

# EFFECTS OF UNIONIZATION ON GRADUATE STUDENT EMPLOYEES: FACULTY-STUDENT RELATIONS, ACADEMIC FREEDOM, AND PAY

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In cases involving unionization of graduate student research and teaching assistants at private U.S. universities, the National Labor Relations Board has, at times, denied collective bargaining rights on the presumption that unionization would harm faculty-student relations and academic freedom. Using survey data collected from PhD students in five academic disciplines across eight public U.S. universities, the authors compare represented and non-represented graduate student employees in terms of faculty-student relations, academic freedom, and pay. Unionization does not have the presumed negative effect on student outcomes, and in some cases has a positive effect. Union-represented graduate student employees report higher levels of personal and professional support, unionized graduate student employees fare better on pay, and unionized and nonunionized students report similar perceptions of academic freedom. These findings suggest that potential harm to faculty-student relationships and academic freedom should not continue to serve as bases for the denial of collective bargaining rights to graduate student employees.

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In its 2004 *Brown University* decision, the National Labor Relations Board (NLRB) rejected extending collective bargaining rights to graduate student assistants at private universities. The NLRB argued that graduate student assistants were primarily students and thus not statutory employees, the student-university relationship was not analogous to the traditional employee-employer relationship, and extending collective bargaining rights to graduate student assistants would threaten the quality of student-teacher relationships and “infringe upon traditional academic freedoms” (Brown University 2004: 490). Interestingly, the dissenting Board members contended that the latter argument was not “supported by empirical evidence

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of any kind” (Brown University 2004: 499), a criticism the majority rejected.

In this article we examine the impact of collective bargaining on the quality of student–teacher relationships and on academic freedom in light of this need for empirical evidence. Previous work has studied this issue through surveys of faculty experiences with, and attitudes toward, student collective bargaining (Hewitt 2000) and through interviews with graduate student union representatives and university officials (Julius and Gumpert 2003), whereas ours is the first to directly compare the experiences and perceptions of unionized and nonunionized graduate student employees (GSEs). Besides analyzing the impact of collective bargaining on student–teacher relationships and academic freedom—two aspects of doctoral education the *Brown* Board argued would be damaged by graduate student unionization—we also evaluate differences in the economic well-being of unionized and nonunionized graduate student employees. We frame our research with relevant theories from the industrial relations tradition. Of necessity, our analysis uses data from the public rather than the private sector. Nonetheless, our findings add insight into the graduate student collective bargaining debate.

### **Graduate Student Collective Bargaining and the NLRB: A Brief Review**

Historically in the United States, graduate research and teaching assistants at private universities have been prevented from bargaining collectively. In 1972 when the American Association of University Professors sought to represent several work units at Adelphi University, including full-time and part-time faculty, librarians, department chairs and program directors, and graduate teaching and research assistants, the NLRB ruled against the inclusion of graduate student employees in the petitioner’s bargaining unit, citing that they were “primarily students” (640). Two years later, when a group of PhD student research assistants at Stanford University petitioned for collective representation, the NLRB dismissed their petition using the *Adelphi* case logic of research assistants being primarily students, and added that the relationship between the assistants and Stanford did not reflect the standard employer–employee relationship.

Such thinking on the part of NLRB members carried over to subsequent cases involving hospital “housestaff,” which included medical interns, residents, and clinical fellows who had already earned their MD degrees but were engaged in graduate medical practice and education required to become licensed and certified for medical practice. In two separate cases (Cedars-Sinai Medical Center 1976, and St. Clare’s Hospital and Health Center 1977), the NLRB ruled against housestaff collective bargaining rights. In addition to finding that medical internships and residencies are an integral component of the graduate educational process, the Board also contended that collective bargaining would be detrimental to student–teacher relationships and would “infringe upon traditional academic freedoms”

(1002). As an example of the latter, the Board noted that the “notoriously long hours” residents and interns work, which “from a strictly educational standpoint . . . may be necessary in order to provide students with as broad an experience as possible,” could become bargainable if housestaff were allowed to become part of a bargaining unit, and this could hamper the “flexibility which medical educators need to schedule shifts . . . in an educationally sound fashion” (1002).

More than two decades following the string of cases from *Adelphi* to *St. Clare's*, the NLRB reversed its position on housestaff and graduate research and teaching assistants. In a 1999 decision involving housestaff at Boston Medical Center, the Board rejected the “primarily students” conceptualization, arguing that the categories “student” and “employee” need not be mutually exclusive, and that students who also performed the duties of an employee could be covered and protected under the National Labor Relations Act. They also rejected the earlier Board’s speculation about collective bargaining’s deleterious impact on student–teacher relationships and academic freedom, citing that nothing of the sort had occurred at the numerous public universities where graduate students were currently organized. In 2000, the NLRB made a similar ruling involving graduate research and teaching assistants at New York University (NYU), allowing students at private universities to organize and collectively bargain for the first time. These two rulings were made by a Board in which nominees of Democratic President William Clinton held a majority.

In 2004, Brown University challenged the NYU ruling, arguing that graduate students should not be considered employees covered by the National Labor Relations Act, and that a student’s relationship with his or her faculty and university is not analogous to the standard employer–employee relationship. A majority of the now Republican-dominated NLRB agreed and overturned the NYU decision, concluding that it “was wrongly decided” (483). In their decision, it recanted the Clinton Board’s rejection of arguments about the potentially deleterious effect of collective bargaining on the graduate student educational process, student–teacher relationships, and academic freedom. In response to claims that public universities with organized graduate students did not face such realities and that the Board majority was making its decision “in the absence of empirical evidence,” the majority responded that “even if some unions have chosen not to intrude into academic prerogatives, that does not mean that other unions would be similarly abstemious” (492) and that “25 years of untroubled experience under pre-NYU standards [is a] sound empirical basis” (493).

### **Previous Research on the Consequences of Graduate Student Unionization**

Given the centrality of the claims about the impact of GSE unionization to legal rationales for denying bargaining rights, that so little empirical evidence exists for those claims is of concern. Only two studies have attempted to systematically assess what impact GSE unionization has on aspects of the

graduate educational process, including student–teacher relationships and academic freedom. Hewitt (2000) surveyed liberal arts and sciences faculty at five large doctoral-granting public universities about their attitudes toward graduate student collective bargaining. He found overwhelming evidence that faculty members did not perceive collective bargaining to be deleterious to educational processes. Ninety-five percent of respondents felt that collective bargaining did not inhibit the free exchange of ideas (which may well be thought of as a key element of academic freedom). More than 90% of faculty members did not believe graduate student collective bargaining inhibited their own ability to advise or instruct their graduate students, and 88% felt that collective bargaining did not negatively impact the mentoring relationships between them and their graduate students. Hewitt concluded that graduate student collective bargaining did not appear to interfere with faculty members’ abilities to advise, instruct, and mentor their students, and suggested that the findings refute claims to the contrary made by university administrators.

Through interviews with college administrators and graduate student union representatives, and through archival analysis of graduate student collective bargaining agreements, Julius and Gumport (2003) sought to examine “to what extent, if any, has graduate student unionization affected the student-mentor relationship” (188). From their analysis of 50 interviews and all existing collective bargaining agreements that covered graduate research or teaching assistants, they concluded: “Although we are concerned that collective bargaining among graduate students may change the nuances of pedagogical relationships between faculty and students, our data provided no such evidence” (209). They further contended: “Fears that [collective bargaining] will undermine mentoring relationships . . . appear to be foundationless” (209).

Our research contributes to this literature by examining the issues from the point of view of GSEs themselves. We examine two issues at the core of the legal debate described above—the impact of unionization on faculty–student relations and on academic freedom. We also consider a third issue, not frequently discussed in the legal literature but presumably of central importance to graduate student employees themselves, that is, the impact of unionization on pay and benefits. We turn now to considering what social science theory might suggest about each of these relationships.

### **Faculty–Student Relationships and Pluralist Industrial Relations Theory**

Industrial relations theory is often viewed as “adversarial,” because it asserts there are some inherent conflicts of interest in the labor–management relationship, in addition to similarities of interest.<sup>1</sup> Some observers have taken

<sup>1</sup>Walton and McKersie (1965) develop the theory of how this can lead to integrative as well as distributive bargaining given that bargaining between employers and employees is an exercise in mixed motive decision-making. See Budd and Bhawe (2008) for a discussion of the history of this idea in pluralist industrial relations theory.

this structural observation about institutional relationships between the parties to mean that interpersonal relationships among managers and lower-level employees are hostile—or at best arms-length—in the context of unionization. For instance, Mahoney and Watson (1999) argue that under collective bargaining:

The parties are cast as having divergent interests and negotiations take the form of distributive bargaining. The exchange is cast in terms of simple economic exchange with no pretense of a social exchange. Of necessity, collective bargaining addresses those issues which can feasibly be contracted: hours of work, pay, bases for job assignment, and the like. Open-ended trust and undefined reciprocal obligations which characterize social exchange cannot be contracted. (157)

This view of social relations in a unionized workplace is clearly a caricature; however, it is one that seems to have influenced the Brown decision.

Social exchange, of course, continues to be important in organized workplaces in the day-to-day relationships that are integral to the successful coordination of groups of people working together. Reciprocal obligations and friendships do matter, even between the managed and the manager, although also true is that sometimes the interests of the two conflict (Dahrendorf 1959). After all, a first-level supervisor cannot be successful unless he or she somehow encourages lower-level employees to cooperate with one another and work productively; managers depend on those who work for them to be successful. This is just as true in a union workplace as it is in a nonunion one, and line managers are key players in a social exchange process. In short, pluralist IR theory would view the day-to-day relationships between workers and employers and managers as reflecting the overall “mixed motive” nature of the employment relationship. While conflict is inherent, it is also limited because, as Kochan writes (1998: 37–38): “Industrial relations theory starts from the assumption that an enduring conflict of interests exists between workers and employers in employment relationships. . . . Pluralists . . . view the conflict as partial in nature.”

This theory is related to an empirical tradition of research termed “dual loyalty.” These studies, mostly done in the 1950s, demonstrated that workers were often loyal simultaneously to both their union and their employer (see, for instance, Dean 1954; Angle and Perry 1986; or for a thorough review and critique, Gordon and Ladd 1990). Most workers continue to care about their jobs and want to do their jobs well, whether or not they are represented by a union. They are also loyal to both their union and their immediate work group (see Kuhn 1961, who explores the interaction of the two in a study of grievances). And interestingly, first-level supervisors often exhibit a somewhat different form of mixed loyalty—both to the workgroup and its norms, and to the orders that come from above in the enterprise (Doeringer and Piore 1971: 37). Mixed loyalty exists for many employees in large organizations, including college professors themselves. Pluralist industrial relations theory acknowledges that while employees have somewhat different interests from other employees, they are at the same time all em-

employees and all should be accorded the opportunity to have union representation, with the exception of some groups of managerial executives.

The degree to which employee interests are similar or diverge is the core issue in the matter of whether employees have enough similarity of interest to be in the same bargaining unit or whether different units are appropriate. For this reason, first-level supervisors are often in a different bargaining unit from lower-level employees in those states in which they have representation rights. Whether faculty members and graduate student employees have largely similar interests or a sufficient number of divergent interests to be in the same bargaining unit is an empirical matter, not a theoretical one.

Gross (2006), reflecting on his experience as a graduate student employee during an organizing drive at University of California-Davis and as a postdoc during a campus strike, provides valuable insight on these issues in the university campus context. In trying to avoid unionization, the UC administration made the same legal arguments that prevailed in *Brown*. The administration made “rhetoric[al] attempts to draw a sharp line between collective bargaining, presented as an antagonistic relation between employer and employee, and the campus community, embodied in the collegial relation between mentor and apprentice” (345). Instead, employees themselves viewed the campus as a community of employees, including ones who are also students (Gross: 337). Professors viewed themselves as part of this community of instructors, rather than considering themselves “management.” The dividing line between management and labor in universities is drawn around economic issues, not day-to-day workplace matters, so unionization of GSEs should not undermine relationships with the faculty.<sup>2</sup>

### **Faculty–Student Relationships and Internal Labor Market Theory**

A body of theory in industrial relations speaks directly to mentoring relationships in the workplace. Internal labor market (ILM) theory (Doeringer and Piore 1971) is particularly useful for understanding the potential impact of GSE unions on the academic relationship between professors and graduate students. The portion of ILM theory that has been most influential concerns the economic efficiency of an ILM for an individual employer with considerable firm-specific human capital. Well-established ports of entry, job ladders, and the use of both formal and informal internal training in this context minimize training and turnover costs. Custom, and employee acceptance of the fairness of these policies, helps maintain the ILM.

A second part of ILM theory concerns craft labor markets, like those in the building trades, where fully trained and skilled employees ultimately work for a variety of employers, within the same craft or trade. Employee

<sup>2</sup>Also worth noting is that the California Public Employment Relations Board, as part of a finding in favor of employee status for GSEs, concluded, “After 71 days of formal hearing, involving approximately 200 witnesses, there is simply no credible evidence in this record to support a finding that mentor relationships will deteriorate if the students in question are found to be employees” (quoted in Gross 2006: 338).



organizations, as well as employers, often play a role in structuring and maintaining these arrangements. Professional associations, like unions, may play this role.

In some respects, academic labor markets are similar to those of the skilled trades, with PhD student employees being analogous to apprentices (Gross 2006). Like apprentices, PhD students are learning a skilled profession (trade) both through formal classroom study and through a series of work experiences as teaching assistants and research assistants that will ultimately result in their being certified as a broadly skilled professional (craftsperson). Like apprentices, they are working (and producing goods and services) at the same time they are learning to teach and to conduct research.

Research methods are often the subject of formal instruction but research knowledge becomes complete when deepened with experience on actual research projects that impart experiential knowledge about the research and publication process. Research skills grow over the course of a PhD program as students work as assistants on professors' research projects. They also engage in a series of increasingly complex research projects of their own, culminating in a PhD thesis and (typically) published papers. Both types of work build research skills, but obviously, time spent working on professors' research projects can also interfere with a student's own research.

Teaching skills are somewhat different from research. Little (if any) classroom instruction is provided with regard to teaching in higher education although one can argue that by having been a student, most PhD students have observed a range of more or less successful instructional techniques. Typically, PhD students initially learn to be college instructors by being paid teaching assistants, working under the direction of a professor to grade papers and perhaps conduct a discussion section paired with the larger lecture being conducted by the professor. Often, they are observed while teaching in this context. Later, they may go on to instruct smaller classes on their own—and in the process may have working conditions that are quite similar to those of adjunct instructors or the part-time lecturers (PTLs) that form a low-cost pool of labor at many universities. All this prepares them for future work as a college professor with its combination of teaching, research, and service responsibilities. But all this also is time-consuming and if the teaching obligations of GSEs are too onerous, they can interfere with successful completion of the PhD.

In the internal labor market (ILM) that characterizes higher education, as in other craft ILMs, fully skilled journeymen (professors) are willing to impart their professional skills and accumulated knowledge of how to be a successful researcher or a successful teacher because they are assured that the internal labor market will prevent them from being replaced by their younger colleague. As Doeringer and Piore (1971) discuss, "The desire to demonstrate, or 'show off,' skills to others is operative only when such transmission of skills does not pose an economic threat to the 'teacher'" (31). Professors, of course, are in the education business and their ethical obligation

(termed “custom” in ILM theory) is one of building on the natural teaching/learning process and consciously mentoring PhD students to become excellent all-around members of the academic craft. Further, academic reputations, particularly for senior faculty members, are often built on one’s success in sending well-prepared PhD graduates into the academic labor market.

The mentoring relationship is also essential to the success of the graduate student’s career, not only in obtaining a job but also in becoming successful researchers and teachers. It hardly makes sense, then, that a union representing GSEs would pursue policies that would alienate GSEs from their mentors.

When viewed through this theoretical frame, it becomes apparent that, contra Brown, there is no reason why union representation of GSEs, professors, or both should damage the professor–PhD student relationship. If anything, it may strengthen the relationship by formalizing the customary ethics of the relationship; that is, by keeping the apprentice from being exploited by the employer and from being worked more than is appropriate in economic production at the expense of learning the trade.

### **Academic Freedom and Exit/Voice Theory**

Academic freedom is a core value in higher education—of enormous concern to both faculty and to the institutions that employ them. The American Association of University Professors (AAUP), which was founded to defend academic freedom, defines it in this way: “It encompasses the right of faculty to full freedom in research and in the publication of results, freedom in the classroom in discussing their subject, and the right of faculty to be free from institutional censorship or discipline when they speak or write as citizens” (AAUP 2007). AAUP focuses on individual rights to academic freedom. The Association of American Colleges and Universities also recognizes the importance of academic freedom, asserting that “academic freedom to explore significant and controversial questions is an essential precondition to fulfill the academy’s mission of educating students and advancing knowledge” (Association of American Colleges and Universities 2006: 1). The academic freedom of professors has been of primary concern, although students too should be accorded “freedom to express their ideas publicly as well as repeated opportunities to explore a wide range of insights and perspectives” (ibid.: 5). Graduate student employees thus deserve academic freedom both as students and as developing scholars in their teaching and research endeavors.

This academic freedom relates to the concept of *voice* in employment relations theory. Freeman and Medoff (1979) contend that unions have two faces, that of monopoly (raising compensation) but also that of collective voice. The union is a vehicle for communicating employee concerns to management and for promoting change desired by a majority of members—the political voice function of unions is an alternative to *exit*, which is the process in a nonunion context whereby individual employees would



express dissatisfaction with employment conditions by quitting their jobs. Unions also promote individual voice in the workplace by protecting individual employees from discipline or discharge except for just cause. The collective voice of all employees, as expressed through the union that negotiates on their behalf, stands behind the provision of justice to individual employees through the just cause provision of contracts and the grievance procedures that back them up.

Professional unions typically view voice as extending beyond terms and conditions of employment to protection of the standards or ethics of the particular profession. Nursing unions, for instance, claim they are guardians of patient care standards and of nurses exercising voice in defense of those standards.<sup>3</sup> From this point of view, union representation may, if anything, enhance perceptions of academic freedom on the part of GSEs themselves. The two are highly compatible.

Nonetheless, graduate student unionization could somehow reduce the academic freedom of faculty or of the institution through negotiations over academic policy—grades, course requirements, and the like. None of these matters would be mandatory subjects of bargaining, and most universities would be loath to negotiate over them as permissive subjects, but universities have argued that this is a potential consequence of GSE unionization. Lafer, who researched this in 2003, was unable to find any examples of GSE unions negotiating over these issues.<sup>4</sup> As discussed above, Hewitt found that faculty did not perceive GSE unionization as inhibiting the free exchange of ideas. This concern strikes us as unfounded, absent evidence, but others will have to investigate the matter. In this study we will explore the impact on the academic freedom of graduate students themselves, and on their perception of overall academic freedom in the institution but not specifically the academic freedom of faculty who work with them or the institution in which they work.

### **Impact on Pay/Benefits**

U.S. unions typically raise wages; however, measured union wage effects are somewhat lower in the public sector (where our universities are all located) than in the private sector (Blanchflower and Bryson 2004). Some of the difference appears to be explained by public-sector workers being more educated and more often white collar than average (Bahrami, Bitzan, and Leitch 2009).

Earlier studies of the degree to which unionization raises university professors' salaries are somewhat mixed (Ashraf 1997; Monks 2000) but most

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<sup>3</sup>National Nurses United, for instance, describes its Nursing Practice Department as being "responsible for promoting excellence in nursing practice, protecting the art and science of nursing in the workplace and promoting patient advocacy" (<http://www.nationalnursesunited.org/pages/nursing-practice>). Similarly, the tagline for the New York State Nurses Association is "Advocating for Patients. Advancing the Profession."

<sup>4</sup>In a quick overview of the collective bargaining agreements negotiated by the unions included in our study, we found they included, in addition to salary and in some cases benefits, the following topics: health and safety, workload, appointment procedures, evaluations, workspace, work/family issues, and grievance procedures.

report small positive effects. Hedrick, Henson, Krieg, and Wassell (2011) point out that one measurement error problem plaguing these studies is that they code faculty at a university as union when any of four groups are organized—full-time permanent faculty, part-time permanent faculty, adjuncts, and librarians—whereas often only some of these groups have representation. Their recent panel data–based study corrected for this measurement error and controlled for the cost of living, since many faculty unions are located in high cost-of-living states. They still find small, positive, and significant effects, albeit larger ones if cost-of-living controls are not included. Other research indicates that pay satisfaction is greater among unionized faculty than among those who are not represented (Wickens 2008). Represented faculty perceive themselves to be better off along economic dimensions.

None of these studies of faculty include GSEs who teach or do research (TAs and RAs). A true paucity of studies address the question of whether GSE unions are able to raise pay or otherwise improve economic outcomes for their members. An early study that examined average TA stipends by date of unionization revealed little impact of unions on compensation (Ehrenberg, Klaff, Kezsborn, and Nagowski 2002). A more recent study (Schenk 2010) reports that GSE unions with contracts do increase stipends (direct pay), but they have no statistically significant impact on total compensation. Schenk's regression includes many controls, including ones for the cost of living. Schenk's study was based on data collected by the *Chronicle of Higher Education* for 2000–01, 2001–02, and 2003–04 for departmental averages supplied by the departments of biology, economics, English, mechanical engineering, and sociology. According to these data, unions do not reduce pay inequality across departments.

These studies led us to anticipate that union-represented GSEs would have somewhat higher pay than those who were not represented, just as represented faculty and public-sector workers more generally, have somewhat higher pay than non-represented employees. However, it seems likely that the difference in pay will not be large.

## Methods

The empirical assertions that we test in this article are not derived from the industrial relations theories reviewed above; rather, our primary aim was to test 30-plus years of NLRB “theory” concerning the impact of GSE unionization on student and institutional outcomes. As such, this article does not focus on thorough explanations for a single dependent variable; rather, we are primarily concerned with the impact of a single independent variable (unionization) on multiple dependent variables. We extracted theory from NLRB rulings that, despite a total lack of empirical support, have denied GSEs in the private sector collective bargaining rights for three decades.<sup>5</sup> Hence, we examine whether there is empirical support for the view that representation of GSEs harms the faculty–student relationship or hurts

<sup>5</sup>Three decades minus the brief interlude during which the Clinton Board's contrary reasoning held sway.

academic freedom from the employee's perspective. Our own theoretical frame leads us to suspect the hypotheses advanced by the opponents of GSE unionization. Rather, we anticipate finding either a positive or no relationship of unionization on the faculty–student relationship and on student perceptions of academic freedom; we hypothesize a small positive relationship of unionization on economic outcomes. Testing a hypothesis of “no relationship” is not possible, so we use power analysis to be sure our sample is statistically large enough to find support for the negative hypotheses about union effects stemming from the legal tradition, if in fact they are correct.

We conducted a survey of graduate students from four unionized and four nonunion public universities. While a random sample of all graduate students or all graduate student employees in the United States might have been more desirable, it was not feasible. Rather, we chose a design that was feasible and that controls for certain aspects of institutional variation including region, size, and discipline. The eight universities included in the study consisted of four sets of matched pairs, one union and one nonunion university for each geographic region of the United States (West, Midwest, Northeast, and South). To control for possible variation due to the particular union involved, we included universities whose GSEs were represented by affiliates of a single national union. All of the collective bargaining relationships are long-standing, dating from 1983 or before. We chose the union universities first and then sought nonunion matches based on size as measured by total number of students (average of 35,000 in 2007) and research budget (average of \$453 million in 2007). By design, we did not include any nonunion university with an active GSE organizing campaign. All eight universities in our sample have Carnegie Classifications as research universities with very high research activity (“RU/VH”; commonly referred to as “R1”), and six of the eight institutions are members of the Association of American Universities (AAU). In terms of Carnegie Classification, these universities mirror the private universities that have been subject to NLRB decision-making (Brown, NYU) and that have also seen the most concentrated organizing activity (for example, University of Pennsylvania).<sup>6</sup> Because most universities are unwilling (or unable, given privacy issues) to furnish outsiders with complete lists of graduate students, we chose instead to focus on a subset of large departments representing a range of attitudes toward unionization as well as disciplinary variety (humanities, social science, professional school, and STEM [science, technology, engineering, math]): English, computer science, business, psychology, and history.<sup>7</sup> For most departments, we were able to obtain the list of graduate students and their e-mail addresses directly from a departmental website. For one department in one university,

<sup>6</sup>Coverage of recent private university organizing drives, including at the University of Pennsylvania, can be found at <http://www.insidehighered.com/news/2009/01/28/union>.

<sup>7</sup>At one university where we were able to obtain the total number of GSEs by department and individual union membership information, English, computer science, psychology, and business were the four largest employers; history was the next largest department with a relatively high rate of membership density. These densities were computer science 33.7%; English 70.5%; history 64.5%; psychology 36.7%, and business 8.9%.

we obtained the list from the union that represents the GSEs. For those departments whose student contacts could not be obtained using the two methods above, we contacted graduate program directors and asked them to send our survey link to their doctoral students. All program directors who were contacted agreed to forward our study link to their students, and also provided how many students were in their programs so that we could calculate survey response rates.

In this way we developed a sample of 3,219 graduate students who were sent links to our Internet-based survey along with the usual commitments around confidentiality and information on the Rutgers University Institutional Review Board that approved this protocol. A total of 798 surveys were returned for a response rate of 25%; however, 95 respondents indicated their assistantship status but did not provide data for any other survey question, while another 8 completed most of the questionnaire items but failed to indicate their assistantship status at all (rendering us unable to conduct further analysis on them). Thus, we received 695 usable surveys, for a final response rate of 22%. About a quarter of respondents reported receiving either no support from the university or receiving a fellowship (defined as a scholarship that does not require students to perform any research or teaching work, other than their own academic research). Because our focus is on graduate student *employees* we eliminated these respondents from the analyses presented below, reducing the final sample to 516. Table 1 presents the basic demographic characteristics of this narrowed sample. The sample is divided roughly equally between union and nonunion universities. Business, English, and history are underrepresented in terms of the survey population, and computer science and psychology are overrepresented. The majority of respondents are serving as teaching rather than research assistants, with a small group occupying both roles. We have no way of knowing whether these proportions reflect the populations in the disciplines we are studying. The sample is roughly evenly divided between men and women, and heavily weighted toward the 26 to 30 year old age group and white. International students constitute 22% of the sample.

### Measures

GSE union representation was a dichotomous measure indicating whether their university is one in which they are covered by a collective bargaining agreement (not whether the individual GSE is a dues-paying union member). This relates to the industrial relations view that union representation changes the internal dynamics of workplaces for all employees whether or not they are union members. Student-teacher relationships were measured using items adapted from Noe (1988) and Ragins and Cotton (1999). Students were presented with statements about their primary advisors (for example, "My primary advisor gives me advice on how to build a reputation in my academic field") and were asked to indicate their level of agreement on

*Table 1.* Descriptive Statistics. Graduate Student Employees (TAs, RAs, and those who are both).

GSE Union Status ( <i>n</i> = 516)		Age ( <i>n</i> = 462)	
Unionized	49%	25 and under	22%
Nonunionized	51%	26–30	49%
		31–35	18%
		Older than 35	11%
Academic Discipline ( <i>n</i> = 516)		Gender ( <i>n</i> = 460)	
Business	17%	Male	47%
Computer Science	20%	Female	53%
English	22%		
History	17%		
Psychology	25%		
Current Assistantship Status ( <i>n</i> = 516)		Race ( <i>n</i> = 451)	
TA	62%	White	79%
RA	27%	Nonwhite	21%
TA & RA	11%	International Students ( <i>n</i> = 463)	22%

a 5-point Likert scale for which 1 = “Strongly Disagree” and 5 = “Strongly Agree.” Factor analysis was used to develop four scales: Personal Support, Professional Support, Teaching-related Academic Freedom, and Academic Freedom Climate.<sup>8</sup> The analysis produced items that were coherent, had face validity, and acceptable levels of internal agreement; items in each scale are listed in Table 3. Items in each scale were averaged with equal weights, as opposed to being weighted by factor scores.

Economic measures included the natural log of gross annual stipend (defined as the gross annual stipend amount, including any summer support, they received for their assistantship) and perceptions of pay adequacy and pay fairness. Pay adequacy was measured by asking students: “Do you regard the pay and benefits you receive from your assistantship as adequate given the amount of work you do?” Response categories ranged from 1 = “No, very inadequate” to 4 = “Yes, completely adequate.” Pay fairness was measured by asking: “Do you regard the pay and benefits you receive from your assistantship as fair given the amount of work you do?” Response categories ranged from 1 = “No, very unfair” to 5 = “Yes, very fair.” All student respondents (research and teaching assistants, fellows, and those who were self-supported) were asked the student–teacher relationship and academic freedom questions. Only research and teaching assistants were asked the economic questions.

Several controls were also added: academic discipline (business, computer science, English, history, psychology); U.S. geographical region (Northeast, South, Midwest, West); student category (TA, RA, both a TA and an RA); international status; gender; year of study in the current

<sup>8</sup>The personal support scale had 12 items,  $\alpha = .96$ , and the professional support scale had 6 items,  $\alpha = .91$ . Perceptions of teaching-related academic freedom (2 items,  $\alpha = .79$ ) and perceptions of the academic freedom climate within the school and department (2 items,  $\alpha = .76$ ) also had acceptable levels of internal agreement. Factor analysis details are available upon request.



graduate program; age; and race.<sup>9</sup> We did not develop hypotheses for these control variables; some were included because they have been found to be correlated with attitudes toward union representation in the past or because they are common demographic variables that might affect attitudes toward pay fairness and/or adequacy because of differential earning opportunities outside academia or that might influence professor–student relationships.

## Results

Means, standard deviations, correlations, and scale reliabilities are provided in Table 2. Table 3 compares means between unionized and nonunion GSEs for the student–teacher relationship, academic freedom, and economic variables. Across the board, student employees in unionized universities reported more positive student–teacher relationships, more academic freedom, and greater economic well-being than did student employees in nonunionized universities; however, most of these differences were not statistically significant.

In the case of personal support, while there was no significant difference in the means, the differences in means for some individual items in the scale were significant: unionized GSEs had higher mean ratings on their advisors accepting them as competent professionals, serving as a role model to them, being someone they wanted to become like, and being effective in his or her role. The mean differences for the academic freedom climate scale overall were not statistically significant at the conventional .05 level ( $.05 < p \leq .10$ ), but unionized students were more likely than nonunionized students to report respect for differing opinions in their university.<sup>10</sup> Neither differences among the scales nor the items in the scale were statistically significant for professional support or teaching-related academic freedom. Unionized GSEs reported higher stipends, and greater pay fairness and adequacy than did nonunion GSEs, all differences that were statistically significant.

We next explored these relationships with a series of OLS regression analyses to determine whether any differences either disappeared or emerged as significant once we controlled for other institutional and demographic factors. Seven models are presented in Table 4, each examining the impact of union status on a different dependent variable and controlling for several other GSE- and program-related variables. Once program, region, and other controls are introduced, unionization becomes a significant positive predictor of both the personal support and professional support dimensions of student–teacher relationships. The coefficients presented are standardized.<sup>11</sup>

<sup>9</sup>The omitted categories in the regressions were Business, Northeast, TA, Not International, Male, 26–30 years old, and White.

<sup>10</sup>In Tables 2 through 4 we identify coefficients as statistically significant at .001, .01, .05, and .10. In the narrative, we refer to statistical significance levels of  $p \leq .05$  as “conventional,” and use the description “marginal statistical significance” and similar language to refer to levels of  $.05 < p \leq .10$ .

<sup>11</sup>As Schwab (2005) indicates, OLS is commonly used for Likert-style scale dependent variables when the scales have equal-appearing intervals. Thus, for ease of interpretation, we present OLS results here. Because we have multilevel data that violates the OLS assumption of independent observations, however,

Table 2. Means, Standard Deviations, Correlations, and Scale Reliabilities

Variable	Means	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Organized	0.49	0.50													
2 Personal Support (.96)	3.93	0.90	.07												
3 Professional Support (.91)	3.66	0.89	.06	.75**											
4 Academic Freedom: Teaching (.79)	4.37	0.95	-.03	.18**	.20**										
5 Academic Freedom: Climate (.76)	3.83	0.92	.08	.31**	.38**	.28**									
6 Log Annual Stipend	9.65	0.61	.12*	.04	.07	.05	.04								
7 Pay Fairness	3.53	1.32	.10*	.13**	.12*	.04	.11*	.07							
8 Pay Adequacy	2.41	0.95	.15**	.09	.07	.11*	.12**	.10*	.61**						
9 Program: Business	0.16	0.37	-0.00	.03	.08	.03	.09	.03	.12**	.01					
10 Program: Computer Science	0.20	0.40	.16**	-.08	-.04	-.02	.09	.04	.12**	.29**	-.22**				
11 Program: English	0.22	0.42	-0.00	.11*	0.00	-.06	-.08	-.05	-.15**	-.15**	-.24**	.27**			
12 Program: History	0.17	0.37	-.04	.06	.07	-.01	-.04	-.07	-.12**	-.11*	-.20**	-.23**	-.24**		
13 Program: Psychology	0.25	0.43	-.11*	-.11*	-.09*	.06	-.04	.04	.03	-.03	-.25**	-.23**	-.30**	-.26**	
14 Region: Northeast	0.31	0.46	.07	.07	.08	-.02	.07	.23**	.11*	.09*	-.07	-.01	.21**	-.05	-.10*
15 Region: South	0.24	0.43	.03	-.05	-.01	.07	-.07	-.05	-.08	-.12**	.11*	-.08	-.05	-.06	.08
16 Region: Midwest	0.29	0.46	-.06	-.09	-.10*	-.00	0.00	-.05	-.08	-.02	-.04	.05	-.17**	.14**	.03
17 Region: West	0.16	0.37	-.05	.07	.03	-.06	-.02	-.17**	.07	.05	.01	.04	0.00	-.05	-.01
18 TA	0.62	0.48	-.06	-.01	-.02	-.24**	-.15**	-.10	-.12**	-.18**	-.29**	-.29**	.33**	.10*	.03
19 RA	0.27	0.44	.12**	-.01	.01	-.22**	.09	.12*	.11*	.23**	.03	.38**	-.29**	-.06	-.04
20 Both a TA and RA	0.11	0.31	-.08	.04	.02	-.07	.11*	-.02	.03	-.05	.27**	-.08	-.10*	-.07	0.00
21 International Student	0.22	0.42	.05	.06	.08	-.10*	.12*	-.05	.11*	.11*	.17**	.37**	-.20**	-.15**	-.15**
22 Gender	0.53	0.50	-.01	0.00	-.08	-.01	-.03	.01	-.08	-.10*	-.06	-.38**	.19**	-.02	.23**
23 Year of Study	3.52	1.67	.09*	-.03	-.01	.05	-.03	.11*	-.07	-.00	-.10*	-.07	.05	.04	.06
24 Age: 21 to 25	0.22	0.41	.01	-.04	-.02	.03	-.04	-.07	.07	.11*	-.07	.13**	-.15**	0.00	.08
25 Age: 26 to 30	0.49	0.50	.01	.05	-.01	-.06	-.02	-.02	0.00	.04	-.12**	-.05	.09	-.07	.13**
26 Age: 31 to 35	0.17	0.38	-.06	-.03	.01	.05	-.02	.08	-.05	-.12**	.16**	-.08	.01	.03	-.10*
27 Age: 36+	0.11	0.32	.04	.02	.03	-.02	.10*	.04	-.03	-.08	.09	-.02	.05	.08	-.18**
28 Race	0.22	0.41	-.04	-.05	-.04	-.05	.08	.01	.03	.07	.16**	.31**	-.17**	-.16**	-.19*

*continued*

Table 2. Continued

Variable	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1 Organized														
2 Personal Support (.96)														
3 Professional Support (.91)														
4 Academic Freedom: Teaching (.79)														
5 Academic Freedom: Climate (.76)														
6 Log Annual Stipend														
7 Pay Fairness														
8 Pay Adequacy														
9 Program: Business														
10 Program: Computer Science														
11 Program: English														
12 Program: History														
13 Program: Psychology														
14 Region: Northeast														
15 Region: South	-.37**													
16 Region: Midwest	-.43**	.36**												
17 Region: West	-.30**	-.25**	-.29**											
18 TA	.09*	-.02	-.16**	.11*										
19 RA	-.05	.02	.09*	-.08	-.78**									
20 Both a TA and RA	-.07	-.00	.12**	-.05	-.45**	-.21**								
21 International Student	.04	-.04	-.03	.03	-.17**	.16**	.03							
22 Gender	.07	-.01	-.04	-.03	.10*	-.09	-.03	-.19**						
23 Year of Study	.14**	-.08	.05	-.15**	-.05	.06	-.02	-.07	.07					
24 Age: 21 to 25	-.12**	.09	.06	-.02	-.07	.13**	-.08	0.00	.03	-.38**				
25 Age: 26 to 30	.16**	-.07	-.03	-.09	.13**	-.13**	-.03	-.03	.02	.12*	-.52**			
26 Age: 31 to 35	-.09	.04	.03	.03	-.07	.05	.03	.03	-.04	.19**	-.25**	-.45**		
27 Age: 36+	.02	-.05	-.08	.13**	-.03	-.04	.10*	0.00	-.02	.11*	-.19**	-.35**	-.17**	
28 Race	.02	-.02	.01	-.01	-.19**	.19**	.02	.67**	-.13**	-.05	.03	-.06	.01	.03

Notes: \* Correlations significant at the 0.05 level; \*\* at the 0.01 level. Two-tailed tests. Pairwise deletion of missing data. Observations range from 516 to 365; sample sizes for each correlation are available from the authors. The internal reliabilities of scales are in parentheses.

*Table 3.* Means Comparison between Graduate Student Employees in Union and Nonunion Departments

<i>Variable</i>	<i>Union</i>		<i>Nonunion</i>		<i>Mean difference Level of significance</i>
	<i>n</i>	<i>Mean</i>	<i>n</i>	<i>Mean</i>	
<b>Personal Support</b>	<b>225</b>	<b>4.00</b>	<b>248</b>	<b>3.87</b>	<b>n.s.</b>
<i>My primary advisor . . .</i>					
“ . . . Is someone I can confide in.”	231	3.82	252	3.71	n.s
“ . . . Provides support and encouragement to me.”	231	4.07	252	3.96	n.s
“ . . . Is someone I can trust.”	231	4.13	252	4.06	n.s
“ . . . Thinks highly of me.”	231	4.01	252	3.85	†
“ . . . Accepts me as a competent professional.”	231	3.99	252	3.79	*
“ . . . Serves as a role model for me.”	231	4.03	251	3.84	*
“ . . . Represents someone I want to become like.”	230	3.74	251	3.52	*
“ . . . Is someone I am satisfied with.”	231	4.03	252	3.88	n.s
“ . . . Fails to meet my needs.” (reverse-coded)	230	3.96	252	3.89	n.s
“ . . . Disappoints me.” (reverse-coded)	227	4.04	251	3.93	n.s
“ . . . Has been effective in his/her role as advisor.”	229	3.97	251	3.76	*
“I can freely exchange ideas with my primary advisor.”	234	4.24	253	4.10	n.s
<b>Professional Support</b>	<b>228</b>	<b>3.71</b>	<b>251</b>	<b>3.60</b>	<b>n.s</b>
<i>My primary advisor . . .</i>					
“ . . . Uses his/her influence to support my professional development in my academic field.”	231	3.86	251	3.71	n.s
“ . . . Helps me learn about the academic profession.”	231	3.97	251	3.82	n.s
“ . . . Gives me advice on how to build a reputation in my academic field.”	231	3.77	251	3.70	n.s
“ . . . Suggests specific strategies for achieving my career aspirations.”	231	3.65	251	3.63	n.s
“ . . . Protects me from those who may be out to hinder my success.”	229	3.50	251	3.38	n.s
“ . . . Brings my accomplishments to the attention of influential people in my academic field.”	230	3.53	251	3.37	n.s
<b>Teaching-Related Academic Freedom</b>	<b>225</b>	<b>4.35</b>	<b>246</b>	<b>4.40</b>	<b>n.s</b>
“As long as I restrict myself to the subject matter of the course, I am free to choose what I say or discuss with students in my courses.”	225	4.38	246	4.37	n.s
“As long as I restrict myself to the subject matter of the course, I am free to choose how I will teach the material in my course.”	225	4.31	246	4.43	n.s
<b>Academic Freedom Climate</b>	<b>224</b>	<b>3.91</b>	<b>245</b>	<b>3.76</b>	<b>†</b>
“There is respect for differing opinions in my program or department.”	224	3.88	245	3.78	n.s
“There is respect for differing opinions in the university.”	225	3.94	246	3.73	*
<b>Gross Annual Stipend (in U.S. dollars)</b>	<b>182</b>	<b>18,312</b>	<b>221</b>	<b>15,867</b>	<b>***</b>
<b>Pay Fairness</b>	<b>250</b>	<b>3.67</b>	<b>264</b>	<b>3.39</b>	<b>*</b>
<b>Pay Adequacy</b>	<b>250</b>	<b>2.55</b>	<b>263</b>	<b>2.28</b>	<b>***</b>

*Notes:* All student–teacher relationship, academic freedom items, and pay fairness were measured using a 5-point Likert scale, for which 5 indicates a positive response (i.e., greater personal support, more academic freedom, or fairer pay and benefits). Pay adequacy was measured using a 4-point Likert scale, for which 4 indicates a high level of adequacy.

†Statistically significant at  $p \leq .10$ ; \* at  $p \leq .05$ ; \*\* at  $p \leq .01$ ; \*\*\* at  $p \leq .001$

Table 4. Unionized vs. Nonunionized Graduate Student Employee Outcomes

	<i>Student–Teacher Relationships</i>		<i>Academic Freedom</i>		<i>Economic Issues</i>		
	<i>Personal support</i> ( <i>n</i> = 429)	<i>Professional support</i> ( <i>n</i> = 435)	<i>Teaching-related</i> ( <i>n</i> = 439)	<i>Climate</i> ( <i>n</i> = 437)	<i>Annual stipend</i> ( <i>n</i> = 358)	<i>Pay adequacy</i> ( <i>n</i> = 439)	<i>Pay fairness</i> ( <i>n</i> = 440)
<i>Independent Variable</i>							
ORGANIZED: Whether student's university is unionized (1 = yes)	0.132** [0.007]	0.101* [0.043]	−0.024 [0.625]	0.082† [0.098]	0.098† [0.071]	0.106* [0.024]	0.096* [0.047]
<i>Control Variables</i>							
<i>Academic Discipline</i>							
PROGRAMB: Business	—	—	—	—	—	—	—
PROGRAMC: Computer Science	−0.181** [0.011]	−0.138* [0.049]	−0.055 [0.431]	−0.010 [0.892]	0.030 [0.692]	0.163* [0.015]	−0.012 [0.867]
PROGRAME: English	0.092 [0.215]	−0.049 [0.516]	0.041 [0.579]	−0.115 [0.130]	−0.132 [0.109]	−0.130† [0.066]	−0.189** [0.010]
PROGRAMH: History	0.103 [0.129]	0.061 [0.365]	0.013 [0.846]	−0.059 [0.388]	−0.086 [0.239]	−0.086 [0.180]	−0.124† [0.062]
PROGRAMP: Psychology	−0.089 [0.223]	−0.097 [0.193]	0.055 [0.450]	−0.061 [0.415]	0.023 [0.776]	−0.056 [0.416]	−0.019 [0.793]
<i>U.S. Geographical Region</i>							
NORTHEAST	—	—	—	—	—	—	—
SOUTH	−0.032 [0.579]	−0.059 [0.311]	0.053 [0.355]	−0.086 [0.141]	−0.219*** [0.001]	−0.133* [0.015]	−0.188*** [0.001]
MIDWEST	−0.051 [0.382]	−0.098† [0.098]	−0.026 [0.659]	−0.044 [0.460]	−0.218*** [0.001]	−0.080 [0.151]	−0.174** [0.003]
WEST	0.072 [0.197]	0.010 [0.856]	−0.01 [0.850]	−0.068 [0.225]	−0.274*** [0.000]	0.034 [0.525]	−0.016 [0.768]

*continued*

The positive impact of unionization on perceptions of both pay adequacy and pay fairness holds up in these regressions.<sup>12</sup> Unionization is no longer a significant determinant of the annual stipend. Unionization remains unrelated to teaching-related academic freedom in the regression and, as in the means analysis, it does not predict academic freedom climate ( $p > .05$ ). Interesting to note is that the same models run for the full sample, including

we also ran models for random effects at the university-program level using a procedure that controls for correlated errors within programs within universities. As one would expect, the standard errors in these equations were slightly larger but most of the coefficients that were statistically significant remained so. The exceptions were for pay adequacy and pay fairness; in both of these equations the union variable lost significance. Since GSE unions negotiate one collective bargaining agreement per university, we would argue that the loss of significance for these latter variables using the multilevel procedures is to be expected and does not vitiate the idea that unions increase compensation. Results for these models are available upon request.

<sup>12</sup>To ensure the accuracy of our findings for the two limited categorical dependent variables—pay fairness and pay adequacy—ordered logistic regressions were estimated for these two. Results were very similar with regard to the union representation variable; however, only pay adequacy met the “parallel lines” assumption of ordered logit, so we also ran multinomial logit models. Again, those who were not represented were less likely to report pay fairness and pay adequacy all around, but the multinomial model revealed that the effect was statistically significant for the highest “yes, completely fair” and the “yes, completely adequate” categories alone. Results for these models are available upon request.



Table 4. Continued

	<i>Student-Teacher Relationships</i>		<i>Academic Freedom</i>		<i>Economic Issues</i>		
	<i>Personal support</i> ( <i>n</i> = 429)	<i>Professional support</i> ( <i>n</i> = 435)	<i>Teaching-related</i> ( <i>n</i> = 439)	<i>Climate</i> ( <i>n</i> = 437)	<i>Annual stipend</i> ( <i>n</i> = 358)	<i>Pay adequacy</i> ( <i>n</i> = 439)	<i>Pay fairness</i> ( <i>n</i> = 440)
Student Category							
TA	—	—	—	—	—	—	—
RA	0.061 [0.267]	0.023 [0.677]	0.288*** [0.000]	0.063 [0.255]	0.062 [0.310]	0.117* [0.025]	0.064 [0.240]
TARA	0.068 [0.188]	0.037 [0.482]	0.148** [0.004]	0.091† [0.082]	−0.016 [0.784]	0.034 [0.487]	0.052 [0.309]
ABROAD: Whether student is an international student (1 = yes)	0.197** [0.004]	0.190** [0.005]	−0.086 [0.197]	0.073 [0.281]	−0.142† [0.058]	−0.016 [0.804]	0.061 [0.355]
GENDER (1 = female)	−0.054 [0.309]	−0.099† [0.063]	−0.051 [0.328]	0.016 [0.772]	−0.012 [0.839]	−0.027 [0.595]	−0.060 [0.245]
YROFSTDY: Student's year in current PhD program (continuous, 0-9+)	−0.047 [0.390]	−0.005 [0.921]	0.036 [0.499]	−0.057 [0.294]	−0.005 [0.930]	0.047 [0.356]	−0.065 [0.221]
Age							
AGECAT2125: 21 to 25 years old	−0.020 [0.716]	−0.018 [0.744]	0.053 [0.323]	−0.065 [0.238]	−0.047 [0.424]	0.075 [0.150]	0.047 [0.382]
AGECAT2630: 26 to 30 years old	—	—	—	—	—	—	—
AGECAT3135: 31 to 35 years old	−0.063 [0.234]	−0.001 [0.986]	0.041 [0.424]	−0.021 [0.693]	0.108† [0.058]	−0.113* [0.023]	−0.016 [0.749]
AGECAT36: Older than 35	−0.056 [0.281]	−0.012 [0.817]	0.007 [0.893]	0.071 [0.173]	0.070 [0.214]	−0.101* [0.040]	−0.015 [0.772]
RACE (1 = nonwhite)	−0.115† [0.078]	−0.160* [0.014]	−0.025 [0.669]	−0.013 [0.837]	0.037 [0.594]	−0.034 [0.585]	−0.096 [0.132]
Constant	3.976***	3.813***	4.112***	4.002***	9.890***	2.416***	4.139***
F-value	2.611***	1.933*	2.648***	1.632*	2.626***	5.072***	3.003***
R <sup>2</sup>	0.097	0.073	0.096	0.062	0.116	0.170	0.108
Adjusted R <sup>2</sup>	0.060	0.035	0.060	0.024	0.072	0.136	0.072

† Statistically significant at  $p \leq .10$ ; \* at  $p \leq .05$ ; \*\* at  $p \leq .01$ ; \*\*\* at  $p \leq .001$ . *P*-values are in brackets. Standard errors are available upon request.

fellows and self-supported students, produce weaker results overall.<sup>13</sup> This suggests the main impact of unionization is on *employees*, rather than the overall climate for *graduate students*.

Given the presence of a small number of high pair-wise correlations in Table 2, which presents the possibility of multicollinearity problems in the regression analyses, we assessed the variance inflation factor (VIF) of each predictor variable within each regression. Using accepted VIF rules of thumb (O'Brien 2007) whereby a VIF of 10 is an indication of excessive or serious multicollinearity, the independent variables across all seven models displayed VIFs smaller than three, with most smaller than two. This satisfies recent calls for even more conservative VIFs of smaller than four to rule out the possibility for multicollinearity problems (O'Brien 2007), and, together

<sup>13</sup>This is true except for the pay variables for which there obviously is no data for nonemployees.

with the fact that results from our alternate specifications—including the random effects and ordinal and multinomial logit models—did not differ substantially from the OLS results shown in Table 4, provide further evidence that our regression estimates are not marred by excessive multicollinearity.

Clear evidence is not observed in our data for the assertions that GSE representation harms the faculty–student relationship or reduces academic freedom. But does that mean these long-standing legal assertions are disproved by our study? To answer that question, we conducted a post hoc power analysis for each model to determine whether our sample sizes were sufficiently large to yield stable, reliable, and unbiased estimates (Shen, Kiger, Davies, Rasch, Simon, and Ones 2011).<sup>14</sup> Compared with “generally adequate” statistical power level suggestions of 0.80 (Shen et al. 2011: 1057), our models yielded powers of 0.99, 0.97, 1.0, 0.93, 1.0, 1.0, 1.0, respectively. Our sample had sufficient power, that is, was large enough, to detect statistically significant effects if they in fact existed.

Several of our control variables were also statistically significant at conventional ( $p \leq .05$ ) or marginal levels ( $.05 < p \leq .10$ ). Computer science students reported lower levels of personal support (compared with business students, who were the omitted category), as did nonwhites. International GSEs reported higher levels of personal support. GSEs who were in computer science, in the Midwest (compared with students in the Northeast, who were the omitted category), female, and nonwhite reported lower levels of professional support, while international students reported greater levels of professional support from their primary advisors.

In terms of teaching-related academic freedom, compared with TAs (the omitted category), students who were RAs or both an RA and a TA simultaneously reported greater academic freedom, differences with practical significance since actual TAs are likely to know more about teaching conditions than RAs. Regarding academic freedom climate within the program and university, GSEs who were simultaneously TAs and RAs reported greater freedom. Students in the South, Midwest, and West reported lower annual stipends than students in the Northeast, as did international students. Further, students in the 31 to 35 age range category reported higher annual stipends than those in the 26 to 30 age range, the holdout category. In terms of pay adequacy, computer science students and RAs reported greater adequacy, while students in English departments, in the South, and older than 30 years felt their pay was less adequate. Students in English and history departments, and students in the South and Midwest, reported lower perceptions of pay fairness. While we think the very different conditions of work likely explain differences between TAs and RAs, also possible is that different types of students (for instance, students of differing types of ability) select into these categories.

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<sup>14</sup>We used SPSS SamplePower 3.0.

### Discussion, Limitations, and Conclusion

In this article, we examine the impact of graduate student employee unionization on three sets of outcomes: faculty–student relationships, academic freedom, and pay. While the NLRB in the *Brown* decision and certain conceptualizations of the employment relationship under collective bargaining emphasize the potential for a negative impact on faculty–student relationships, our results support other theoretical traditions that suggest unionization might have no impact or even a positive impact on those relationships. In the unionized departments we surveyed, students reported better personal and professional support relationships with their primary advisors than were reported by their nonunion counterparts. Our data do not permit us to conclude with certainty the reason for the positive impact, although our results accord with what would be predicted by internal labor market theory. It could be that GSE unions, either directly or through creating pressures that encourage management to rationalize practices, encourage stronger mentoring by faculty advisors. Alternatively, as Gross argues, perhaps GSE unions strengthen the relationship between students and faculty advisors by pushing potential employment-related conflicts up to the university bureaucracy. Either way, we find no support for the NLRB’s contention in the *Brown* decision that union representation would harm the faculty–student relationship.

Also contrary to the Board in *Brown*, ample reason exists to think that unionization might actually strengthen the academic freedom of graduate students; however, we found only scant evidence of a positive effect. No evidence was observed for stronger teaching-related academic freedom for students in unionized settings; perhaps this is not an issue that GSE unions have thus far taken on. We did find some support, albeit weak, for a positive impact of unionization on the overall climate of academic freedom (both departmental and university-wide). Again, no support was found for the NLRB’s contention in *Brown* that GSE unionization would diminish academic freedom.

Despite the NLRB’s focus on the potential negative effects on academic outcomes, graduate students themselves have likely been more concerned with the basic terms and conditions of employment. We find some support for the notion that unionization improves the economic terms of graduate student employment in the form of annual stipends as well as perceptions of pay fairness and adequacy. It might also be added that pay adequacy should be linked with improved educational outcomes—students who are receiving adequate pay for their employment are less likely to have additional outside employment, which could interfere with their ability to focus on their degree.<sup>15</sup>

While our results undermine the reasoning used by the majority in the *Brown* decision, we should note some important caveats related to differences in the public-sector universities we studied and the private sector where the NLRB has jurisdiction. First, while private-sector employees including GSEs

<sup>15</sup>Compared with GSEs who reported their stipend as “completely adequate,” GSEs who reported their stipend as “very inadequate” ( $p \leq .001$ ) or “somewhat inadequate” ( $p \leq .01$ ) were more likely to have other paid employment in addition to their teaching or research assistantship.

have a right to strike, many public-sector jurisdictions prohibit or otherwise limit strikes, which in theory could reduce the likelihood of adversarial relations developing between faculty and GSEs. However, GSE strikes have occurred in some public-sector universities (at the University of Illinois and University of California-Berkeley, for example), so the impact of cross-state differences in strike law or behavior in the public sector is an issue worth further empirical examination.<sup>16</sup> Second, the scope of bargaining is often more constrained in the public sector than in the private sector, limiting the scope of the collective bargaining agreement at these universities. Finally, given the barriers faculty unionization faces in the private sector (the general legal prohibition of faculty unionization based on the assumption of the faculty's managerial status), a more likely scenario is that the faculty in public universities are themselves unionized, which might also ameliorate any potential negative impact of GSE unionization. In fact, two of the four unionized universities we studied also had unionized faculty; in both cases the faculty and graduate students are represented by the same or an affiliated labor organization. The impact of all these differences, however, is mere supposition. Like graduate student unionization itself, the nuances of these differing contexts deserve empirical investigation before they are given weight in any legal decisions. Also important to note is that, largely as a result of the NLRB's *Brown* decision, studying GSE unionization in the private sector in the United States is not possible because, to the best of our knowledge, there are no private research universities with union-represented GSEs.

Several other important limitations might well serve as a basis for future research. The first is our approach as it relates to the theoretical relationships among GSE unionization and student outcomes. Our primary aim was to put to test decades of NLRB "theory" about the potentially harmful consequences of GSE collective bargaining. While we map several theoretical perspectives from the industrial relations tradition onto the court's heretofore untested assertions, our relatively low R-square values suggest that additional factors are at work between student unionization and student-teacher relationships, academic freedom, and pay issues. Future researchers might consider using constructs and theories from the organizational behavior and social psychology domains, such as personality, mentor-protégé relations, and student motivation and abilities, to paint a more complete picture of this complex relationship.<sup>17</sup>

Another limitation is the lack of a traditional laboratory science department, although both computer science and psychology likely share some characteristics with those departments: PhD students are placed in laboratories where they work as part of a specific team and under a specific grant. Some of the most troubling questions about the potential impact of union

<sup>16</sup>Newspaper coverage of the 2009 GSE strike at the University of Illinois can be accessed at [http://articles.chicagotribune.com/2009-11-17/news/0911160398\\_1\\_graduate-student-instructors-graduate-employees-organization](http://articles.chicagotribune.com/2009-11-17/news/0911160398_1_graduate-student-instructors-graduate-employees-organization). A University of California-Berkeley press release concerning the 1996 strike of GSEs at that campus can be retrieved from <http://www.berkeley.edu/news/media/releases/96legacy/agse.html>.

<sup>17</sup>Thank you to one of the anonymous referees for this suggestion.

representation of GSEs have concerned RAs in the physical and biological sciences. Future research should look more at those settings. We recognize that our empirical evidence is likely not the final word on the consequences of union representation for GSEs. At the same time, the fact that our results parallel those of Hewitt (2000), who collected data from faculty, begins to suggest a consistent picture. Hewitt found that almost all (88%) of faculty agreed that graduate student collective bargaining did not inhibit the mentoring relationships they had with graduate students; the evidence from graduate students themselves supports the same conclusion. Even larger proportions of faculty believe GSE unionization did not inhibit their ability to advise or instruct graduate students and did not inhibit the free exchange of ideas. Similarly, represented graduate students report equal or better levels of academic freedom as do those who are not represented.

An additional useful area for future research would be why some graduate student employees (and not others) unionize, and once unionized, what they want from representation. Are their objectives largely economic? Theory suggests that it makes no sense for GSE unions to pursue policies that alienate graduate students from their faculty mentors. Further development of the theory of GSE bargaining priorities needs to go hand in hand with empirical research.

We encourage the NLRB, and the courts themselves, to look at the best evidence available on the actual consequences of representation, from the public sector in the United States, or even perhaps from the private sector in other nations. Legal arguments made in the absence of empirical evidence are deeply troubling, especially when they lead to the deprivation of labor rights.

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