December 2014

The Impact of Unionization on University Performance

Mark Cassell
Kent State University, mcassell@kent.edu

Odeh Halaseh
Kent State University, ohalaseh@kent.edu

The Impact of Unionization on University Performance

Cover Page Footnote

The Impact of Unionization on University Performance

Mark Cassell[1] & Odeh Halaseh[2]

Introduction

The question of whether a unionized labor force hurts or harms an organization's performance has been at the center of political debates since the 19th century. And although unionization rates in the United States have declined steadily since the 1970s, the actions by governors in Ohio, Wisconsin, and Indiana to weaken public sector unions in 2010 (Greenhouse 2011), and the recent vote by Volkswagen workers in South Carolina (Greenhouse, 2014) underscore that the debate over the impact that organized labor on performance remains a salient and important question. However, it is a question often dominated by rhetoric with little empirical support. Research on unionization and performance is hampered by the lack of data and by declines in unionization rates which make it difficult to identify the influence of unionization from a range of other factors that drive performance. Higher education in the public sector is one of the few industries in the United States where unionization has remained fairly stable over a long period time and thus offers an empirical window into the question of how unionization affects organizational performance.

Of course, unionization in higher education has long been controversial within and outside academia. When unionization was first introduced to college campuses in the 1960s faculty argued that joining a union would undermine professional identity, create a divisive force on campus, reduce the role of faculty senates, and weaken the campus culture of collegiality and consensus (Ladd & Lipset, 1973). Recently, during a campaign to unionize faculty at the University of Illinois, Urbana-Champaign, Nicholas C. Burbules, Professor of Education Policy expressed similar concerns at a university senate hearing:

> [O]ne way of defining a healthy relationship of shared governance is when the administration shares information and decisions with the faculty that it is *not* strictly obligated to do. This happens regularly on this campus and at the university level. Collective bargaining would destroy that relationship, not "strengthen it" (*Senate Remarks*, 2013).

---

[1] Mark Cassell, Ph.D. is Professor of Political Science at Kent State University. He was Visiting Fulbright Professor through June 15, 2014, at Wissenschaftszentrum Berlin für Sozialforschung.
[2] Odeh Halaseh is a graduate student in the Department of Political Science at Kent State University.

Debate over whether university and college faculty should form a union is even greater outside of academia. In statehouses across the United States, governors and legislatures debate collective bargaining's impact on the quality and cost of public goods generally and higher education in particular. Republican Governors Scott Walker (Wisconsin), John Kasich (Ohio), and Mitch Daniels (Indiana) recommended in 2011 that public-sector collective bargaining be banned or severely restricted because it burdens taxpayers and government budgets with higher costs (Greenhouse, 2011, A14; Jaschik, 2011). Legislators in Ohio endorsed "charter" or "enterprise" universities partly out of concerns about faculty unions (Martin & Samels, 2004). In 2012, Virginia Foxx (R-North Carolina), chair of the House Subcommittee on Higher Education and Workforce, predicted an increase in unionization would seriously limit colleges' flexibility, "potentially putting union bosses in charge of everything from how professors are evaluated for tenure to the subject matter and number of courses each faculty member may teach" (Schmidt, 2012).

At the center of debates over unionization in higher education is what impact faculty unions have on the performance of colleges and universities. Do faculty unions, as their detractors suggest, hurt universities by increasing budgets, reducing flexibility, and protecting mediocrity (Brown, 1982; Monaghan, 1995; Loyola, 2012)? Or do faculty unions, as proponents suggest, improve universities by empowering faculty, institutionalizing faculty governance, and holding administrators to higher standards of fairness and transparency (Rhoades, 2011; DeCew, 2003)?

Faculty unions are important players in public institutions of higher learning in the United States. In close to a third of all public four-year colleges and universities a faculty union represents either tenure-tracked faculty, adjuncts, or part-time instructors. About 25% of all faculty and staff in U.S. colleges and universities are in a union or covered by a collective bargaining agreement. Unionization growth is particularly high among adjuncts and graduate students. In 1998, 75,882 adjunct and part-time instructors were represented by unions. By 2012, that number had doubled to 147,021 (Berry & Savarese, 2012, p. vii; Julius & DiGiovanni, 2012). And currently about 20% of graduate student employees or 64,000 graduate student employees are represented by unions, distributed among 28 institutions of higher education, all in the public sector (Berry & Savarese, 2012; Julius & DiGiovanni, 2012). In short, faculty unionization remains robust even as state legislatures seek to curb or even eliminate public sector collective bargaining (Clawson, 2013).

At the same time, there are strong concerns about the cost and quality of higher education. According to government data, the inflation-adjusted cost to attend a 4-year public institution in the United States rose from $6,381 in 1980-81 to $15,605 in 2010-11—an increase of 144%. Among 4-year private institutions, average tuition and fees have increased 128%, from $13,995

in 1980-81 to \$31,975 in 2010-11 (U.S. Dept. of Education 2012). The increase in tuition means the average American graduate leaves college with \$26,600 of debt ("Universities Challenged; Higher Education," 2013).

Adding to concerns, researchers note that the proportion of students entering college who receive degrees has slowed while the time-to-completion has risen among college graduates in the United States over the past three decades (Bound, Lovenheim, & Turner, 2010). Higher costs coupled with declining graduation rates are driving policy makers on the right and the left to seek answers for how to lower higher education costs while improving graduation and completion rates.

In this environment, faculty unions have become easy scapegoats for explaining higher costs and lower quality. Critiques of union are at times justified, but they can also deflect attention from more significant underlying causes of a problem. This study sheds light on unions' impact on the organizational efficiency and effectiveness in higher education by first theorizing the causal connections between faculty unions and higher education performance. In addition, the study presents the result of an empirical analysis of higher education performance using data from the Department of Education's Integrated Post Secondary Data System (IPEDS) spanning more than two decades and more than 430 public universities and colleges. Organizational <u>efficiency</u> is defined in the empirical section as an institution's core expenses per degree or completion. We define organizational <u>effectiveness</u> as the number of degrees or completions per 100 Full-Time Students. We include completion because it offers a more inclusive measure of university output than simply degrees awarded. "Completions" includes degree attainment but also certifications and other programmatic credentials. Although they capture only a general understanding of organizational performance, our measures of efficiency and effectiveness are commonly used by scholars, policymakers and the public to assess higher education performance (Goenner & Snaith, 2003; Rickinson & Rutherford, 1995). Moreover, we believe the size of our sample and the length of our time series enables us to contribute to an understanding of organizational performance and will generate additional research into the issues.

The article is organized as follows: Section II discusses several prominent theories that link unionization to organizational performance. Section III discusses the methodological challenges, research design and method used in the study. The results of the cross-sectional time series analyses are presented in Section IV. Section V concludes with a summary of the major findings and outstanding questions prompted by the research.

Theoretical Connections Between Unions and Higher Education Performance

How do unions impact organizational performance in higher education? What is the relationship between a complex public organization's performance and a unionized labor force? Beneath much of the rhetoric one can identify several prominent theoretical approaches in the scholarly literature.

Rational Choice/Labor Market Distortion Model

A common theoretical approach treats faculty as rational actors driven to maximize their self-interest by demanding higher wages and salaries, greater job security, and greater span of control over their organizational environment (Cohen & Noll 1998; James 1990; Niskanen 1971). As one conservative think tank put it:

> Were it not for the exception government makes for [unions], they would be illegal and possibly criminal under the antitrust laws, for the good reasons that they extract special benefits for a few at the expense of the rest of society by suppressing free competition (Loyola, 2012, p.2)

Once organized into a labor cartel (i.e. faculty union) the utility-maximizing faculty exercise greater leverage within the organization than would be the case in a competitive labor market. This theory argues that the distortion in the faculty labor market caused by unionization contributes to outputs that weaken organizational efficiency and effectiveness.

Scholars note that unionization can lead to organizational rigidity by codifying informal procedures, standardizing rules, and institutionalizing transparency and accountability (Julius & DiGiovanni, 2012; Baldridge, 1978). Gilmore (1981) and Birnbaum (1980) also find that unionization reduces collegiality and trust on campuses between faculty and administrators. Others argue that the market distortion caused by unions protects mediocre faculty at the expense of more productive faculty, thus reducing the overall effectiveness of the institution (Riley, 2011).

Perhaps the strongest connection between unionization and organizational performance centers on costs, according to this theory. The distortion in the faculty labor market caused by unions enables self-interested faculty to leverage wages and benefits higher than they would be in a competitive labor market (Marlow 2013; Vedder, Denhardt, & Robe 2012; see also Riley 2011). As a result, college and university efficiency is undermined. The question of whether wages and, by extension, university costs are driven up by unionization remains decidedly unclear (Ashraf & Williams 2008; Ashraf 1997). Recent research finds only a slight "union premium" (Hendrick, Hensen, Krieg, & Wassell, 2011). Moreover, some scholars also argue that

the causal arrow moves in the opposite direction: that weaker universities are more likely to be unionized and weaker faculty (with lower salaries) are attracted to unionized schools.

In short, a rational choice theoretical approach leads to two hypotheses:

H_1: All else equal, public universities and colleges with unionized faculty are <u>less efficient</u> than schools without a union.

H_2: All else equal, public universities and colleges with unionized faculty are <u>less effective</u> than schools without a union.

Bureaucratic Discretion Model

A model in public administration articulated by Carl Friedrich (1940) offers an alternative to rational choice theory. In a famous debate with Herman Finer, Friedrich argued that complex organizations work best when professionals are given the administrative autonomy to solve problems. Moreover, employees are held accountable not through top-down administrative rule-making but through the professional and technical training which incorporate ethical standards and norms. An effective organization is one in which professionals are given the freedom to make tough decisions and solve difficult administrative problems.

Unionization, in this model, maintains, defends and promotes not only academic freedom, but a clear role for faculty in the governance of the university, one insulated from the capricious behavior of administrators, politicians or corporations. Gary Rhoades, former President of the American Association of University Professors (AAUP), writes, "The push…is for accountability that is grounded in the local realities and distinctive missions of American colleges and universities; that draws on the expertise of professionals on the ground more than on the commitments of politicians and foundations far from the action" (Rhoades, 2011, p. 25). Benjamin Ginsberg (2011) suggests that a spike in the number of university administrators relative to the number of faculty since 1995 has weakened higher education by eroding faculty governance. The shift to a more administration-dominated university, according to Ginsberg, bloats university budgets and lowers performance because administrators are paid well above the average faculty and often lack substantive expertise in areas in which they exercise control, and because administrative turnover is much higher than faculty turnover. Faculty unions can temper such trends by institutionalizing faculties' role in university governance vis-à-vis a collective bargaining agreement and ensuring that clear and transparent standards are developed and followed (Franke, 1984; Wickens, 2008).

Proponents of unionization argue further that faculty unions serve as a counter-weight to competitive budgeting approaches like the ubiquitous Responsibility Center Model (RCM)

which promote an accountability that turns departments and faculty into individual cost centers beholden not to professional standards but to administrator-determined bottom lines. In this theory, faculty unions preserve faculty autonomy while countering the organizational balkanization that can occur from RCM or the advent of the entrepreneurial university (Rhoades, 2011).

In short, the bureaucratic discretion model generates two additional hypotheses:

H_3: All else equal, public universities and colleges with unionized faculty are <u>more efficient</u> than schools without a union.

H_4: All else equal, public universities and colleges with unionized faculty are <u>more effective</u> than schools without a union.

Institutional, Partisan And Socio-Economic Theories

Although this research is primarily interested in understanding the relationship of faculty unions to higher education performance, scholars also identify several state-level factors related to unionization that can also impact university performance. Institutional scholarship by Knott and Payne (2004) and Lowry (2001) find that state structures influence the cost and quality of public universities and colleges. Knott and Payne (2004) and Lowry (2001) examine the influence of state-wide governing or coordinator boards which oversee higher education. Each body of research takes up a slightly different question. Using a cross-sectional data set of Ph.D.-granting public schools spanning 1987-1998, Knott and Payne consider how the degree of centralization and power within the governing board influences performance. Lowry, using cross-sectional data, considers what impact coordinating boards and trustee appointments by the governor have on tuition costs and university spending priorities. Both bodies of research find that governing boards with great capacity exercise greater control over public colleges and universities. Knott and Payne also find that partisan control of state government influences higher education performance. Drawing upon Knott and Payne and Lowry's work, we develop the following hypotheses:

H_5: All else being equal, more centralized and more powerful state governing boards lead to <u>more efficient</u> public colleges and universities.

H_6: All else being equal, states with more centralized and more powerful governing boards lead to <u>more effective</u> public colleges and universities.

Scholars note that, when analyzing the influence of labor unions on public organizations, another important factor is whether there are laws which prohibit unions from charging non-union-member employees for union representation. In states without such so-called "Right-to-Work" (RTW) laws, unions can negotiate provisions that require employees covered by a union-negotiated contract to pay some portion of the dues. RTW laws currently exist in 24 states. Scholars find that in those states with RTW laws it is more difficult to form a union than in states

where unions and employers are free to bargain contracts that include these fair share payments (Ichniowski & Zax, 1991; Ellwood & Fine, 1987). And work by the Economic Policy Institute suggests that so-called RTW laws lower wages among public employees in a state (Gould & Shierholz, 2012). There is little scholarship on whether RTW laws influence higher education performance. Yet, the scholarship suggests that RTW laws lower public sector investment which may reduce costs but also may reduce effectiveness as institutions struggle to make do with less. The following hypotheses flow from the scholarship on RTW laws:

> H_7: All else equal, states with RTW laws experience <u>more efficient</u> public colleges and universities.

> H_8: All else equal, states with RTW laws experience <u>more effective</u> public colleges and universities.

Lastly, scholars who study higher education budgets note the importance of both a state's economic health and state politics in shaping the budgets of public colleges and universities (Archibald & Feldman, 2006; Ehrenberg, 2006; Hearn, Griswold, & Marine, 1996). Republican-dominated state houses are viewed as more fiscally conservative and less likely to fund higher education. At the same time, a more robust state economy contributes to higher state revenues and more options for funding higher education. Lower state support is likely to increase the cost-efficiency of higher education as schools operate with a lower level of state support. At the same time, increases in state support are likely to increase the effectiveness of a university or college. We thus close our theoretical section with four final hypotheses:

> H_9: All else equal, states with a Republican-dominated statehouse experience <u>more efficient</u> public colleges and universities.

> H_{10}: All else equal, states with a Republican-dominated statehouse experience <u>less effective</u> public colleges and universities.

> H_{11}: All else equal, states with a stronger economy experience <u>less efficient</u> public colleges and universities.

> H_{12}: All else equal states with a stronger economy experience <u>more effective</u> public colleges and universities.

The hypotheses presented here are not mutually exclusive. Indeed various theoretical models likely complement each other. For example, RTW states may well likely also reduce costs but in all likelihood the rules will also influence the strength of unionization in the state. Similarly, those within the college or university who want to reduce the influence of a faculty union may be emboldened by a Republican state legislature and governor who publicly seek to

abolish or limit public sector labor unions. Such issues speak to the methodological challenges addressed in the next section.

Research Design, Data and Methodology

Scholarship on unionization and higher education typically uses cross-sectional data analysis. However, since cross-sectional data offer only a snapshot in time, such approaches are unable to capture change in their models. Our research design addresses the problem by using panel data regression analysis to examine the effect of unionization on changes in university performance and behavior. In this case the units are 433 public four-year universities reporting data annually for 23 years.

The data for this research come from the Delta Cost Project, a research organization that has developed a cross-state longitudinal database from the Integrated Postsecondary Education Data System (IPEDS) data at the National Center for Educational Statistics. The value added by the Delta Cost Project's database is that it enables one to evaluate variables over time and put information in context through comparison with patterns in other states (Delta Cost Project, 2011).

To maintain a narrow focus, we exclude vocational schools, medical schools and public 2-year institutions. And, because of the Supreme Court's *NLRB v. Yeshiva University* (1980) decision[3], private institutions are also excluded from the database. The 433 public universities over 23 years generate approximately 9,461 observations. The precise number of observations varies because of missing data for certain observations and variables. Variables used in the analysis are described in the Appendix.

Dependent variables

We explore the relationship between unionization and performance along two fronts that reflect different values. The first value is efficiency. Are universities without unions more efficient than universities with unions? As noted at the start, we define efficiency in two ways: 1) core expenses per degree; and 2) core expenses per completion. The IPEDS dataset defines "core expenses" to include expenditures on instruction, research, public service, academic support, student services, institutional support, operations and maintenance, and scholarships and

---

[3] The Supreme Court held that the implied exemption from National Labor Relations Act coverage for so-called managerial employees applied to faculty members at Yeshiva, because their authority over University academic policy was nearly absolute. While it did not prohibit unionization at private institutions, the decision makes it extremely difficult for faculty in private institutions to bargain collectively (NLRB, 1980, 672).

fellowships. Were unionization rates equally distributed across the country, the variation in the cost of living would not bias the results. But because, for example, unionization is positively correlated with living costs estimates of union impacts that omit this relationship overstate the impact of unionization (Hendrick, Hensen, Krieg, & Wassell, 2011). Therefore, our expense measures are adjusted for inflation over time and across states.

We also measure university performance in terms of effectiveness: How well does the university fulfill its educational mission regardless of cost? While no single measure can easily capture the mission of an institution, state legislators increasingly use outcomes such as completions and graduation rates as proxies for effectiveness. Two measures of effectiveness are, therefore, used:

Number of degrees per 100 full-time students. Number of degrees conferred per 100 full-time enrolled students by a college, university, or other postsecondary education institution as official recognition for the successful completion of a program of study;

Number of completions per 100 full-time students. Number of completions per 100 full-time enrolled students by a college, university, or other postsecondary education institution as official recognition for the successful completion of a program of studies.

Although they offer only a general picture, the measures used to assess efficiency and effectiveness take into account university expenses, student numbers, and degrees awarded.

Independent Variables

Our central independent variable is unionization. The National Center for the Study of Collective Bargaining in Higher Education and the Professions (NCSCBHEP) collects the most comprehensive information on unionization among colleges and universities. Using 2010 data provided by NCSCBHEP we construct a dummy variable if any subgroup of faculty (full-time, part-time, or adjuncts) are represented by a union at the institution (1=union, 0=nonunion). Our measure does not specify union affiliation (AFT, AAUP, etc.) nor does it capture what percentage of the faculty are members. Based on qualitative scholarship that describes first-hand accounts of organizing a faculty union, just having a faculty union introduces formal and transparent personnel processes to the entire university, strengthens the governing role of the entire faculty including those not in a union, and typically reduces administrative discretion (Govea, 1998).

For our institutional variables we use Knott and Payne's (2004) classification of higher education structures across states. Knott and Payne classify each state into one of three

categories: "highly regulated" (coded as a "3") are states with a governing or coordinating board and strong regulatory powers; "moderately regulated" (coded here as "2") are states in which a coordinating board exists with some regulatory powers; and "minimally regulated" (coded as "1") are states which have a coordinating board, advisory or planning agency with few formal regulatory powers. In addition, we create a dummy variable for whether a state operates under a set RTW laws that prohibit unions from charging non-union members fees for union representation.

A set of partisan and economic variables are also included in the analysis. We create a measure of Republican control of government by merging data on the partisan character of each state government. The variable measures the percentage of state institutions (assembly, senate, and executive) controlled by the Republican Party. Thus, if the Republican Party controls only one house of government the variable is .33, two houses is .66, and two houses plus the governorship is 1. This varies over time. Our indicator of state economic performance uses per capita state Gross Domestic Product from the Bureau of Economic Analysis at the Department of Commerce. This also varies over time.

Finally, we include several control variables that studies of higher education find important in explaining higher education performance. Because the performance dynamics of larger schools likely differ from smaller schools, we include total school enrollment as a control variable. Also, because the type of degree granting institution (Ph.D., MA, or BA) can influence performance, we control for the Carnegie Classifications. And lastly, we include a measure of selectivity as a control variable. Selectivity is measured here in terms of the number of students who apply divided by the number of students admitted. A higher number signifies a less selective school and a lower number indicates fewer admissions per applications and thus a more selective institution. Admission and application information in the Delta Cost Project, does not cover all schools for all years. We, therefore, use data for 2009 and assume that selectivity (like the Carnegie Classification) is relatively stable over time[4]. We recognize the flaws in assuming a school's academic reputation is stable; school reputations clearly rise and fall over time. Other possible selectivity measures, including *US News and Reports* rankings, resulted in a loss of data. Similarly, when we attempted to include our measure of selectivity (admissions/ applications) for other years, we again lost data. In the end, we opted to rely on 2009 data in order to retain the size of our data set.

There are a number of methodological challenges associated with panel data (Zhu, 2012). The advantage, according to Zhu, is that it provides researchers with the ability to deal with "rarely changing variables and unobserved heterogeneity across units" (p. 396). The challenges

of using panel data, however, are significant. There are debates over whether to use fixed or random effects. Adjusting for correlated errors along spatial or temporal dimensions is difficult. And, if the theory is weak, the model may suffer from various forms of omitted-variable bias (Beck 2011).

While there are various approaches to addressing nonspherical errors, we draw upon Beck and Katz (1995, 1996) and use panel-corrected standard errors (PCSE) to deal with the problems of panel heteroskedasticity and spatial correlation across panels. Moreover, we correct for serial autocorrelation by using the panel-specific correction (PSAR(1)). PSAR (1) yields a better model fit than the general AR(1) if heterogeneity is detected in the error structure (Zhu, 2012, p. 406).

We supplement our time-series analysis by running several cross-sectional Ordinary Least Squares (OLS) models using data from 2009. We incorporate a temporal element into our cross-sectional models in two ways. First, the dependent variable is defined as the percentage change in our efficiency and effectiveness indicators from 1987 to 2009. Second, instead of using a simple dummy variable for union, we develop a continuous variable that reflects the number of years a college or university has had a union on campus. Because our data set spans 23 years, our continuous union variable ranges from 0 to 23 with mean of 7.4 and standard deviation of 10. 5. The assumption in our cross-sectional models is that whatever effect (positive, negative, or none) unionization has on effectiveness and efficiency, it is likely to be more apparent the longer a faculty union has been on campus. The purpose of the cross-sectional models is to examine the question of unionization's impact on organizational efficiency and effectiveness from a different perspective while still accounting for time.

Empirical Assessment

Results from our empirical models are summarized in Table 1. The table describes the hypotheses, whether the signs of the coefficients are in the direction suggested by the theoretical approaches, and whether the coefficients are statistically significant.

Table 1

Summary of Results of Hypotheses

Hypothesis	Results*/Statistical Significance**
Rational Choice/Labor Market Distortion	
H_1: All else equal, public universities and colleges with unionized faculty are <u>less efficient</u> than schools without a union	No support/Statistically Significant

Hypothesis	Results*/Statistical Significance**
H$_2$: All else equal, public universities and colleges with unionized faculty are <u>less effective</u> than schools without a union	No support/ Statistically Not Significant
Bureaucratic Discretion	
H3: All else equal, public universities and colleges with unionized faculty are <u>more efficient</u> than schools without a union	Support/Statistically Significant
H4: All else equal, public universities and colleges with unionized faculty are <u>more effective</u> than schools without a union	Support/Statistically Significant
Institutions	
H5: All else being equal, more centralized and more powerful state governing boards lead to <u>more efficient</u> public colleges and universities	Support/Statistically Significant
H6: All else being equal, states with more centralized and more powerful governing boards lead to <u>more effective</u> public colleges and universities	No support/ Statistically Not Significant
H7: All else equal, states with RTW laws experience <u>more efficient</u> public colleges and universities	Support/Statistically Not Significant
H8: All else equal, states with RTW laws experience <u>more effective</u> public colleges and universities	Support/Statistically Significant
Partisan Control & Economic Health	
H9: All else equal, states with a Republican-dominated statehouse experience <u>more efficient</u> public colleges and universities	Support/Not Statistically Significant
H10: All else equal, states with a Republican-dominated statehouse experience <u>less effective</u> public colleges and universities	No support/Statistically Significant
H11: All else equal, states with a stronger economy experience <u>less efficient</u> public colleges and universities	Support/Not Statistically Significant
H12: All else equal states with a stronger economy experience <u>more effective</u> public colleges and universities	Support/Statistically Significant

* Sign of coefficient supports or does not support the hypothesis. ** Coefficient is significant at .05 level or lower.

Table 2

Factors that affect efficiency and effectiveness at 4-year public institutions of higher education from 1987-2009

Variables	Efficiency		Effectiveness	
	Core Expenses Per Completion	Core Expenses Per Degree	Number of Degrees Per 100 Students	Total Number of Completions per 100 Students
Union	-12212.32***	-13555.13***	1.157***	1.154***
Selectivity of Institution	-130673.1***	-142598.9***	-3.353***	-3.846***
Republican Control of State Gov.	-748.164	-664.919	0.335	0.401*
Knott and Payne Structural Controls	-1197.186	-1446.745*	-0.035	-0.013
Total Full-time Enrollment	0.256	0.417**	-0.000019*	-0.0000101
Carnegie 2005 Classification	5286.029	10286.5*	-2.149***	-1.740***
State GDP Per Capita	204.76	175.416	0.0000735***	0.0000733***
Right to Work State	-370.884	-2454.587	-0.583*	-0.608*
Constant	165192.6***	166773.9***	25.422***	25.247***
Rho	0.836	0.816	0.785	0.781
Groups	434	434	434	434
Observations	9933	9933	9937	9937
R^2	0.452	0.472	0.356	0.3243

*$p < .05$. **$p < .01$. ***$p < .001$.

Overall, we find little support for the Rational Choice/Labor Market Distortion hypotheses, strong support for the Bureaucratic Discretion hypotheses, and mixed results on the impact of institutions, partisanship and the state's economic wellbeing. Detailed results of our time series cross-sectional analysis is presented in Table 2. Table 3 describes the results of our cross-sectional analysis using 2009 data.

Table 3

Percentage Change in Cost per Degree 1987-2009/Percentage Change in Cost per Completion 1987-2009

Variables	Efficiency		Effectiveness	
	% Change In Cost Per Completion	% Change In Cost Per Degree	% Change In Completions Per 100 Students	% Change In Degrees Per 100 Students
Number of Years Unionized	-2.068*	-1.052**	0.01	0.097
Selectivity of Institution	-99.181*	-34.055	-5.131	-7.203
Republican Control of State Gov.	-6.252	0.102	-7.309*	-7.382*
Knott and Payne Structural Controls	-11.036	-1.747	-0.486	-0.93
Total Full-time Enrollment	0.0006072	0.0001692	0.0000683	0.0001105
Carnegie 2005 Classification	51.435***	18.1803***	-0.868	1.647
State GDP Per Capita	-1.526	-0.52	0.299	0.217
Right to Work State	-16.905	-9.255	7.669*	8.738**
Hospital	-0.665	5.526	2.514	3.936
Constant	98.327	37.971	7.578	7.014
Observations	429	429	428	428
R^2	0.0957	0.0728	0.0394	0.0485
Adjusted R^2	0.0762	0.0529	0.0187	0.0280

*$p < .05$. **$p < .01$. ***$p < .001$.

Unionization. On the question of efficiency and unionization, the results from our cross-sectional time series models indicate that a faculty union is associated with $12,212 reduction in a school's core expenses per completion and a $13,555 reduction in core expenses per degree award. The union variable coefficients are statistically significant while controlling for cost of living differences by state and over time, size and selectivity of the institution, the institution's Carnegie classification, and whether the school is located in a state that prohibits unions from requiring workers to pay for the benefits of union representation. Our model explains approximately 45 per cent of the variation in our dependent variables measuring efficiency. Does

this mean that forming a faculty union increases the efficiency of a college or university? Maybe. an alternative explanation is that unions are more likely to form when public colleges and universities cut funds and reduce expenses. But what happens to efficiency the longer a union has been on campus? Our cross-sectional model presented in Table 3 suggests that the longer a school has a faculty union, the more efficient it becomes. For every year between 1987 and 2009 that a school has a faculty union, core expenses per completion decline by about 2.1 per cent and core expenses per degree decline by 1.1 per cent.

On the question of unionization and effectiveness, the results from our cross-sectional time series models support the view that faculty unions increase a school's effectiveness as measured by the number of degrees or completions awarded per 100 students. Schools with a faculty union are associated with 1.2 additional degrees and completions per 100 students after controlling for other factors. Our union variable is statistically significant at the .001 level and our model explains about a third of variance. At the same time, our cross-sectional model that uses 2009 data finds that, while the age of a union is positively associated with the number of degrees and completions, the coefficient for union years is not statistically significant.

Institutional effects. In our analysis we also consider the impact of institutions on efficiency and effectiveness. Our results paint a mixed picture. We hypothesized that greater centralized control increases efficiency and effectiveness. We find some support for the efficiency hypothesis and no support for the effectiveness hypotheses. As hypothesized, a more centralized governing body is associated with a lower cost per degree (-1,446), statistically significant at the .05 level. The coefficient for Knott and Payne's variable, however, is not statistically significant in our cost-per-completion model, although the sign of the coefficient is in the predicted direction. Knott and Payne's variable is also not statistically significant in explaining the number of degrees and completion granted per 100 students.

Coefficients for RTW laws are in the direction we hypothesized. We expect RTW laws to increase cost efficiency while lowering effectiveness. The RTW coefficient is negative across all four models, suggesting that such institutions contribute to lower school expenses and also lower outcomes. At the same time, only the coefficients for our two effectiveness measures are statistically significant.

Partisan and economic impacts. We hypothesize that public colleges and universities in Republican-dominated state governments are more efficient and less effective than those in less Republican-dominated states. Results from analysis find little support for either hypothesis. Although the coefficients in our efficiency models are negative, the results are not statistically significant. Moreover, the partisanship coefficient for one of our effectiveness models

(completions per 100 students) suggests a Republican-dominated state government is *positively* associated with a school's effectiveness.

State GDP per capita's influence on university and college outcomes is positive and statistically significant. As we hypothesized, a stronger economy appears to contribute to a larger number of degrees and completions per 100 students. State GDP per capita is also positively associated with core expenses per degree and completion (i.e., less efficient), however, the coefficient is not statistically significant.

Control variables. Three control variables are included in the model: size of the institution (student enrollment), selectivity and Carnegie classification. The number of students is positively associated with the cost per degree and cost per completion. The larger the institution, the more costly it is to graduate a student although only cost per degree is statistically significant. For every 1000 additional students, core expenses per degree increases by $417. At the same time, larger institutions are associated with fewer completions and degrees per 1000 students. For every 1000 students, the number of degrees award declines by .02 per cent.

Selectively is also a statistically significant factor in explaining organizational efficiency and effectiveness. Selectivity is measured as the number of applications divided by the number of admissions. A large number suggests that many applicants were admitted and the school is less selective. The negative coefficients for selectivity across our four performance measures, suggests less selective schools spend significantly less per degree and completion and graduate fewer students.[5] Finally, the Carnegie Classification measure is statistically significant in three of our four time series models.

Conclusion and Future Research

This article began with the general question of what impact unionization has on organizational performance by studying an industry where unionization has remained relatively stable over a long period of time. Based on the experience of public four-year institutions over 23 years we find, all things being equal, that unionization improves efficiency and effectiveness. It remains unclear whether unions help create more efficient academic institutions or whether unionization is likely to occur when academic institutions cut back on budgets. It is also unclear whether unions help create an environment that promotes higher graduation and completion rates

---

[5] We achieve similar results using Barrons college admissions' competitiveness selectivity measure. The Barrons measure, however, does not include some schools in our dataset. Moreover, our measure is continuous while Barrons uses a 1 to 4 ranking where 1 indicates "most competitive," 2 is "highly competitive plus," 3 is "highly competitive," and 4 is "very competitive plus."

or whether unionized institutions attract faculty that are more interested in activities that increase graduation rates such as teaching over research.

We offer some circumstantial evidence that suggests the causal arrow moves from unions to efficiency and effectiveness. For instance we control for the size and selectivity of schools. Also, by only including public institutions, we control for institutional type. In addition, our cross-sectional OLS models find that the longer a faculty union exists on campus the greater the efficiency gains. The impact of union years on effectiveness was positive but not statistically significant.

Although we find support for the bureaucratic discretion model, colleges and universities remain complex organizations and our analysis only underscores the need for future research in at least three general areas. First, more nuanced measures of efficiency and effectiveness are necessary. Core expenses or number of degree awarded are poor short-hand measures for capturing what a school does and whether it does it efficiently or not. More program-, departmental-, or even college-specific measures may offer more reliable assessments of efficiency and effectiveness.

Second, our research says little about what unions do within the university to influence efficiency or effectiveness. For example, do unions impact research output or grantsmanship? Does a faculty union increase or decrease the ability of faculty to spend more time advising or teaching students? Does a faculty union reduce faculty turnover? Or what role do faculty unions play in the development and adoption of new learning technologies? These questions suggest that a qualitative study of a single institution or small set of institutions over time may be more appropriate than a large-N quantitative analysis.

Finally, we began with Benjamin Ginsburg's (2011) claim that a spike in the number of administrators relative to faculty undermines the effectiveness of higher education while simultaneously driving up costs. A question derived from our study is whether faculty unions influence the priorities of university and colleges. Does a faculty union reduce the number of administrators or the resources a school devotes to administration? If so then unionization may impact efficiency and effectiveness indirectly – through unions' impact on schools' choices of administrative- or faculty-centered governance.

References

Archibald, R. B., & Feldman, D. H. (2006). "State higher education spending and the tax revolt." *The Journal of Higher Education* 77 (4): 618-44.

Ashraf, J. & Williams, M. F. (2008). "The effect of faculty unions on salaries: Some recent evidence." *Journal of Collective Negotiations (formerly Journal of Collective Negotiations in the Public Sector)* 32, no. 2 :141-50.

Ashraf, J. (1997). "The effect of unions on professors' salaries: The evidence over twenty years." *Journal of Labor Research* 18, no. 3: 439-50.

Baldridge, J. V. (1978). *Policy making and effective leadership: A national study of academic management*. San Francisco: Jossey-Bass.

Beck, N. & Katz, J. N. (1996). "Nuisance versus substance: Specifying and estimating time-series cross-section models." *Political Analysis* 6: 1-36.

Beck, N. & Katz, J. N. (1995). "What to do (and not do) with time-series cross-section data." *American Political Science Review* 89: 634-47.

Beck, N. (2011). "Of fixed-effects and time-invariant variables." *Political Analysis* 19: 119-22.

Berry, J. & Savarese, M. (2012). *Directory of U.S. faculty contracts and bargaining agents in institutions of higher education*. National Center for the Study of Collective Bargaining in Higher Education and the Professions, Hunter College, CUNY, New York.

Birnbaum, R. (1980). *Creative academic bargaining: Managing conflict in the unionized college and university*. New York: Teachers College Press, Teachers College, Columbia University.

Bound, J., Lovenheim, M. F., & Turner, S. (2010). "Why have college completion rates declined? An analysis of changing student preparation and collegiate resources." *American Economic Journal: Applied Economics* 2, no. 3: 129-57.

Brown, W. R. (1982). *Academic politics*. University, Ala.: University of Alabama Press.

Clawson, D. (2013). "Faculty unions at the crossroads: Why playing defense is a losing strategy." *New Labor Forum* 22 (1): 29-35.

Cohen, L. R., & Noll, R. G. (1998). "Universities, constituencies, and the role of the states." In *Challenges for Research Universities,* ed. R. G. Noll. Washington DC: Brookings Institution Press.

Davey, M. (2011). "Wisconsin senate limits bargaining by public workers." *New York Times*, March 9.

DeCew, J. W. (2003). *Unionization in the academy: Visions and realities*. Lanham, MD: Rowman & Littlefield.

Delta Cost Project. (2011). Delta Cost Project IPEDS Database. http://www.deltacostproject.org/data/

Ehrenberg, R. (2006). "The perfect storm and the privatization of public higher education." *Change: The Magazine of Higher Learning* 38(1): 46-53.

Ellwood, D. T., & Fine, G. (1987). "The impact of right-to-work laws on union organizing." *Journal of Political Economy* 95(2): 250-73.

Franke, A. H. (1984). "Two trends in academic collective bargaining: A faculty representative's perspective." *Journal of Law and Education* 13 (4): 651-68.

Friedrich, C. J. (1940). "Public policy and the nature of administrative responsibility." In *Public Policy* ed. Carl J. Friedrich. Cambridge, MA: Harvard University Press.

Gilmore, C. B. (1981). "The impact of faculty collective bargaining on the management of public higher educational institutions." *Journal of Collective Negotiations in the Public Sector* 10(2): 145-52.

Ginsberg, B. (2011). *The fall of the faculty: The rise of the all-administrative university and why it matters*. Oxford: Oxford University Press.

Goenner, C. F., & Snaith, S. M. (2003). "Predicting graduation rates: An analysis of student and institutional factors at doctoral universities." *Journal of College Student Retention: Research, Theory and Practice* 5 (4): 409-20.

Gould, E. & Shierholz, H. (2012). "Average worker in 'right-to-work' state earns $1,500 less each year." Economic Policy Institute. December 12. Accessed September 24. http://www.epi.org/publication/average-worker-right-to-work-state/

Govea, R. M. (1998). "The unionization of Cleveland State: An insider's story." *Academe* 84(6): 34-38.

Greenhouse, S. (2011). "A watershed moment for public-sector unions." *New York Times* (New York), February 18.

Greenhouse, S. (2014). "Volkswagen vote is defeat for labor in south." *New York Times* (New York), February 14.

Hearn, J. C., Griswold, C. P., & Marine, G. M. (1996). "Region, resources, and reason: A contextual analysis of state tuition and student aid policies." *Research in Higher Education* 37 (3): 141-78.

Hendrick, D. W., Hensen, S. E., Krieg, J. M., & Wassell Jr., C. S. (2011). "Is there really a faculty union salary premium?" *ILR Review* 64(3): 1-18.

Ichniowski, C. & Zax, J. S. (1991). "Right-to-work laws, free riders, and unionization in the local public sector." *Journal of Labor Economics* 9 (3): 255-75.

James, E. (1990). "Decision processes and priorities in higher education." In *The Economics of American Universities: Management, Operations and Fiscal Environment*, eds. Stephen A. Hoenack and Eileen L. Collins. Albany, NY: SUNY Press.

Jaschik, S. (2011). "Why they are rallying." *Inside Higher Ed.* February 23. http://www.insidehighered.com/news/2011/02/23/ohio_faculty_union_leaders_talk_about_why_they_value_collective_bargaining

Julius, D. J., & DiGiovanni Jr., N. (2012). "What's ahead in faculty collective bargaining? The new and the déjà vu." *Journal of Collective Bargaining in the Academy* 4 (5). Accessed August 15, 2013. http://thekeep.eiu.edu/jcba/vol4/iss1/5

Knott, J. H., & Payne. A. A. (2004). "The impact of state governance structures on management and performance of public organizations: A study of higher education institutions." *Journal of Policy Analysis and Management* 23 (1): 13-30.

Ladd, E. C. & Lipset, S. M. (1973). *Professors, Unions, and American Higher Education,*. Berkeley, CA: Carnegie Commission on Higher Education.

Lewin, T. (2013). "Obama's plan aims to lower cost of college." *New York Times*, August 22.

Lowry, R. C. (2001). "Governmental structure, trustee selection, and public university prices and spending: Multiple means to similar ends." *American Journal of Political Science* 45 (4): 845-61.

Loyola, M. (2012). "Tenth amendment." Texas Public Policy Foundation. December 12. Accessed August 15, 2013. http://www.texaspolicy.com/center/tenth-amendment/blog/when-unions-become-government-sponsored-cartels

Marlow, M. L. (2013). "Public sector unions and government size." *Applied Economics Letters* 20 (5): 466-70.

Martin, J., & Samels, J. E. (2004). *Presidential transition in higher education: Managing leadership change*. Baltimore, MD: Johns Hopkins University Press.

Monaghan, P. (1995). "Technology and the unions." *Chronicle of Higher Education*, February 10.

Niskanen, W. A. (1971). *Bureaucracy and representative government*. Chicago: Aldine, Atherton.

NLRB v. Yeshiva Univ. (1980). *US* 444 (No. 78-857): 672.

Rhoades, G. (2011). "Faculty unions, business models, and the academy's future."
    Change: The Magazine of Higher Learning 43(6): 20-26.

Rickinson, B. & Rutherford, D. (1995). "Increasing undergraduate student retention
    rates." *British Journal of Guidance and Counselling* 23(2): 161-72.

Riley, N. S. (2011). *The faculty lounges: And other reasons why you won't get the college
    education you paid for*. Chicago: Ivan R. Dee.

Schmidt, P. (2012). "House Republicans denounce federal labor board's actions as
    threatening colleges." *The Chronicle of Higher Education.* September 12..
    Accessed September 05, 2013. http://chronicle.com/article/At-Hearing-Labor-
    Board-Is/134318/

Senate Remarks on Faculty Unionization. (2013). University of Illinois Faculty Senate,
    February 4. (Testimony of Nicholas C. Burbules).

Siegel, J. (2013). "Ohio's $62 billion budget approved." *Columbus Dispatch*, June 28.

Universities Challenged; Higher Education. (2013). *The Economist (US)*, August 31.
    Accessed September 6, 2013. http://www.economist.com/news/united-
    states/21584393-barack-obama-wants-degrees-be-better-value-money-universities-
    challenged

U.S. Department of Education, National Center for Education Statistics. (2012). *Digest of
    Education Statistics, 2011* (NCES 2012-001), Table 349.

Vedder, R., Denhardt, M. & Robe, J. (2012). "Ohio right-to-work." *Buckeye Institute for
    Public Policy Solutions.* Columbus, OH.

Wickens, C. M. (2008). "The organizational impact of university labor unions." *Higher
    Education* 56(5): 545-64.

Witwer, D. S. (2008). *Corruption and reform in the Teamsters union*. Urbana: University
    of Illinois Press.

Zhu, L. (2012). "Panel data analysis in public administration: Substantive and statistical
    consideration." *Public Administration Research and Theory* 23: 395-48.

Appendix

Variable	Observa-tions	Mean	Standard Deviation	Description and Source
Core Expenses/ Degree	11820	121932.2	797844.7	A measure of spending on direct educational costs per degree (in contrast to cost per student enrolled); education and related expenses (for all students) are divided by all degrees awarded in the same year. Source: Delta Cost Project
Core Expenses/ Completion	11837	116363.9	596094.2	A measure of spending on total educational costs per completion (in contrast to costs per student enrolled); education and related expenses (for all students) are divided by all degrees and certificates awarded in the same year. "Completions" includes all degrees, certificates, diplomas or other formal awards granted by an institution in a year, regardless of when the student initially enrolled in that institution (i.e. as a freshman or a junior) and without regard to the number of years the student was enrolled before attaining the completion. (Much as the average cost per student does not distinguish between costs by level of student or discipline, spending per completions does not distinguish between spending on different types of degrees and certificates awarded). Source: Delta Cost Project
Degrees/100 full-time enrollees	11922	22.289	12.324	The total number of degrees granted per 100 full time equivalent students enrolled. Source: Delta Cost Project
Completions /100 full-time enrollees	11925	23.391	24.088	The total number of completions (awards, certificates, and degrees) granted per 100 full time equivalent students enrolled.

Variable	Observa-tions	Mean	Standard Deviation	Description and Source
				Source: Delta Cost Project
Unionized	12038	0.327	0.469	National Center for the Study of Collective Bargaining in Higher Education and the Professions, http://www.hunter.cuny.edu/ncscbhep
State Control	12038	0.427	0.34	Vanderbilt University, State Politics and Judiciary Code Book 1987-2005, The Council of State Governments, Book of States 2005-2009
Selectivity	9945	0.667	0.177	Total admission/Total Applications. Sources: Delta Cost Project
Total Full-Time Enrollment	11970	9834.712	12666.8	Source: Delta Cost Project
Knott and Payne	12038	2.672	1.139	Categorical variable that measures the degree of centralization in state regulatory system for higher education. Sources: Knott and Payne
State GDP Per Capita	12038	33372.37	8702.626	Source: Bureau of Economic Analysis
Carnegie Classifica-tion	11767	2.093	1.064	The 2005 Carnegie Classification includes all colleges and universities in the United States that are degree-granting and accredited by an agency recognized by the U.S. Secretary of Education Source: Delta Cost Project
Right To Work	12038	0.468	0.499	Source: United States Department of Labor, http://www.dol.gov/whd/state/righttowork.htm
Cost-of-Living Adjustment	12038	78.18	17.347	William Berry, http://mailer.fsu.edu/~wberry/garnet-wberry/a.html