. International experiences show a global tendency for hiring more part-time professors, which is heightened in developing economies. For instance, in Mexico the percentage of total full-time faculty is 30%, in China 39.97%, in Korea 45% and in India an average of 50% (Chen, 2002; Gil Antón, 2002; Jayaram, 2002; Lee, 2002). The costs for hiring

full time professors are high and it includes offering social security and benefits. The consequences of the differentiation are economic as well. As the Task Force (2000) accepts, "faculty pay is generally very low in relation to that offered by alternative professional occupations" (p. 23)

This situation is not exclusively in developing countries; there are similar cases in high-income countries. For instance, in 1992 Great Britain had 82.4% of full time faculty and 17.5% part-time but by 2000 the numbers were reported as only 57.2% full-time (Shattock, 2000, p. 54). According to Chevaillier (2000) the situation in France has not been very different, "a few years ago, some universities expanded more than half the recurrent funding for instruction on part-time and overtime teaching" (p. 83).

Other data in regards to faculty appointments show other disparities. In Malaysia, only 5.6% of faculty members are professors, 18% associate professors and the rest are lecturers (Lee, 2002, p. 148). Among all Gulf universities in 1988, there were only 29.8% senior academics and 35.3% assistant professors; the rest were considered non academics (34.9%) (Mazawi, 2002). In Poland, 19% are professors, 61% are associate and assistant professors and about 18% lecturers and instructors (Kwiek, 2002). In Russia, 37% are docents, 23.1% lecturers, 21.7% instructors and assistants, and the rest other positions such as department chairs (Smolentseva, 2002). Another example is Nigeria where associate professors and readers represent 14.5%, 23.2% senior lecturers and senior research fellows, lecturers and research fellows 36.9%, assistant lecturers and junior research fellows 17.4% and tutors and instructors 8% (Iyegumwena and Ekwutozia, 2002). Focusing on such structural dimensions of the academic labor force, as knowledge workers, in a global context, raises very different questions about productivity than those that come out of a focus on the output of individual faculty members.

Full-time contracts and professor status are two basic conditions for participating in the group that is able to produce knowledge. If these are two conditions for being part of the academic international oligarchy, it seems difficult that higher education institutions in developing countries can at least guarantee the minimum conditions to generate a group of knowledge workers that can compete with groups locate in the centers. Quoting Altbach (2000), "the traditional full-time permanent academic professor, the 'gold standard' of academe, is increasingly rare" (p. 1).

There have been other important transformations in the organization of higher education institutions. The U.S. departmental model has been imitated in other countries, with advantages and disadvantages. It provides more autonomy to academics, organization around disciplines

more than around programs. Some national governments have decided to transform their traditional chair organization by departments following the U.S. model. In countries like Germany, the model is very hierarchical and corresponds to the historical development of higher education institutions in that country. Other systems, such as the Argentinean, are organized by chairs. In Mexico, some universities have been established following this model. This is an interesting future research topic, the organizational transformations in the context of global economy and particularly the way these modifications are affecting faculty worldwide.

FURTHER RESEARCH

Most peripheral nations will be unable to expand their public higher education systems and institutions. Private sectors of higher education are emerging in the global economy, partly as a result of neo-liberal policies being advanced to "structurally adjust" the higher education systems of developing countries (Maldonado *et al.*, 2004). More research is needed to explore the labor conditions for faculty members in these growing settings. So, too, the changing and declining role of senior professors in these countries, who are being replaced by lower status, part-time knowledge workers, as we are finding in other parts of the economy, offer much opportunity for further analysis. One point along these lines is that in a context where technological and scientific discoveries are quickly developed, the chances for peripheral countries to compete and produce knowledge as it is produced in developed nations, such as the U.S., are being increasingly compromised by the changing composition of the academic workforce. It is likely that inequalities between the North and South will deepen in this context. And that structural focus on stratification of knowledge production is a topic that is relevant within all national contexts as well, between geographic regions of a country, and among types of institutions, as we see heightened stratification and hierarchy in higher education.

Major international organizations have produced several documents about the importance of knowledge in current societies — the World Bank, the OECD, and UNESCO. The World Bank publishes a report on knowledge societies (World Bank, 2002), discussing the present significance of knowledge. Of course, every agency has its own agenda; in the case of the Bank, which is one of the most important international agencies worldwide, there are 5 principal issues: brain drain issues, international quality assurance framework, trade barriers, intellectual

property rights and bridging the digital gap. This agenda is an example of the principal worries from an economic orientation with respect to knowledge. By contrast, for some developing countries, a key concern is how to use knowledge to provide more equity in their societies or how to use knowledge production as a development tool. In either case, adopting a global perspective on faculty members as knowledge workers suggests a very different set of questions than the prevailing perspective in the U.S. literature.

In the international agenda defined by many organizations and entities focused on the economic role of higher education, *academic freedom* is not seen as an important issue; even when it can be definitive in the development of some higher education institutions, since there are countries where academic freedom is very restricted. The situation is different in every region and among different countries, Arab, Latin American, Asian and African nations. "Most African governments are intolerant of dissent, criticism, nonconformity, and free expression of controversial, new, or unconventional ideas" (Teferra and Altbach, 2003, p. 11). Three clear examples in different moments are Algeria, Kenya and Ethiopia. In Latin America, military coups have resulted in the closing of universities, the exile of scholars, and even death. Academic freedom is a topic that results more important for other types of organizations such as International Amnesty than for the World Bank. However, in the framework of the new global economy, the role of knowledge has more to do with economic and productive aspects than about the social dimensions of its production and impact. Again, an international perspective raises this issue, which is important in various national and local contexts. How is redefining professors as knowledge workers in the new, global economy changing our commitment to some basic functions and purposes and values that have historically attached to professors and higher education?

Finally, we offer a thought about the increasing commitment of faculty members and institutions to a "global" frame of reference. We see this as having the potential to mirror on an international level what Jencks and Riesman described in terms of a national perspective of faculty. It is increasingly clear that an "international" orientation is largely defined in terms of foregrounding the global, and what is valued in the global, English speaking economic and professional markets, and putting in the background distinctive local and regional identities, issues, and commitments.

SOCIALIZING FACULTY AS INDIVIDUALS, AND FACULTY ACTING COLLECTIVELY, AS AGENTS OF SOCIAL CHANGE

The literature reviewed in this section of our chapter addresses issues that are much less well developed in terms of empirical research than is the case particularly for studies of faculty time allocation and salaries. Here we have intentionally juxtaposed two quite different literatures that highlight the significance of conceptual frameworks in leading to very different lines of research around what broadly defined is a similar issue, the role of faculty as social agents in an intellectual community. This should serve as a segue into our closing remarks about the importance of conceptual frameworks in guiding the sorts of questions we ask about faculty members.

One perspective in the higher education literature regards faculty members as individuals who are part of a system that they need to be socialized into. The dominant framing question is how to attract, socialize, and retain the best faculty into the higher education community. Not only functionalist scholars, but also those who identify as critical and/or feminist scholars have conducted research around this question.

A second perspective in the literature regards faculty members as social actors who individually or in groups work to challenge and change the system. The framing question that comes out of this perspective is how faculty position and organize themselves politically to advance certain orientations about the conditions and purposes of academic work. Again, that same question can be asked by scholars working out of different theoretical frameworks, from labor to feminist to critical race theorists.

In exploring the literatures within each of these two perspectives we connect our discussion to questions that emerge when we consider faculty members as knowledge workers in the new economy. How does the conception of a knowledge based economy affect the way we think about socialization of and social action among faculty members?

We start, though, with the case of one piece of research to underscore the different academic and policy implications of adopting the two perspectives we identified above. Ben Baez (2000) has written an important article on faculty of color and "critical agency" through service. In addressing the service activities of faculty of color Baez critiques the prevailing perspective, which is that these faculty (and women faculty) are unfairly burdened by having heavier service responsibilities than Anglo faculty. The prevailing wisdom is that faculty of color should lighten their inequitable service load so as to be better able to succeed

in their academic careers. Baez challenges this view based on two considerations. First, some service activities of faculty of color involve challenging and changing higher education institutions, in ways that reduce racism, enhance opportunity for the historically underserved, and potentially transform the higher education system. In treating faculty of color primarily as individuals trying to succeed in their careers, most scholars have underplayed the very significant political role these faculty can play in reforming their institutions. To ignore that role and counsel reduced critical agency is to contribute to the perpetuation of a deeply problematic social system in higher education. (That is not to say that Anglo faculty should not also seek to reform the system with social justice oriented service. They should. But historically they have not done so in substantial numbers, and change has been dependent on faculty of color.)

A second consideration that Baez points out is that for many faculty of color their race oriented service is an important source of connection in their professional lives. To view service only or primarily in terms of time allocation is to overlook the importance of meaning and emotion for faculty members. It may be that for some or even many faculty of color, reducing their race related service would be counterproductive not only from the standpoint of institutional change, but also from the standpoint of the individual faculty members satisfaction and fulfillment in their professional lives.

Baez' work can be contrasted to the interest of many higher education scholars in the recruitment, socialization, and retention of faculty members, to ensure the renewal of the academic profession. With some important exceptions, the principal focus is on the individual faculty member within the individual college or university. Finkelstein *et al.* (1998) represent a key exception here in that they address the renewal of the profession; their analysis is of the reconfiguration of the faculty workforce, from a largely full-time, tenure track profession to one that is increasingly part-time and/or contingent. For these scholars that bodes ill in terms of what it means for recruiting high quality graduate students into the academic profession, a perspective that Bowen and Schuster (1996) also adopted in writing of the professorate as a "national resource imperiled."

There is an irony in faculty becoming an increasingly contingent workforce. Although we are in a knowledge economy, it is far from clear that faculty members are deriving commensurate rewards as knowledge workers despite being central players in this new economy. Instead, their

pattern of employment, of increased casualization, appears to be mirroring that of many workers at the lower ends of the stratification system, in the global economy, and in global cities (Sassen, 2001).

Much of the literature on faculty socialization, particularly in the field of higher education, approaches the study of socialization from the standpoint of the organization as a whole. To a considerable extent it addresses what Tierney and Rhoads (1993) have called "the organizational stage" of socialization. (For exceptions, see Smart, Ethington, and Feldman, 2000, on "academic disciplines and academic lives", and John Braxton's work on faculty members' socialization into the norms of academic disciplines — Braxton and Hargens, 1996; also see Braxton and Bayer, 1999, on the socialization of faculty members into the norms of teaching, by institution, and by discipline). That has meant addressing institution wide problems that academic administration can address. For example, Sorcinelli and Austin (1992) provide examples of various sorts of programs that can be established to support junior faculty, ranging from "teaching fellows programs" to mentoring programs. Along similar lines, Boice (1992) has spoken to the need for more structured faculty development programs for new faculty, based on extensive empirical data drawn from studies of junior faculty. Moreover, Tierney and Bensimon (1996) have identified various organizational changes that their interviews with new faculty suggest would be useful in enhancing the culture of the organizations and the community experienced by junior professors being socialized into the profession. The organizational perspective that these authors adopt is consistent with much of higher education literature generally, which has historically sought to speak to academic leaders, an aspiration that has heightened in recent years, with several presidents of the Association for the Study of Higher Education calling for scholars to do more policy relevant research.

In recent years, that work has concentrated on faculty of color and women faculty. In general, the research tends to address the adverse experiences that such faculty face in entering the academy. Depending on the perspective of the author, those experiences may be characterized in terms of racism and sexism or as a chilly climate (Glazer-Raymo, 1999; hooks, 1989; Kelly and Slaughter, 1991; Padilla and Chávez, 1995).

Some studies have shown that women faculty experiences are more "acculturated" than "socialized" into the profession in comparison to male faculty (Reynolds, 1992). In other words, women faculty tend to be forced to assimilate to a contrasting culture, whereas male faculty tend to more easily acquire the norms, values and behaviors of a congruent culture. Similarly, faculty of diverse racial/ethnic backgrounds are

more likely to be acculturated rather than socialized to the profession as well. These distinct processes of faculty socialization demonstrate the need to better understand the very diverse experiences of underrepresented faculty.

A range of other studies identify additional structures and obstacles that women faculty (and in some cases, faculty of color) confront. Indeed, an increasing number of studies on faculty have addressed the importance, yet difficulties, in hiring and maintaining diverse faculty. While all new faculty encounter obstacles in their socialization process, the challenges are even greater for women faculty and faculty of color. Not only is women's occupational development more complex than men's (given the greater effect of marital and family roles, as well as challenges of negotiating gender in the workplace), both women faculty and faculty of color encounter greater obstacles than do Anglo male faculty members in identifying role models, mentors, and peers with similar backgrounds (Baldwin, 1996). (Such challenges are not restricted to women and faculty of color in the U.S., but also exist for women and faculty of color internationally — see Mabokela, 2002).

Empirical work is emerging in the field that addresses issues of "balance" (between work and private life) and role conflict particularly for women faculty with children (see Ward and Wolf-Wendel, 2004, and Wolf-Wendel, 2000). In part, this work recognizes the existence of an "ideal worker" model that is male, presumes a domestic economy managed by a spouse, and thereby disadvantages women. However, this work does not focus on the social and political actions of women faculty to try to change that. Rather, most of the work that identifies obstacles for women faculty and faculty of color identifies various practical suggestions for colleges and universities to help enhance the socialization and retention of more diverse faculty.

Some research points to the relative lack of senior female mentors as another obstacle to women faculty's smooth socialization and successful mobility in their careers. For example, women faculty report fewer networking opportunities than their male counterparts (Rose, 1985). They indicate few ties to their previous institutions and that their current networks are not very effective. Women faculty tend to participate less than male faculty in the professional and social circles that are so crucial to success and promotion (Tierney and Bensimon, 1996). A relative disadvantage in terms of social capital not only creates added barriers in understanding the tenure process and obtaining letters of support for tenure, but also reduced opportunities to engage in entrepreneurial

activities, such as consulting, getting grant funding, and building relationships with industry. Acquiring such supplemental income has become increasingly important to augment faculty salaries that have lagged relative to salaries in other professions. For these reasons, junior women faculty and junior faculty of color become further disadvantaged in the new economy.

Despite all this work, the scholarship on faculty socialization is relatively limited in several regards. One is that although there are important exceptions, there is too little research on the socialization of graduate students, as the future academic workforce. Particularly given the changes that are taking place in the new economy workplace of faculty, it makes sense to determine the extent to which future faculty are being prepared for these settings. This "anticipatory socialization" (Tierney and Rhoads, 1993) involves initiation into the norms of the academic profession.

Some scholars have laid a foundation for further exploring graduate student socialization. For example, Wulff and Austin (2004) have mapped out suggestions for enhancing "paths to the professoriate". In this work, various scholars report on various sorts of data regarding the perceptions of graduate students. A few of the contributions focus on the particular challenges confronted by graduate students of color. For the most part, however, Wulff and Austin's book, as with most work in this vein, concentrates on more general issues of preparing graduate students for faculty roles, with a particular emphasis on addressing how to better develop graduate students' skills in instruction, how to develop "teacher scholars", reflecting again the influence of the Carnegie Foundation for the Advancement of Teaching, and the work of Ernest Boyer. The focus on developing better teachers is part of a more general policy and managerial effort to enhance teaching in the academic profession.

Yet what is lacking in this work is a sufficiently developed analysis of graduate students' socialization into the cultures of the academic fields in which they work. Conceptually, there is a recognition that disciplinary cultures are important in the socialization of new faculty (Austin, 1990). However, empirically, there is simply not the corresponding design of studies addressing future faculty members' socialization into their academic fields (for an excellent exception see Traweek's 1988 feminist analysis of socialization into the field of high energy physics). Nor are there studies that focus on the changing nature of disciplines, and the implications not only for graduate students but also for faculty who are already in the field.

There are related limitations to the work on the normative structure of the academic profession, which has recently concentrated on teaching norms. The largest contributor to this literature is John Braxton, who has also addressed research norms and misconduct in his work (Braxton, 1986). Braxton and Bayer (1999) offer an important and extensive analysis of norms and social control by peers in collegiate teaching, analyzing norms by institutional type and academic discipline. The tendency, though, in this functionalist work is to not sufficiently address new economy changes as they relate to instruction and research. How does the commercialization of science and of educational materials affect professors' conceptions of their research and of the curriculum they develop (for an exception, see Slaughter and Rhoades, 1990, 2004). How does the increased utilization of technology in instruction, and the changing delivery systems for presenting and distributing instruction play out in the retraining and resocialization of faculty members?

At this point, we would like to offer an alternative perspective on the role of faculty members as social agents. The prevailing view focuses largely on the assimilation of faculty members into existing academic communities, very much following the functionalist models of student persistence that prevail in the field. But what if we conceive of faculty members instead, as active political agents, involved in challenging and changing the intellectual communities that they are entering, or of which they are a part? What if we were to focus on the micro and macro politics of academe?

There is relatively little literature in the field that adopts this perspective. So here we feature a couple of pieces of research as examples of the sort of questions and studies that are possible if one adopts a different conceptual framework for thinking about faculty. In the realm of gender and race/ethnicity, there are several studies of faculty members surviving the academy, and some of these address particularly the micro politics of faculty of color and women faculty negotiating success (e.g., Gregory, 1995; James and Farmer, 1993; Turner and Myers, 2000; Washington and Harvey, 1989; Witt, 1990). Here we discuss a few examples that rather than treating women and faculty of color as marginalized and isolated, struggling to survive, instead examine the ways in which they are major players in social change.

One arena in which faculty members can shape change is in the curriculum. There is little question that the expansion of numbers of women faculty and faculty of color has translated into changes in the higher education curriculum. But that translation has not been an easy or natural one. It has involved the active struggle of groups of women

and minority faculty to establish feminist and critical race based scholarship and curriculum as legitimate areas of study. At the organizational level, that struggle has played out most obviously in the establishment of programs and departments in women's studies, African-American studies, Chicano studies, and more recently Gay and Lesbian studies. The political struggles surrounding the establishment of these units drew on the force of larger social movements (Slaughter, 1997) and involved not only faculty but students (Rhoads, 1998).

A less visible, but equally difficult and significant struggle has surrounded the infusion and diffusion of feminist and critical race theory within existing departments and coursework. Aiken *et al.* (1988) offer a detailed example of a group of women faculty who undertook a project to change colleagues' minds about legitimate knowledge and to thereby transform the curriculum. The process involved sustained and collective effort over an extended period of time. And the story is about not just surviving the academy, but inscribing it with new norms, values, and understandings.

Another set of processes by which faculty collectively and politically are changing the academy is through campus commissions. Glazer-Raymo (1999) provides an excellent example of the ways in which groups of faculty seek to effect change on campus, as well as in their classrooms. Her work, and that of the women faculty and administrators she studies, is set within the context of a larger women's movement that speaks to the macro politics of gender. More than simply studying wage gaps in faculty salaries there is much room for scholarship to explore the ways in which groups of faculty push to establish mechanisms and processes to change the patterns, whether through concepts like comparable worth (Blum, 1990) or equity adjustment mechanisms.

There are excellent examples, as well, of research focusing on race based struggles for social justice in the academy. One of the most prominent scholars in this realm is Derrick Bell, among whose books is included "Confronting authority: Reflections of an ardent protestor" (1994), addressing issues of race and gender in law school appointments. Another leading scholar, whose work has influenced many in higher education is bell hooks, who has written, among other things, about "teaching to transgress" (1994), and about a "pedagogy of hope" (2003). In many and profound ways hooks analyzes and challenges and tries to redefine the inscription of race, class, gender, and sexual orientation in peoples' lives, in and out of the workplace.

There are examples of such a political, activist focus on the ways in which faculty can change the academy within younger scholars in

the higher education community as well. We opened this section of our chapter by featuring Ben Baez' work (2000, 2002) on race-related service and critical agency. Worth noting as well is Jones' (2000) work on a group called Brothers of the Academy, young African-American scholars who are working collectively to integrate research, teaching, and service projects to effect reforms in the academy and in the schools that will enhance social justice. They represent an example of Baez' critical agency. Perhaps most prominent in the field of higher education in this regard is Bill Tierney's work, which has both sought to inscribe critical theory in the academy, building "communities of difference" (1993), and to advance and legitimate queer theory (1997), extending the civil rights social movement to sexual orientation, in matters ranging from the curriculum to personnel practices. Each of these represents the significance of studying the conscious political activity of academics. What is thus far relatively lacking is a sense of the other side of the coin, systematic studies of the collective backlash against affirmative action and "political correctness" on campus, and the effects of the rise of evangelical and fundamentalist Christianity on campuses not only among students but also among faculty members.

The examples we have discussed above are of faculty acting as social agents of change organized around significant identities. Yet there is also much work to be done with regard to the collective action of faculty members, and of graduate students, by virtue of their positions as employees. Ironically, although the academic workforce is one of the most highly unionized workforces in the country, and is an arena in which unionization is expanding, there is very little research on this subject (for a recent exception, see DeCew, 2003). If we are to understand the lives of faculty members as knowledge workers, particularly in community colleges and comprehensive public, masters granting universities, where most faculty are unionized, it is necessary for us to begin to study the ways in which the collective negotiations of professors affect not only the conditions of work of faculty members but also the future direction of higher education (see Rhoades, 1998a).

Such work will be particularly important in the new economy, for the growth areas of unionization are in various categories of contingent faculty, and in graduate employees. Some work is emerging in this realm, focusing on the struggles of organizing (Schmid and Herman, 2003), on the strategies and ideologies of the graduate employees (Rhoades and Rhoads, 2003), and on various implications of this organizing activity for higher education organizations (Julius and Gumport, 2002). From our standpoint, adopting a perspective that focuses on how members of

the instructional workforce collectively shape various aspects of the academy, from conditions of work to the configuration and content of the curriculum, opens us up to a range of important questions for exploring and understanding faculty members and their role in the academy.

CONCLUSION

To conceptualize faculty members as knowledge workers in the new, global economy is to offer a perspective that raises a range of research questions that have not been sufficiently addressed in the literature. Whether the focus is on time allocation, salaries and labor markets, international comparisons, or faculty members as social agents, our framing of faculty members challenges scholars to develop and expand new lines of inquiry. In our view, these emergent areas of scholarship hold much promise not simply in scholarly terms, as domains of research that will generate new theoretical and empirical insights into the academic profession, but also in terms of implications for professional practice in higher education, as issues that speak to the challenges and promise of academe in the twenty-first century.

The time allocation approach that has prevailed in the literature stems from a more industrial era model of managing and indeed controlling the distribution of employees' time among a range of discrete tasks. That is what much of the existing work is about — tracking and monitoring the ways in which faculty members spend their time on teaching versus on research, and seeking to redistribute that allocation. Even from the perspective of managing employees' time to enhance productivity, the dominant approach is insufficient. To fully understand productivity in higher education, one needs to address issues of joint production, and the interaction and synergy among various interrelated activities (Rhoades, 2001).

Yet we are now in a post-industrial economy. That raises a host of questions about faculty members' involvement in various entrepreneurial, outreach, and service activities in the new economy. It challenges us to explore more carefully that part of the workforce that is contingent, a marker of the new economy, considering their activities and allocation of time. It challenges us to think about how work in academe as in other institutions is organized, enacted, and delivered differently in the new economy than in the old. Finally, it challenges us to consider the academic profession as a workforce, and to take the perspective of that

workforce as it changes and organizes itself collectively to address changing conditions of work and purpose in the academy.

Much the same is true of scholarship on salaries and labor markets. Most of the literature focuses on the salaries of individual faculty members, and of aggregated groups of male and female faculty members, examining the extent to which a human capital explanation of salaries holds. By which is generally meant, to what extent are faculty salaries a function of meritocracy, of qualifications and achievements that are a central part of individuals' human capital.

By conceiving of faculty members as working in the new economy, questions arise about the extent to which their new activities (noted above in talking about time allocation) are rewarded in terms of salaries. To what extent are salaries affected by the different sorts of entrepreneurial activities of faculty members? To what extent are faculty members increasingly responsible for generating their own salaries through their grant activities? What is the changing share of entrepreneurially generated income of academic knowledge workers relative to their salaries? In short, the focus on teaching and research productivity as it relates to faculty salaries overlooks a range of new responsibilities and activities of faculty members.

In addition, if we focus on academics as knowledge workers, new questions arise about their organization and segmentation in different labor markets. We are seeing in academe, as in the larger economy, a changing distribution of full-time, secure employment relative to contingent employment. To what extent can individuals move between these categories of employment, and to what extent are they essentially different labor markets? Further, in drawing attention to substantial transformations in the broader economy, we are forced to begin to rethink the divisions along which we compare faculty salaries. Historically, research has concentrated on differences among academic disciplines, and types of institutions. Yet we are witnessing significant changes in the disciplines, a differential stratification among fields based in part on their connection to new economy employment, and the development of new types of academic organizations. Each of these patterns raises questions about salaries. Perhaps most importantly, scholars should consider moving beyond the traditionally classification schemes of academic fields, and of determining empirically whether the old categories continue to be appropriate, and whether new categories, related to features of the new economy, are becoming important in shaping faculty salaries.

Part of the new economy conceptualization is a focus on global dimensions of professions and organizations. Existing comparative work

tends to remain confined by traditional, industrial economy perspectives of faculty as employees whose time allocation should be the principal focus of analysis. Fittingly, the Carnegie Foundation (which had such a profound impact on the development of U.S. higher education beginning in the industrial era) sponsored international survey replicates the basic characteristics of U.S. based studies of professors.

Moreover, cross-national studies remain largely grounded in comparisons of national systems in terms of categories developed by Anglo-American scholars. The assumptions embedded in those conceptual frames about governance, and the interplay of state, market, and higher education do not capture essential features of academic work and organization in many higher education systems. Perhaps even more importantly, the global dimension of academic organization, action, and influence continues to be largely overlooked. Academics need to be understood as knowledge workers, whose activities are profoundly influenced by their position within various global networks of agencies and social agents that affect the configuration and workplaces of faculty members.

Finally, the prevailing conceptualization that drives literature on faculty socialization takes "the organization" and its bounded culture as the point of departure for analyzing the entry and exit of faculty members from the academic profession. In the context of a new economy in which the academic workforce, like many other labor forces is characterized for better or worse by increased flexibility and mobility with regard to individual colleges and universities, such an organizational perspective blinds us to important aspects, processes, and issues of socialization for academics. Patterns of socialization increasingly go beyond "the organization" and beyond one major socialization point, to include resocialization at various points in a career.

More than that, the prevailing organizational and managerial perspective fails to capture the social change role that academics can play. Faculty members are not only subject to colleges and universities, seeking assimilation into the academic profession, they are also potential change agents who in a variety of ways effect reforms in academic organizations by virtue of their political and academic work. Part of the new economy's effect on academe in terms of contributing to a reconfiguration of academics as knowledge workers in different types of higher education settings and through different sorts of educational delivery systems is to foster the formation of new patterns of collective organization and action within the changing professorate.

In short, then, the perspective we offer suggests that scholars (and

practitioners) consider the implications of the shift to a post-industrial, global economy for our understanding of academic employees as knowledge workers.

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