

Understanding Human Resources in Broad-Access Higher Education

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Broad-access higher education institutions play a large and increasing role in American human capital development, yet our knowledge of how these institutions function and of the factors that contribute to their effectiveness is sparse. If instructors and managers play a central role in promoting human capital development at the higher education level –as they do in elementary and secondary schools– then research efforts to understand what it takes to recruit, develop, and retain effective educators are likely to be particularly useful. In this chapter we identify lines of research related to instructors and managers of broad-access higher education that are likely to be productive both for understanding the effectiveness of these institutions and for identifying possible avenues for improvement.

Higher education institutions pursue multiple goals. Human capital development, most notably through classroom instruction for students, is clearly one of those goals. Providing additional services to aid students in their development of human capital – through such mechanisms as tutoring, mentoring, child care, thoughtful scheduling, etc. – also can support this goal. Many institutions also provide services to the local community and many have knowledge production goals through faculty research programs. In this paper we focus exclusively on the first goal, human capital production, and the role of instructors and managers in achieving this goal. Yet even within this narrower definition of the goal of broad-access institutions, the meaning of success or effectiveness is difficult to define or measure.

In this chapter we use extant research and some descriptive data to identify promising areas of research for understanding human resources in broad-access institutions. We focus primarily on the recruitment, assignment, development, and retention of instructors and the role of managers in these processes. Differentiating and assessing personnel and personnel practices is easier when we share an understanding of instructor effectiveness. As such, we begin in the next section with a discussion about the variation and distribution of instructor effectiveness, highlighting issues both in definition of effectiveness and in measurement. Next, we address personnel practices and policies – in particular the recruitment and selection, assignment, development, and retention of instructors. Third, we attend to the role of leaders or managers in these personnel practices, how these roles are different in higher education, as well as the systems and workforce dynamics that likely influence the quality of management in these organizations. We conclude with an overview of our main suggestions for further research, recognizing that while we choose to focus on one set of factors that are likely to contribute to human capital development in this chapter, there are many more influences and inputs into successful student outcomes.

MEASURING INSTRUCTIONAL EFFECTIVENESS

A central feature of many human resource decisions is information on employee and organizational performance. Effectiveness measures are inputs to the processes we discuss below, but can also serve as outcome measures in research. Thus a first order area of research is: *What measures of instructional effectiveness are feasible, reliable, and valid; and what is the distribution of effectiveness within and across broad access higher education institutions?*

A logical definition of instructor effectiveness is the extent to which the instructor helps students reach the goals for which the institution exists – for our purposes, human capital development. Notably, however, each institution’s human capital goals are multi-dimensional, changing, different across students, and often difficult to measure. As such, we often must turn

to proxy or partial measures. We briefly discuss four approaches to approximating instructional effectiveness: direct measurement of student outcomes, judgments based on observed performance, observable characteristics of instructors, and inference from labor supply.

Direct Measurement of Student Outcomes

Substantial research effort, much of it in the past decade, has demonstrated large and consistent variation in elementary and middle school teachers' ability to promote student test score growth (Hanushek and Rivkin (2010)).¹ It is not unreasonable to expect similar between-instructor variation in broad-access college instruction. College and primary schooling are very different on most dimensions, but the key instructional practices are far more similar: planning lessons, lecturing, asking questions, responding to confusion, managing time, etc. Work by Carrell and West (2010) studying early college math classes, albeit at a highly selective institution, does find instructor variation similar to elementary teachers.

Moreover, while K-12 research generally focuses on teachers' contribution to learning as measured by test scores,² the college setting permits analysis of a wider set of student outcomes. Persistence, graduation, and choice of major field are important, quantifiable outcomes at least partly a function of the quality of instruction students receive (Bettinger and Long 2010). Labor market outcomes are far more proximate and empirically tractable in this setting.

Observed Instructor Performance

Measuring employee performance by direct observation of how they carry out their work—a long-standing practice in the education sector—has recently been the focus of new empirical research. Research finds that observation-based assessments of performance in the classroom can predict more objective measures of student learning (see Kane et al., 2011; Grossman et al., 2010 on formal evaluation; and Jacob and Lefgren, 2008; Rockoff et al., 2012 on subjective evaluation). Students' assessments of teachers also predict student learning in some cases (Gates Foundation, 2010; Hoffman and Oreopoulos, 2007).

Observation-based measures can be applied across a wide range of classes and can provide practical information on what good instructors do differently. Both are useful characteristics for broad-access settings, but institutions and researchers should remain cautious. Observer bias is a particular concern. Observers may favor some instructors over others (Jacob and Lefgren, 2008). Student evaluations may favor instructors who give good grades over instructors who are tough graders but contribute more to students' long-run success (Carrell and West, 2010).

Observable Characteristics of Instructors

¹ These measures, often called value-added measures, are not without open methodological concerns (Rothstein 2010, Chetty, Friedman, and Rockoff 2011). Indeed, concerns about the non-random selection of students into particular schools and classrooms may be more salient in a college setting. Thus, the methods of such measurement are themselves an important area of research in broad access higher education.

² Exceptions include Chetty et al. 2010 and Dynarski et al. 2011 who study the college and career effects of students' earliest school teachers.

When more direct measures of instructor effectiveness are unavailable or when their imprecision and potential biases cannot be mitigated, managers and researchers often turn to observable proxies: instructor characteristics correlated with direct measures. The history of research in K-12 settings is that the intuitive proxies are not necessarily useful proxies (Hanushek 1986, 1997, Jacob 2007, Rockoff et al. 2008). For example, teachers with more years of teaching experience, and in particular, non-novice teachers, tend to be more effective (Kruger, 1999; Rockoff, 2004; Chetty et al., 2010).³ There is also some evidence that knowledge of content and pedagogy predicts teachers' effectiveness (Rockoff et al. 2008; Boyd et al., 2009; Ronfeldt, forthcoming). By contrast, higher levels of educational attainment—in particular, holding a master's versus a bachelors' degree—do not predict student learning (Hanushek 1986). This suggests an important question: whether college instructors' educational degrees—in particular, holding a doctoral versus a master's degree—is predictive of effectiveness. Additionally, it would be worthwhile to know if instructors' appointment type is a good proxy for effectiveness. Bettinger and Long (2010) found students assigned adjunct instructors were more likely to continue studying the subject, especially in professional fields. Hoffman and Oreopoulos (2007) found minimal differences in student achievement between tenure- and non-tenure-track instructors. Evaluating potential proxy measures is a potentially high-return investment of research effort.

Inference from Labor Supply

At any point in time, the faculty of an institution is, at least in part, a reflection of the labor supply available to that institution. In the absence of direct measures of performance researchers can use labor supply measures as proxies for the quality of instructors. These measures of labor supply may be particularly useful for measuring quality when comparing across large groups of instructors: within an institution over time, across institutions, across fields, or among large geographic areas.

Better employees reflect better applicants, unless institutions specifically choose less effective workers. A large, predictably-high-quality applicant pool may signal an appealing job. Similarly, high turnover rates may signal a lower quality workforce, not just because turnover is disruptive but because turnover indicates a less appealing job. As a result, even if some measure, such as instructors' undergraduate institution quality, is not a good direct measure of instructional effectiveness it may nevertheless measure the opportunities workers have in alternative jobs. Thus comparing that measure across jobs may provide insight into the level of skill needed by an instructor at a given college.

We have described four approaches that vary in precision, in cost and feasibility, and, likely, in biases. A research agenda for broad-access higher-education institutions that seeks to (a) *develop alternative measures*, (b) *understand the advantages and disadvantages of these measures*, and (c) *describe observed characteristics of individuals, institutions and areas associated with these measures* would provide substantially more direction for reform than is currently available. Measurement is also a first step for understanding institutional processes and, in particular, the role of leaders and managers in these institutions.

³ Newer research suggests gains may continue well into a teacher's career (Papay and Kraft, 2010). Carrell and West (2009) suggest instructor experience may have more complex effects on student outcomes.

MANAGING THE INSTRUCTOR WORKFORCE

Being able to identify highly-effective instructors or instruction is not enough to create an institution composed of such instructors and instruction. Research in K-12 education has highlighted the important role of both school leadership in general, and personnel practices in particular (Loeb, Kalogrides, & Béteille, forthcoming; Grissom and Loeb, 2011; Horng, Klasik and Loeb, 2010).

In this section we discuss four elements of human resource management that are likely to be important for higher education institutions: (1) recruitment and selection of instructors, (2) assignment or use of instructors across courses, (3) development of instructional skills, and (4) retention, particularly of highly effective of workers. As above, the discussion draws on relevant research from across education. While management structure at colleges can be quite different from K-12 schools, as when the faculty self-manage or select one of their own to serve for a time as department chair, these human resource tasks remain salient.

Recruitment and Selection

The effectiveness of broad-access institutions is partly a function of their ability to attract instructors who can motivate and support student learning. K-12 schools and higher education institutions vary in their ability to attract workers. Part of this variation is due to factors outside of the control of the institution such as its geographic location and the needs and characteristics of the students that it serves. However, managers can improve the pool of instructors available to the institution both through direct recruitment efforts and by affecting the appeal of the jobs.

A number of lessons emerge from research on K-12 schools regarding the role of recruitment and selection policies in promoting student learning. First, recruitment processes matter. Aggressive recruitment strategies attract a larger pool of candidates, and districts that make job offers early hire the most effective teachers (Levin and Quinn 2003; Boyd et. al. 2008). K-12 recruitment strategies may target the obvious candidates (i.e., individuals enrolled in a teacher preparation program) but, increasingly, they also target candidates who had not previously considered the teaching profession. Although the effectiveness of candidates recruited through these alternative routes varies, their recruitment substantially increases the pool of applicants, enabling districts to be more selective (Boyd et al. 2006; Raymond, Fletcher and Luque 2001; Laczko-Kerr and Berliner 2002; Decker, Mayer and Glazerman 2004; Darling-Hammond et al. 2005). We know of no research that has addressed the recruitment and selection process in broad-access higher education institutions, let alone how the process differs when hiring for adjunct and part-time positions versus tenure-track faculty.

Second, salaries affect who is attracted into teaching (Figlio 2002; Manski 1987; Loeb and Page 2000). What matters is not the absolute level of salaries, but how they compare to the salaries in plausibly alternative professions. While elementary and secondary schools are largely constrained in their ability to offer different salaries to different applicants, broad-access institutions likely have more flexibility. Offering competitive salaries may be particularly important in fields like math, physics, chemistry, and engineering, where qualified individuals often have attractive job alternatives outside higher education.

To get a sense of the extent to which higher education institutions offer competitive salaries and benefits, we use data from the Current Population Survey (CPS) to identify a nationally representative sample of higher education instructors and workers in other sectors.⁴ Figure 3 compares the average compensation of higher education instructors, all workers with a doctoral degree, and all secondary education teachers, over the period 1989-2009. We show that the average annual earnings from teaching at the post-secondary level were \$47.5K in 2010 dollars, considerably below the earnings of workers with doctoral degrees (\$95.6K).⁵ This suggests that post-secondary teachers who hold doctoral degrees may have attractive alternatives besides working in the higher education industry. Our analysis also suggests differences in the attractiveness of jobs *within* the higher education industry. Specifically, we find that public and private sector institutions tend to offer similar levels of compensation, but instructors in technical and vocational schools tend to earn substantially less than other higher education instructors, and are also far less likely to have pension or health benefits.

Third, working conditions also affect recruitment. Teachers in K-12 education demonstrate preferences for schools with higher-achieving students; white teachers tend to prefer schools with a larger proportion of white students; and teachers in general prefer to work in schools that are located close to where they live or where they were raised (Scafidi, Stinebrickner, and Sjoquist 2003; Hanushek, Kain and Rivkin 2004; Boyd et al. 2005a, 2005b; Loeb, Darling-Hammond and Luczak 2005). School characteristics, particularly the quality of school leadership, also affect teachers' career decisions in K-12 settings (Boyd et al., 2011; Ladd, 2011; Grissom, forthcoming). These and other factors might play a role in individual decisions on whether (and where) to teach at the higher education level. For example, applicants might be less worried about working "close to home," but more worried about the job prospects of spouses if they move to a new area, or the prestige of the institution. Or they might be more worried than K-12 teachers about the availability of specific resources such as libraries, academic and professional workshops, or opportunities for regular interaction with local businesses and policymakers. Though these location and facilities dimensions may play out very differently when instruction occurs online.

In addition, both the stability and the flexibility of a job might affect the extent to which an individual is attracted to it. On one hand, tenure-track positions might be more attractive than non-tenure-track ones, because of the stability that they confer. On the other hand, some highly qualified individuals might prefer to complement teaching with other non-academic activities, and might value contracts that give them the flexibility to engage in those activities. Attracting individuals who are interested in non-academic activities might be relevant to some higher education programs (e.g., technical/vocational programs, professional degree programs) more than to others.

Using data from the Integrated Postsecondary Education Data System (IPEDS) for the period 2002-2009, we compare broad-access higher education institution instructors to those at more competitive higher education institutions. As shown in Figure 1, in both the public and for-profit private sectors the proportions of tenured and full-time adjunct professors at less

⁴ Higher education instructors correspond to employed individuals who report that they work as "post-secondary teachers" in one of the following industries: "colleges and universities, including junior colleges", "vocational schools", or "business, technical, and trade schools and training".

⁵ All reported differences are statistically significant at the $p < .05$ level or below.

competitive 4-year colleges are greater than the corresponding proportions among more competitive colleges, while the proportion of part-time adjunct faculty is lower. This pattern is consistent throughout the period of analysis (see Figure 2), and may be relevant in light of research that suggests that tenured and full-time instructors can be more effective than non-tenured and part-time faculty (Bettinger and Long 2004, 2010; Ehrenberg and Zhang 2005). Still, tenured faculty at less-competitive institutions are likely to differ meaningfully from tenured faculty at competitive or more competitive institutions. In particular, research productivity is likely to be more of a factor in tenure at more competitive institutions. To date, research comparing tenure-track to non-tenure-track faculty has made comparisons only within institutions.

The discussion so far presumes that institutions will be able to identify the best candidates from within the pool of applicants, but this is not at all obvious. The process through which managers choose from among competing candidates, the type of information and criteria they rely on to make this decision, and whether they revise their hiring strategies based on lessons from past hiring experiences can all affect selection. As discussed in the previous section, managers can rely on observable characteristics such as the educational attainment of candidates and their academic (including teaching) and non-academic work experience. They can also obtain information about their expertise in a specific subject or a specific area within a subject, and their connections to the local business community. Moreover, they can rely on references to assess a candidate's interpersonal skills, ability, willingness to engage with students, and motivation to teach; and they can try to "guess" the extent to which a particular candidate will be good fit for the institution and its culture. We know very little about what characteristics of candidates are valued by hiring authorities in higher education institutions in general, and in broad-access institutions in particular.

The preceding discussion suggests at least four areas for further research that seem promising in helping us understand the role of human resource policies in broad-access higher education institutions: *What are the recruitment strategies used by these institutions in order to attract a large pool of candidates into teaching? What processes, information and criteria are used in order to choose among these candidates? To what extent are the different kinds of benefits offered by these institutions (salaries, non-salary benefits, working conditions, job stability and flexibility, other incentives) effective in terms of matching the preferences of candidates and attracting effective teachers? Are particular recruitment strategies pursued, and particular benefits offered, in order to attract individuals into subjects that face a critical shortage of qualified staff?*

Job Assignment

Broad-access institutions must also decide how to allocate their faculty—with varying qualifications, experience, and skill—to different courses, sections, and other responsibilities. In K-12 settings teacher effectiveness is often not equally distributed across schools (Boyd et al. 2009, Hanushek 1986), nor equally distributed within schools between different classes (Kalogrides, Loeb, & Béteille, 2011; Clotfelter, Ladd, and Vigdor, 2006). The least effective teachers, as measured directly or by proxies like experience, are generally assigned to schools and classes where students are furthest ahead of their grade level, suggesting these assignments are not optimal for equitable student outcomes.

Job assignment decisions are likely also a salient human resource decision for leaders at broad-access institutions. Using data from Ohio's public four year colleges and universities, figure 5 shows the proportion of courses, weighted by enrollment, taught by instructors of four different appointment types: tenured or tenure-track, graduate students, part-time adjunct, and full-time adjunct. We compare the relative proportions at more and less competitive institutions⁶, and for introductory and advanced courses.⁷ Across all courses (the leftmost panel), both competitive and less-competitive institutions staff courses with more tenured or tenure track faculty and fewer graduate students than does the flagship institution. Less-competitive institutions use more part-time adjuncts and fewer full-time adjuncts, though the proportions of tenure-track faculty are similar.

The patterns are somewhat different when we compare introductory versus advanced courses. Introductory courses (the middle panel) are more likely to be taught by adjunct faculty, and less likely to be taught by tenured or tenure-track faculty than are advanced courses. However at broad-access institutions, more introductory courses are taught by adjuncts than at more-competitive institutions. Also noticeable, graduate students crowd out tenure(-track) faculty at more competitive institutions, partly because of their availability. In advanced courses (the rightmost panel) the patterns are reversed. Advanced courses are mostly taught by tenure(-track) faculty, and graduate students crowd out the adjunct positions at the flagship.

The evidence in Figure 5 points to substantial sorting of instructors across courses, even within institutions. The differences highlight different appointments as a key dimension in higher education human resources that is rare in K-12 settings. Yet, this is not direct evidence of inequities in access to high quality instruction. If graduate students and adjuncts are relatively better at introductory courses, then the patterns could reflect an efficient use of instructional resources. Alternatively, the patterns may be driven by senior faculty's preferences to teach advanced courses. A parallel analysis could investigate differences *across students*; any such patterns would have more implications for equity in access to quality.

These data from Ohio are, of course, just one brief example of status quo assignment patterns. But whatever the assignment patterns the decisions are likely to be consequential for student outcomes. Bettinger and Long (2010) find evidence that exposure to part-time adjunct instructors can influence students' decisions about what future courses to take and which major to choose. Borjas (2000) found that the undergraduate students of foreign-born graduate students had poorer outcomes in introductory economics classes, though results from other settings are mixed (Fleisher, Hashimoto, and Weinberg 2002). Ehrenberg and Zhang (2006) report some evidence of lower graduation rates at institutions that use more non-tenured faculty.

The research to date and the data presented suggest several research questions: *How do leaders in broad access institutions decide which and what kind of faculty will teach different courses and sections? What are leaders' objectives or goals in these decisions? What*

⁶ Competitiveness measured by Barron's selectivity rankings. More competitive includes Barron's "Competitive" or higher, and less competitive is Barron's "Less Competitive" or lower. We also show the flagship institution, Ohio State, separately.

⁷ Introductory courses are courses where 75 percent of students are in their first year of college. Advanced courses are courses where 75 percent of students are in their third or fourth years.

information do leaders use to make these decisions? What is the effect of these decisions on student success?

One hypothesis for the sorting of teachers at the K-12 level is that a fixed salary scheduled incentivizes teachers to find easier teaching assignments as a way to increase their effective compensation. If colleges have and exercise greater flexibility in compensation other patterns may emerge in broad access institutions. Other dimensions that make assignments more or less preferable are also likely worth investigation: location, hours, class size, student level.

Finally, traditional notions of job assignment, courses, sections in higher education are being reconsidered where colleges are moving instruction online. The increasing use of technology to aid instruction may reprioritize which underlying skills comprise an effective instructor; generating discussion among students in a chat room may be very different from generating discussion in a classroom. Technology may also allow colleges to divide up tasks in new ways that leverage comparative advantage. The standardization implicit in some online course approaches could also reduce the variation in student outcomes due to instructors. All of these are very new questions, but the underlying management task of job assignment remains critical.

Development and Supports

As described above, teachers, at least K-12 teachers, tend to improve with experience at the beginning of their careers (Rockoff, 2004) and perhaps later in their careers as well (Papay and Kraft 2010). Recent research also provides evidence that teachers' improvement varies depending on the quality of their peers and the quality of the school in which they teach (Bruegmann & Jackson 2009; Loeb, Kalogrides, & Bêteille forthcoming). There is some recent evidence that evaluation systems that include individualized feedback based on observed practice lead to improved teacher effectiveness among mid-career teachers (Taylor and Tyler 2012). Moreover, a few intensive and sustained professional development programs have demonstrated substantial effects both on teaching and on student learning (Yoon, et. al. 2007). All this evidence points to the potential for institutions to improve the effectiveness of current instructors. Yet, much professional development, even well touted programs, has shown little effect (see for example, Garet et.al. 2010 or Glazerman et. al. 2009). The ability of an institution to improve its instructional workforce is likely to vary and is also likely to be consequential for overall institutional effectiveness.

To our knowledge, there is no research that systematically describes professional development in higher education – either instructional improvement or the programs and policies aimed at this improvement. A first order question in understanding instructor development is: *To what extent do instructors improve over time and how does this improvement vary across institutions, programs within institutions, and individuals?* If instructors in some contexts improve while those in other contexts do not, then the existing variation may shed light on useful approaches.

Professional development can take many forms including formal coursework or degrees, in-service programs for individuals or groups, paid planning time for instructors to develop or refine courses, mentoring or coaching programs, individualized performance feedback, and others. While it is tempting to jump to measuring which professional development programs are

effective, there is such a range of approaches to professional development – both formal and informal – that the effectiveness of a single program would likely tell us little about best practices or even the relative effects of that program.

Leaders of broad-access higher education institutions, like school leaders in the K-12 sector, can influence professional development opportunities for their instructors along at least four dimensions. First, they can influence the extent to which the professional development addresses the needs of the instructors it targets. A productive research line could assess the alignment between instructors' needs and the development resources they have access to. Second, institutional leaders can influence the extent to which professional development opportunities make use of high quality approaches. A mentoring approach to professional development, for example, may be beneficial if the mentors are skilled, but may not be if the mentors themselves don't have the knowledge to help mentees improve. Third, leaders can affect instructional improvement by incentivizing instructors to improve. If instructors are required to sit in classes, for example, they may have no incentive to learn the material covered. However, if they are evaluated on the extent to which they learn, they may be more inclined to learn. Performance improvements resulting from evaluation systems (Taylor and Tyler 2011) may stem from the incentives imbedded in the evaluation system, even if those incentives are relatively weak or non-monetary. Finally, institutional leaders can influence professional development by varying resources devoted to instructional improvement, and by thoughtfully allocating those resources across different faculty. The optimal investment for a part-time adjunct on a short contract may differ from that for a new tenure-track assistant professor.

In keeping with these broad dimensions for the influence of institutional leaders on instructional improvement, research on professional development could productively shed light on four sets of questions. *First, what are common areas of weakness for instructors at broad-access higher education institutions, how do these needs vary, and how well are these needs targeted by current resources for improvement? Second, to what extent are broad-access higher education institutions making use of high-quality options for instructional improvement? Research can also shed light on which options are high quality. Third, to what extent are instructors incentivized to improve – for example, are they assessed on their effectiveness and are they rewarded for improvement? Fourth, how much do institutions spend on employee development and do they measure the returns to that investment.*

Retention and Turnover

While recruiting effective teachers and providing opportunities and incentives for improvement are two mechanisms for creating high-quality instruction for students, efforts to retain effective teachers are also an important aspect of ensuring high-quality instruction. Investments in recruitment and development will only pay off to the extent that, once identified and supported, these teachers stay in the institution.

Using CPS data for the period 1990-2010, we estimated turnover as the proportion of individuals who were post-secondary teachers in the previous calendar year who were no longer post-secondary teachers at the time of the survey. The estimates, which are reported in Figure 6, provide a sense of the incidence of year-to-year turnover from the post-secondary teaching profession. We find that, on average for the whole period, 13 percent of post-secondary teachers left teaching each year. This rate is similar to the annual industry turnover rate among all

workers who hold a doctoral degree (13.2 percent) and to the proportion of secondary education teachers who leave teaching each year (11.1 percent). Within higher education, the turnover rates of the public and private sectors are also similar.

It is unclear how much of the turnover observed in higher education is detrimental to student learning and how much of it is beneficial. To assess this, we would need to know who is more likely to leave the industry, the most effective teachers, the least effective ones, or a group in between. More broadly, research should seek to understand the determinants of the decision to leave higher education. Much research on the determinants of turnover among K-12 teachers suggests that teachers are more likely to remain in the profession when they work in schools with high performing students and students whose race is the same as theirs (Scafidi, Stinebrickner, and Sjoquist 2003; Hanushek, Kain and Rivkin 2004; Boyd et al. 2005a); when they perceive they are supported by their school leaders (Boyd et al., 2011; Ladd, 2011; Grissom, forthcoming; Ingersoll, 2001); and when they earn higher salaries and receive pension benefits from their employer (Murnane and Olsen 1989; Hanushek, Kain and Rivkin 2004; Harris and Adams 2007). Ehrenberg, Kasper and Rees (1991) find that higher levels of compensation are also associated with lower turnover among assistant and associate professors in higher education, although not for full professors. They also find that the importance of salaries for retaining teachers is lower for institutions with graduate programs than it is for 4-year undergraduate institutions and it is lower for these institutions than for 2-year colleges.

Observable teacher characteristics also predict retention in K-12 schools. In particular, the least experienced are most likely to leave, and the most experienced teachers also leave at high rates due to retirement. In addition, and of importance for managing instructional quality, while both more effective and less effective teachers choose to leave, less effective teachers are more likely to leave, particularly during their first few years of teaching (Boyd et al., 2009; Goldhaber, Gross and Player, 2007; Hanushek, Kain, O'Brien and Rivkin, 2005).

The evidence on K-12 schooling, perhaps not surprisingly, suggests that many of the factors that are likely to attract individuals into teaching (e.g., salaries, non-salary benefits, working conditions) are also likely to affect retention. However, the features that make teaching more appealing can make it more appealing for both effective and ineffective teachers. Much current debate in elementary and secondary education concerns school leaders' ability to dismiss ineffective teachers. Both legal and cultural factors hinder dismissal in K-12 schools and similar issues may (or may not) hold in higher education institutions. As shown in Figure 1, the proportion of tenured teachers in less selective higher education institutions is high. There is no research that we know of that assesses the effects of tenure laws per se on instructional quality in either K-12 or higher education. Still institutional features such as tenure do play a role in staffing decisions, if only by constraining those decisions, and may be a lever for productive reform.

Overall, this discussion suggests at least five promising areas for research in broad-access higher education: *What is the level of teacher turnover among broad-access higher education institutions? What characteristics of teachers, their jobs, and the institutions in which they work are associated with a higher (lower) probability of retaining teachers? How does turnover affect student learning? To what extent are managers able to dismiss ineffective teachers and retain the most effective teachers? How do managers themselves affect turnover?*

MANAGERS' WORK AND WORKFORCE

Throughout this chapter we have discussed the importance of personnel practices for managers and leaders in broad-access institutions. The set of individuals with responsibility for human resource decisions at colleges and universities, whom we have been calling managers and leaders, is noticeably different from K-12 schools. In higher education institutions these tasks are often partly managed by the faculty as a whole, or by one faculty member serving part-time as a department chair. Nevertheless, the list of human resource tasks remains. To conclude we recognize four additional factors concerning higher education managers, even if that roles is distributed, and their effects on students: non-classroom resources and direct interactions; management skills and dispositions; the role of unions and collective bargaining; and the workforce dynamics of managing the managers themselves.

Educational institution leaders can affect students in ways unrelated to the quality of classroom instruction. In K-12 setting leaders interact with students in hallways, provide access to support services such as tutoring, enhance parent engagement, and so on. In higher education institutions the importance of such non-classroom resources are likely to have at least as much effect on student success. Availability of child-care, clarity of financial aid options, scheduling of classes, library resources, writing centers, and counseling, each may affect students' human capital accumulation. For example, Bettinger and Baker (2011) find that students who were randomly assigned to receive coaching services were more likely to persist during the treatment period and were more likely to be attending the university one year after the coaching had ended. Similarly Webber and Ehrenberg (2009) find that student service expenditures affect graduation and first-year persistence rates.

Managers and leaders of higher education institutions are drawn from and fill a diverse set of roles. It is far beyond the scope of this paper (and the expertise of the authors) to differentiate these roles and the skills and behaviors needed to perform them well. While quite a few studies address organizational *structures* in higher education (e.g. Birnbaum, 1988; Altbach, 2005), the research on the effectiveness of higher education leaders and, particularly, on the middle-management of higher education appears to be even sparser than the research on higher education instructors.⁸ As a starting point for research in this area, we suggest a mapping of typical management and leadership roles linked with their potential effects on students. With such a mapping could come a better understanding of the skills, dispositions and behaviors needed to effectively manage a diverse group of teaching and non-teaching staff, including graduate students, adjunct, tenure-track, tenured teachers, as well as administrative and support staff.

The discussion of instructors' career paths in the prior section highlights the importance of both workforce dynamics (e.g. workers' preference for higher compensation) and institutional structures and behaviors (e.g. administrator support and direct recruitment efforts) for developing an effective instructor workforce. The same factors hold true for managers. Research in K-12 schools shows that school leaders (principals) are as influenced by school characteristics, such as the achievement and poverty level of students, as are teachers. It also shows that incentives and

⁸ In a rare exception, Goodall (2008) finds that the research quality of higher education institutions improve, on average, when better scholars are appointed as leaders, but this result sheds no light on broad-access institutions and the goal of student learning.

policies can overcome these preferences and draw high-quality managers to seemingly less appealing positions (Loeb, Kalogrides and Horng, 2010).

We were unable to find research that describes the career paths to leadership roles in open access institutions. Three features of career paths documented in K-12 education provide an initial focus for understanding the leadership workforce in these institutions: recruitment; advancement opportunities; and differential quality. First, until recently, there has been very little effort at direct recruitment of school leaders for elementary and secondary schools. Instead, leaders came from the set of teachers who volunteer to take administration training courses because they are interested or because they were “tapped” informally by current leaders (Myung, Loeb, and Horng, 2011). Informal processes emerged which may be inefficient for the organizations. For example, homophily in the form of principals tapping or encouraging teachers of their own race to become principals is evident, at least in some areas (Myung, Loeb, and Horng, 2011). Second, and in keeping with this lack of recruitment, the organizational structures of elementary and secondary schools provide few opportunities for potential leaders to practice or demonstrate the skills they need to be successful leaders. The vast majority of school principals were teachers (often a requirement). Yet teaching is quite different from school leadership and good teachers may not make good principals. Third, the school leaders in low income elementary and secondary schools are measurably different, on average, from those in schools serving higher income students, with less leadership experience, a higher probability of interim or temporary status, and college degrees from less competitive institutions (Loeb, Kalogrides and Horng, 2010).

While managers at all levels of education may play an important role in shaping the quality of instruction, their actions are often constrained by the need to bargain with teacher unions. Higher education is no exception: around 40 percent of faculty are represented by a union (Julius, 2011). Whether this has positive or negative consequences for the quality of instruction remains an open and challenging question. A consistent finding in the K-12 body of research is that unionization and collective bargaining lead to increases in teacher salaries and education expenditures (Eberts, 2007; Hoxby, 1996; Paglayan, 2012). However, existing research provides mixed evidence of the impact of collective bargaining on student learning, with a few studies suggesting that collective bargaining may have standardization effects that benefit most children but that are detrimental to kids at the very bottom or top of the achievement distribution (Goldhaber 2006). As scholars move forward to study how unions influence higher education, a lesson from K-12 research that may prove useful is that cross-sectional studies may be deceiving and, to the extent possible, should be avoided (Paglayan, 2012).

This section argues for at least four productive research paths. *(1) What are the non-classroom features of higher education institutions that impact student human capital accumulation and how do managers differ in their choice and implementation of these features? (2) What are typical leadership roles within broad-access higher education institutions that influence student learning; what tasks do these leaders perform; and what skills and behaviors are necessary to perform these tasks effectively? (3) What are the typical paths to leadership roles; is there direct recruitment for these roles; and do potential leaders have opportunities to develop and demonstrate the skills they need to fill these roles? (4) What is the distribution of*

effective school leaders across and within institutions and what institutional factors (e.g. salaries, prestige, location, management) support or mitigate these differences?

CONCLUSION

The goal of this chapter is to identify research topics related to instructors and managers in broad-access higher education institutions that are likely to be productive both for understanding the effectiveness of these institutions and for identifying useful levers for reform. Research in K-12 schools points to the importance of teachers and school leaders for student success. While teachers directly affect students in classrooms, school leaders form the teacher workforce through recruitment, assignment, development and retention of teachers. In this paper we focus primarily, though not exclusively, on the role of managers in these human resource dynamics. These are clearly not the only important roles for leaders of these institutions, but it is the focus here.

The most evident result from our undertaking is that surprisingly little research has examined the instructor workforce in higher education institutions. Work on measurement or definition of instructional effectiveness is sparse. Similarly little research has described the characteristics of instructors, how these vary across institutions, or how institutional or manager characteristics predict this distribution. In contrast, there is a large literature in both these areas for K-12 schooling.

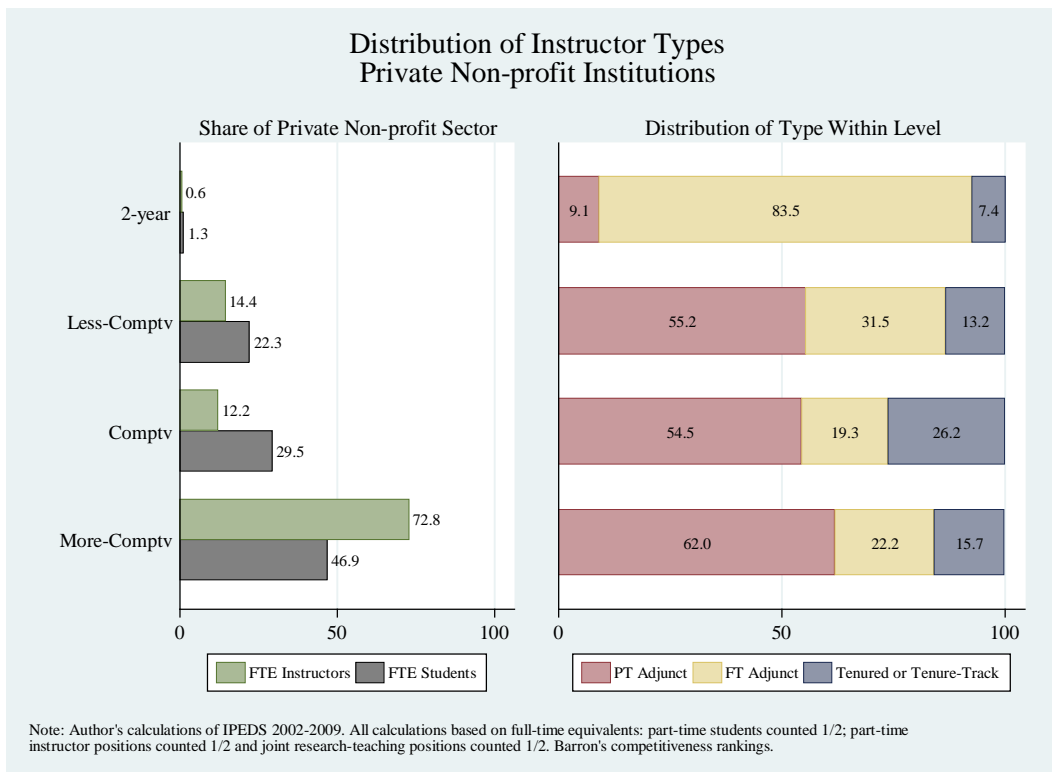
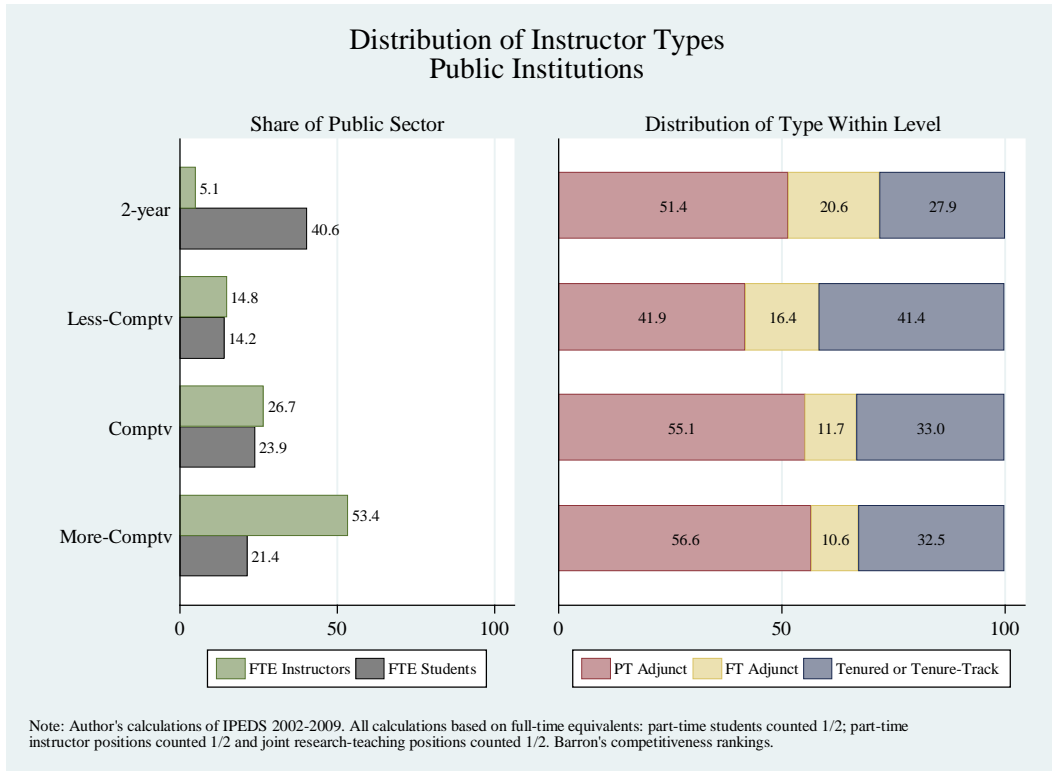
The research challenge is compounded by recent rapid growth in online education, particularly at the college level and particularly at broad-access institutions. To the extent technology changes how schools carry out instruction, those changes will have ripple effects on how schools recruit, develop, measure, and retain faculty. Some new questions in personnel management will emerge, the optimal strategies may change, and the number of faculty jobs may shrink. However, the fundamental human resource tasks, and accompanying research questions outlined in this chapter, will remain.

The studies that we reviewed suggest several potentially productive research areas, highlighting seven in particular. The first would generate a better understanding of instructional effectiveness, asking questions such as: what measures of instructional effectiveness are feasible, reliable and valid; and how is effectiveness distributed within and across broad access higher education institutions?

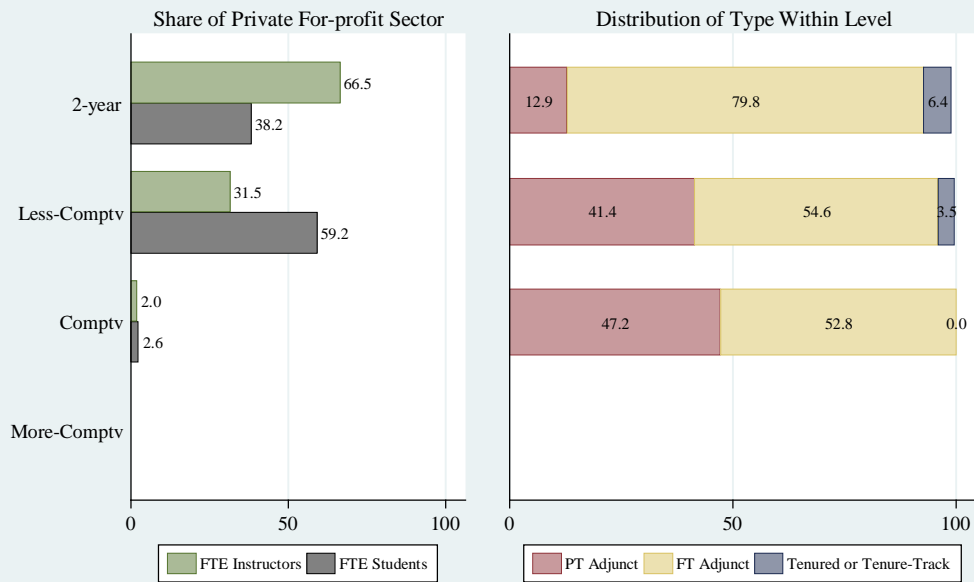
A second productive area would address the recruitment of instructors, identifying processes as well malleable (e.g. salary or recruitment) and non-malleable (e.g. location or students) characteristics of the institution that affect the supply of high quality instructors. A third, perhaps smaller, research agenda would seek to understand how leaders decide which faculty teach which courses and the effects of these choices on student success. Fourth, our understanding of instructional quality at higher education institutions and the role of managers in this quality would benefit from a better understanding of instructor development: identifying typical areas of weakness as well as high quality options for improvement, resources spent, and incentives for instructors aligned with improvement. A fifth research area would explore instructor turnover and the role of the institution in this turnover, specifically differentiating the turnover of more and less effective instructors.

A sixth, somewhat vast, research line would map the diverse leadership roles in these institutions and potential mechanisms by which these leaders might influence student learning and progression. Eventually, this line would also include an analysis of the leadership or management skills needed in order for these mechanisms to run smoothly. This agenda would provide insights into the influence of leadership in student learning that does not flow through classroom instruction. A seventh and final research goal would be to better understand the career paths of leaders themselves, identifying their preferences as well as the institutional features that promote or hinder the recruitment, development and retention of good leaders.

Figure 1. Relative importance of types of instructor across different types of higher education institutions, 2002-2009



Distribution of Instructor Types Private For-profit Institutions



Note: Author's calculations of IPEDS 2002-2009. All calculations based on full-time equivalents; part-time students counted 1/2; part-time instructor positions counted 1/2 and joint research-teaching positions counted 1/2. Barron's competitiveness rankings.

Figure 2. Proportion of adjunct faculty over time, by type of institution, 2002-2009

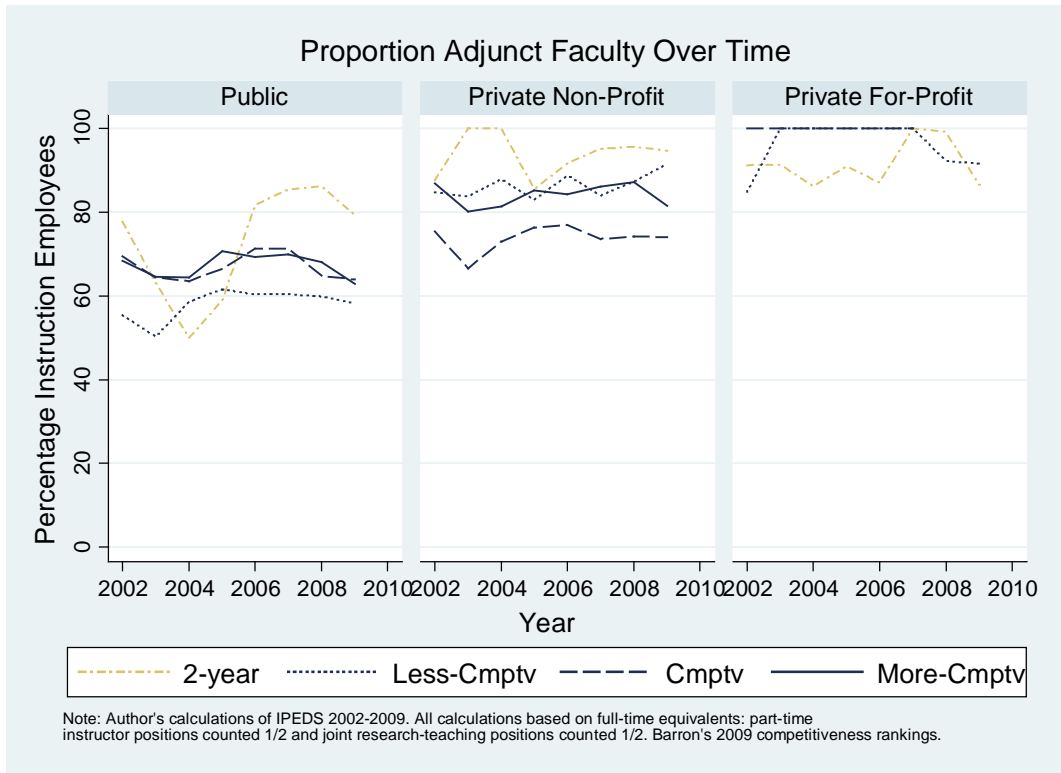


Figure 3. Average salary and non-salary benefits of higher education instructors by type of institution (1989-2009)

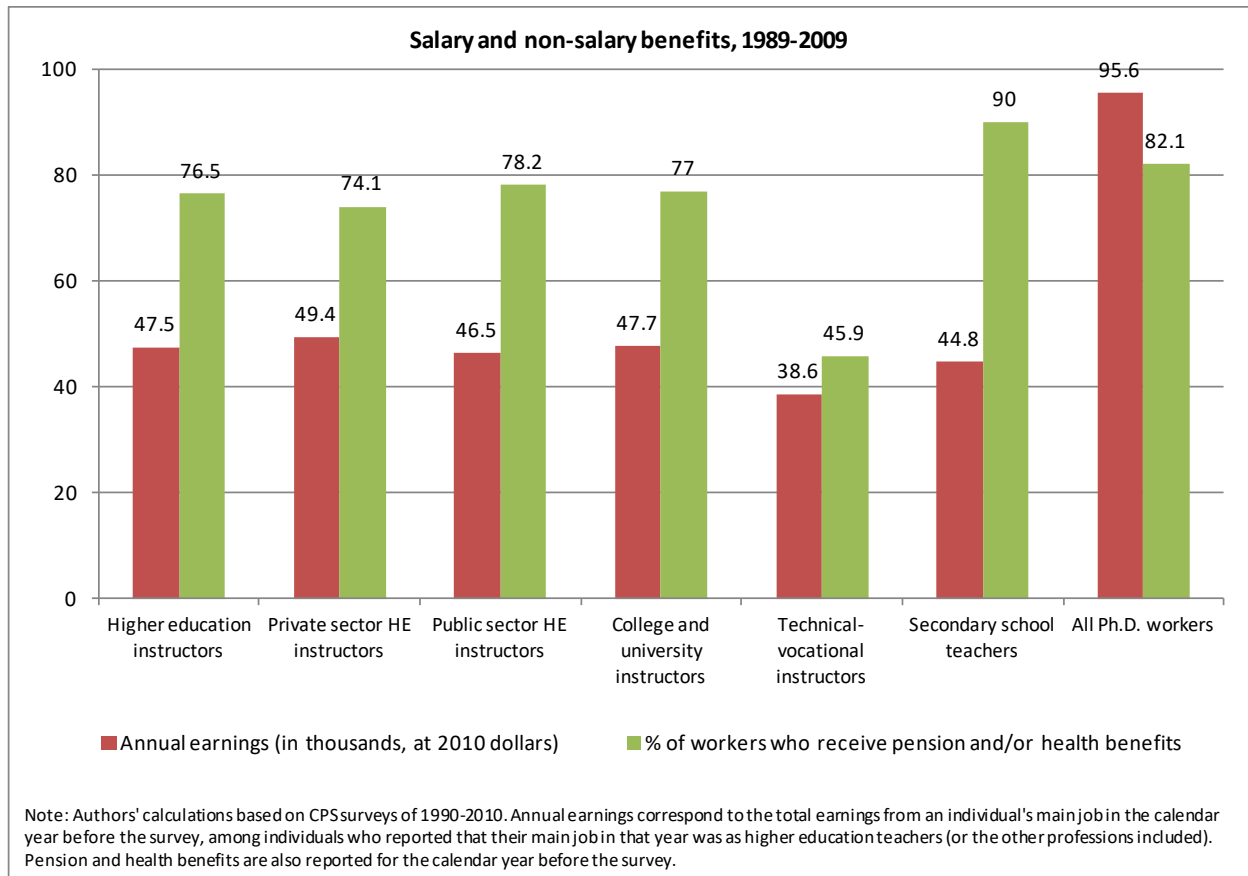


Figure 4. Evolution of salary and non-salary benefits over time, 1989-2009

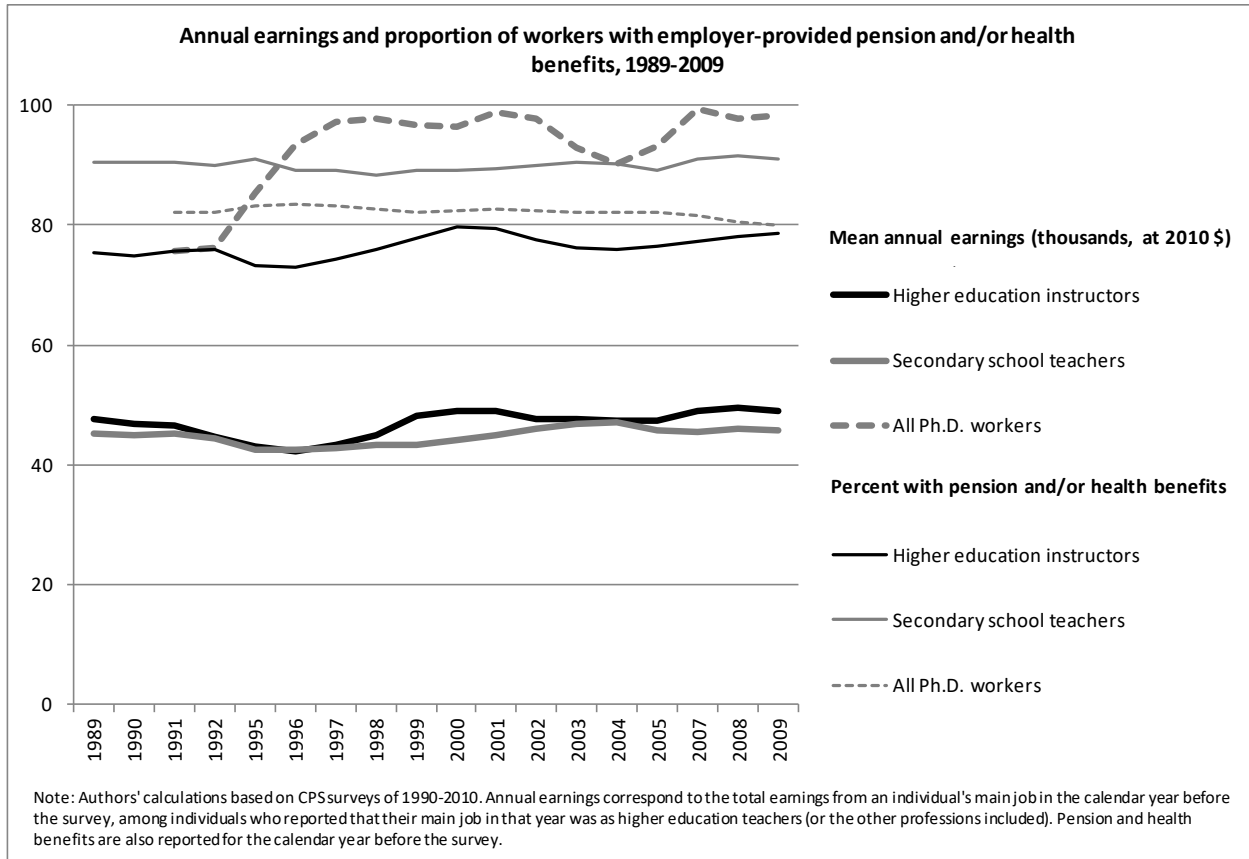


Figure 5. Distribution of instructor types by type of institution and type of course taught

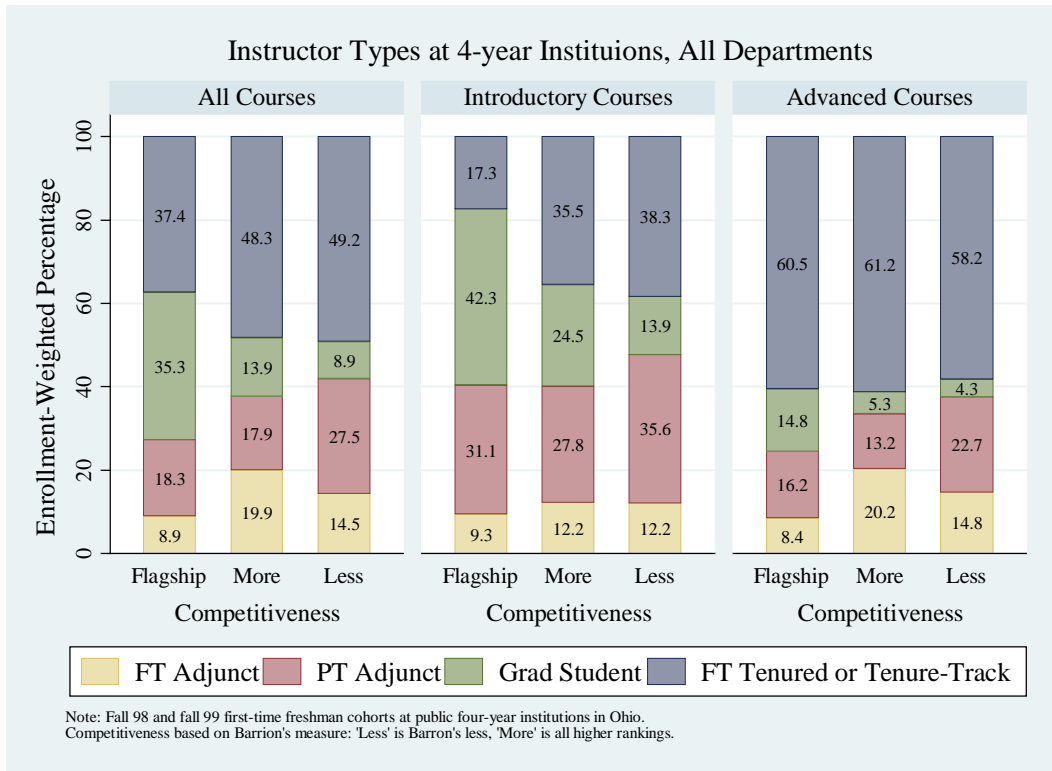
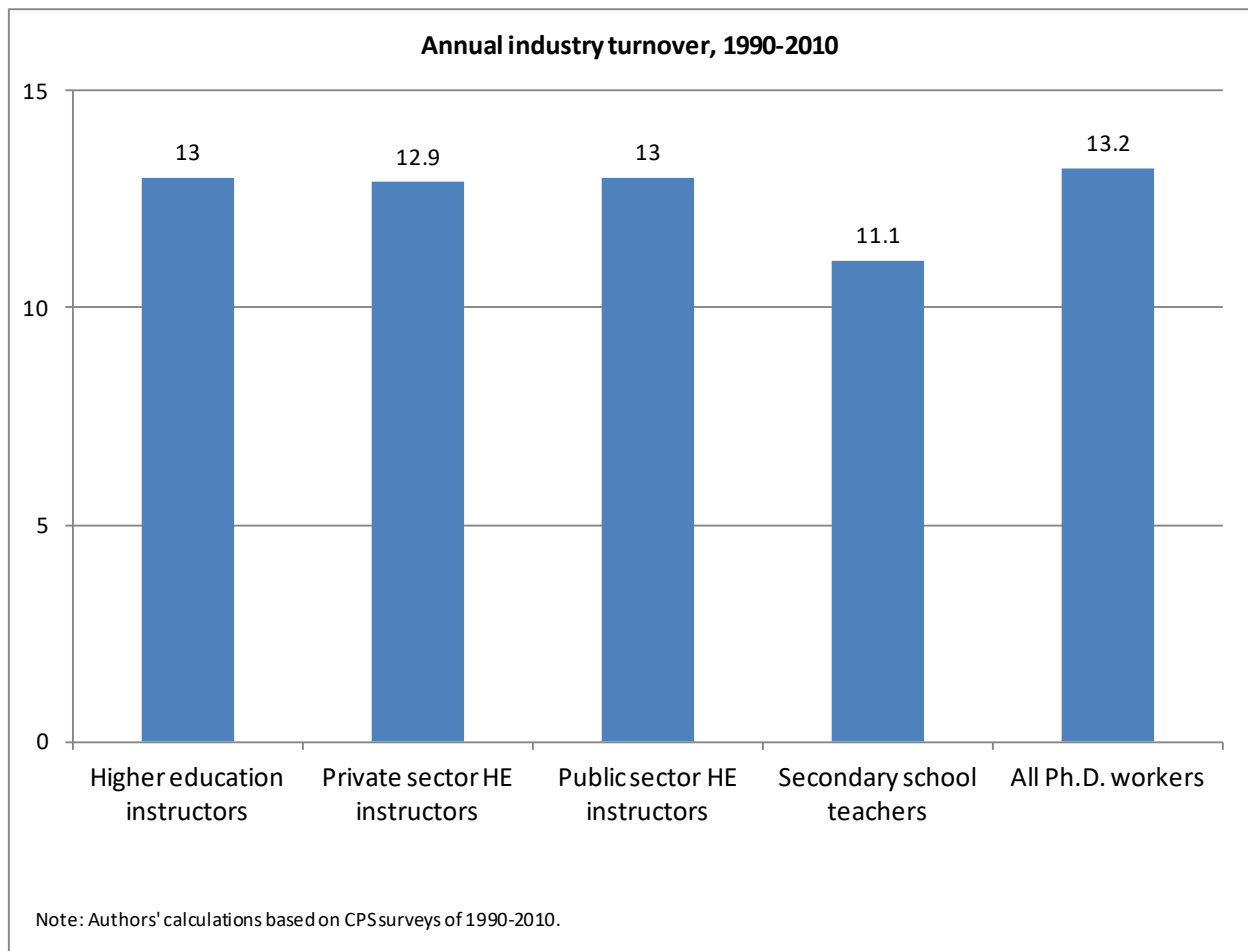


Figure 6. Average annual turnover from higher education teaching (1990-2010)



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Table 1. Average earnings, non-salary benefits, annual turnover, and proportion of workers with professional or doctoral degrees

	Annual earnings (in thousands, at 2010 dollars)	% of workers who receive pension and/or health benefits	Annual turnover	% of workers with professional or doctoral degrees
	1989-2009	1989-2009	1990-2010	1992-2010
Teachers				
Higher education instructors	47.5	76.5	13	40.7
Private sector HE instructors	49.4	74.1	12.9	43
Public sector HE instructors	46.5	78.2	13	39.3
College and university HE instructors	47.7	77	---	41.1
Technical-vocational HE instructors	38.6	45.9	---	4.3
Secondary school teachers	44.8	90	11.1	3.2
Managers				
Higher education managers	59.6	88.7	17.7	17.2
Elementary and secondary school managers	65.3	91.8	12.4	11
All Ph.D. workers	95.6	82.1	13.2	100

Source: Authors' calculations based on the CPS.