

# Unions and Hospitals: Quality, Patient Satisfaction, and Net Income

**DANIEL J. KOYS**  
**WILLIAM “MARTY” MARTIN**  
*DePaul University*

**MARSHA KATZ**  
*Governor’s State University*

**HELEN LAVAN**  
*DePaul University*

## Abstract

This is the first study that combines data from several national data sets to examine the relationships among hospital unions and hospital outcomes. Analysis of covariance (ANCOVA) results show that hospitals with unions have lower patient satisfaction than do hospitals without unions; they do not differ on quality of care or net income. Among hospitals with at least one bargaining unit, multiple regression analyses show that union density is negatively related to patient satisfaction; it is not related to quality of care or to net income. We conclude that labor–management relations should consider patient satisfaction and its relationship to employee satisfaction.

There is little scholarly literature on the relationship between hospital unions and the quality of care. The empirical studies that do exist are regional (Seago and Ash 2002; Ash and Seago 2004) not national in scope. A related stream of research is the impact of legislatively mandated nurse-to-patient staffing ratios on quality of care (Coffman, Seago, and Spetz 2002). Another related stream of research is the impact on the perception of nurses’ work environment following health reform and their proclivity in joining a union (Clark, Clark, Day, and Shea 2001; Clark and Clark 2006).

This investigation is both national in scope and includes other measures beyond quality of care. In addition, the literature to date has not focused on union density. Our contribution is the empirical examination of the relationship between union status and union density on three measures of hospital performance: mortality rate, patient satisfaction, and net income.

## Literature Review

### *Labor Unions’ Relationship to Organizational Effectiveness*

Over the last several decades, there has been much controversy about the relationship between unionization and organizational effectiveness. Some experts claim that unions have a negative association with organizational effectiveness while others claim that there is a positive relationship. Although there is some evidence of a positive relationship in the health care industry, that is tenuous. On the other hand, one investigation of 73 New York hospitals found that “... unions per se have no direct effect on financial viability or quality; but have significant indirect affects” (Morey, Scherzer, Lee, Wallis, and Gladney 2008:17).

There is concern that unionization lowers the competitiveness of organizations because of the work rules and limits on workloads. Some see this as a major impediment to productivity. Further, the production loss to slowdowns and strikes can also decrease productivity. In addition, there is evidence that unionization increases the wages and benefits for the workers, thus the concern that it lowers the competitiveness of organizations (Freeman and Medoff 1982, 1984). A recent meta-analysis stated that while there is a negative association between unions and productivity in the United Kingdom and Japan, there is no association for the United States' non-manufacturing industries, but there is a positive association in U.S. manufacturing industries (Doucouliagos and Laroche 2009).

Other studies have found positive relationships between unionization and organizational effectiveness. Evidence indicates that unionized companies are 24% more productive than non-union organizations. Production worker quality in union establishments is 11% higher, while nonproduction worker quality is 8% lower (Fossum 2009). A study of the Australian banking industry found that cooperative labor relations was associated with higher levels of branch productivity and service quality (Deery and Iverson 2004).

Before we go into detail about the relationship between unions and hospital effectiveness, the reader needs to understand a few structural characteristics of the hospital industry in the United States. There are three structural characteristics important to our study: whether the hospital is in a right-to-work state, whether the hospital is privately owned (versus government owned), and whether the hospital is a teaching hospital (versus a community hospital).

*Location in a Right-to-Work State.* More than one-third of all nurses are unionized in seven states, but fewer than one in 20 nurses is a union member in 17 other states (BNA Report 2005). One reason for this is that the Taft Hartley Act allows states to enforce state laws prohibiting union contracts from requiring union membership as a condition of employment. These states, of which there are 23, are called right-to-work states. Unionization of health care workers may just mirror the pattern across all industries in a given location. Another reason for state-to-state variation in unionization is that hospital workers have the right to organize under state laws in some states but not in others (BNA Report 2005).

*Hospital Ownership.* Hospitals in the United States are either privately owned or publicly owned (government hospitals). According to the BNA, union organizing has remained relatively stable in the U.S. health care industry at 300 to 350 union representation elections annually. Unions have won about 60% of those elections (BNA Report 2005), but they have been more successful in organizing public sector health care workers. Between 1999 and 2003, unions won 87% of the public sector health care elections (Bronfenbrenner 2005).

*Teaching Hospitals.* There are two major types of hospitals in the United States: teaching hospitals and community hospitals. A study of Medicare margins revealed a downward trend in margins among hospitals of all types except for teaching hospitals (Schumann 2001). One of the explanations for this difference is that teaching hospitals receive payment for medical education, known as indirect medical education (IME) costs (Schumann 2001). Another reason for the difference is that teaching hospitals receive indirect funding from research grants to cover expenses not directly identified in the grant. Because of different goals and sources of income, the style of employee–management relations may differ, and the style of employee–patient relations may differ between community and teaching hospitals.

We can now turn to the literature on the relationship between unions and three hospital outcomes: patient satisfaction, health care quality, and net income.

#### *Unions and Patient Satisfaction*

The service–profit chain (Heskett, Sasser, and Schlesinger 1997) is useful in explaining how labor–management relations can influence hospital outcomes. The service–profit chain suggests that workforce capability, satisfaction, and loyalty will lead to customers perceptions of value. That will lead to customer satisfaction and loyalty, leading to profits and growth.

Clark, Drain, and Malone (2005) suggest that if capable hospital employees are treated fairly, they will be more likely to work at satisfying their patients. It may be that fairly treated employees are more likely to engage in organizational citizenship behaviors such as altruism, civic virtue, conscientiousness, courtesy, and sportsmanship (Koys 2001) and satisfied patients are more likely to comply with physician and nurse directives (Clark et al. 2005).

Miller (1990) found that union members are less satisfied than non-union members with most aspects of their jobs. The union effect remained after controlling for firm location, education, occupation, skill level, experience, and public versus private employment. Even though union members in the sample had a 13% wage premium, their satisfaction with pay was not higher, nor did they report more of a say in decision making. Miller concluded that the negative relationship between union status and job satisfaction comes from the incentive to unionize in unpleasant work environments.

With respect to job satisfaction in the health care industry, Management Science Associates (MSA), a Kansas City, Missouri, consulting firm, states that employee satisfaction is the lowest in the areas of pay, participation in decision making, and communications (BNA Report 2005). A 2001 study from the General Accounting Office noted the following key areas of dissatisfaction among nurses: decrease in support staff, heavy workloads, inadequate staffing, lack of respect and recognition, physical demands of the job, and the use of overtime to address staffing shortages (BNA Report 2005).

In a study of 3,645 registered nurses (RNs), it was found that RNs who were members of nursing collective bargaining units had greater satisfaction with wages compared to nonmembers. However, nonmembers reported greater satisfaction with nursing supervisors, patient care, work setting, professional relationships, and overall job satisfaction (Pittman 2007).

The literature is inconclusive with respect to the directionality of the relationship between union status and patient satisfaction. Both positive and negative relationships were found in previous studies. Hence, we propose null hypotheses for our study:

- *Hypothesis 1a:* There is no statistically significant difference in patient satisfaction between hospitals where a union is present and hospitals where a union is not present, after controlling for hospital location (in a right-to-work state or not), hospital ownership (public or private), and hospital type (teaching or community).
- *Hypothesis 1b:* In hospitals where a union is present, union density is not significantly related to patient satisfaction, after controlling for hospital location (in a right-to-work state or not), hospital ownership (public or private), and hospital type (teaching or community).

### *Unions and Health Care Quality*

There has been very little empirical research on the relationship between union status and the quality of health care. The argument for a positive relationship between union status and health care quality is based on the assumption that health care employees have a professional interest in patient care. However, there is a strong hierarchical climate in hospitals that can discourage nurses and lower-level employees from speaking up to doctors and administrators. Since unions can provide protection to members who speak up, unionized hospitals may have better health care quality than non-union hospitals. One of the classic roles for unions is to give employees a collective voice for dealing with management (Freeman and Medoff 1984). Indeed, nurses' unions often try to do so by bargaining over staffing levels, excessive overtime, and the practice of "floating" nurses from department to department because they believe that those practices have a negative influence on patient care (Clark 2002). There is empirical evidence suggesting that nurses are more likely to join a union if the union addresses quality of patient care (Clark and Clark 2006). One study discovered that higher nurse-staffing levels are statistically associated with better patient experiences (Jha, Orav, Zheng, and Epstein 2008).

Two previous investigations have explored the empirical relationship between RN unionization and clinical outcomes in the state of California. One study discovered that patients have a 5.5% greater chance of heart attack survival if their nurses were members of a bargaining unit than if they were not members of a bargaining unit (Seago and Ash 2002). Another study found that "... hospitals with unionized RNs have lower heart-attack mortality rates than do non-union hospitals" (Ash and Seago 2004:423).

The argument for a negative relationship between union status and health care quality is based on restrictive work rules being applied within tight labor markets. For example, despite the difficulty of newly graduated nurses in finding jobs in 2010, nursing shortages are forecasted as aging Baby Boomers require more care (U.S. Department of Labor 2010). Further, the Patient Protection and Affordable Care Act of 2010 will make millions more Americans eligible for health insurance. Hospital managers argue that nursing shortages force them to use lower staffing levels, overtime, and “floating” to take care of patients. One solution has been the development of union–management committees to monitor staffing levels and make recommendations (Clark 2002). However, if there are not enough nurses available to fulfill those recommendations, better staffing levels may only be possible if hospitals hire more nursing aides. Given that nursing aides usually have lower qualifications than nurses, the quality of health care may decline.

The literature is inconclusive with respect to the directionality of the relationship between union status and hospital outcomes. Based on what little work has been done, we suggest that arguments can be made for either a positive or a negative relationship between the two. Hence, we propose null hypotheses for our study:

- *Hypothesis 2a:* There is no statistically significant difference in heart attack mortality rate between hospitals where a union is present and hospitals where a union is not present, after controlling for hospital location (in a right-to-work state or not), hospital ownership (public or private), and hospital type (teaching or community).
- *Hypothesis 2b:* In hospitals where a union is present, union density is not significantly related to heart attack mortality rate, after controlling for hospital location (in a right-to-work state or not), hospital ownership (public or private), and hospital type (teaching or community).

#### *Unions and Hospital Net Income*

We are not aware of any empirical studies that have investigated the relationship between union status and hospital net income. As with the other hospital outcomes, arguments can be made for both positive and negative relationships between union status and net income.

According to one study, the wage differential between unionized health care workers and non-unionized health care workers is 19% (\$33.50 per hour versus \$28.20 per hour; Spetz and Ash 2009). If the hospital’s revenues are not enough to cover the higher pay, net income will suffer. So, on the one hand, unionization may be negatively related to net income.

On the other hand, unionization may be positively related to net income. The better terms of employment arising from unionization may encourage more people to apply for jobs at a unionized hospital. If the hospital’s managers have the employee selection techniques to choose the most efficient applicants from the larger applicant pool, revenues may increase more than the increase in labor costs.

Unionization may have a positive relationship with net income by decreasing turnover costs. The health care literature recognizes that job satisfaction and retention are associated with the nursing shortage (Porter, Kolcaba, McNulty, and Fitzpatrick 2010). For example, one study found that nursing labor management partnerships (NLMP) were associated with declines in nursing turnover and increases in satisfaction among nurses after the NLMP was established (Porter et al. 2010).

Unionization may be associated with net income because of its relationship with absenteeism costs. Iverson, Buttigieg, and Maguire (2003) report that union membership and homogeneity of union membership will have an influence on absence culture, which they regard as the propensity of workers to be absent. They studied 43 work groups, controlling for numerous variables including sex, age, education, tenure, union instrumentality, and job satisfaction. Their results showed that the greater the similarity in union membership and the greater the harmony between management and unions, the lower the absence culture.

The literature shows that unionization can have a negative relationship with net income because union wages are often higher than non-union wages. However, it may have a positive relationship with net income because unionization is associated with less employee turnover and absenteeism (Porter et al. 2010; Iverson et al. 2003). Since we cannot make a directional hypothesis, we make a null hypothesis:

- *Hypothesis 3a:* There is no statistically significant difference in net income between hospitals where a union is present and hospitals where a union is not present, after controlling for hospital

location (in a right-to-work state or not), hospital ownership (public or private), and hospital type (teaching or community).

- *Hypothesis 3b:* In hospitals where a union is present, union density is not significantly related to net income, after controlling for hospital location (in a right-to-work state or not), hospital ownership (public or private), and hospital type (teaching or community).

## Methods

### *Subjects*

The subjects of our study are 392 hospitals in the United States. The list of the hospitals with bargaining units was obtained from the Bureau of National Affairs. The list of hospitals without bargaining units was obtained from Hospital Compare (U.S. Department of Health & Human Services 2009).

The 392 hospitals were chosen using the following procedure. We obtained data on 200 unionized hospitals from the BNA Plus database. Four of those hospitals had missing data, so we eliminated them, giving us 196 unionized hospitals. We then randomly selected 196 non-union hospitals from the 4,470 hospitals in the 2009 Hospital Compare dataset. Of the total hospitals in our sample, 114 (29.1%) were located in right-to-work states, 40 (10.2%) were public hospitals, and 37 (9.4%) were teaching hospitals.

### *Measures*

*Health Care Quality.* Defining, measuring, reporting, managing, and improving quality is a challenge in all industries, and health care is no exception. Indeed, a recent review article states that there is no consensus on a definition of quality in health care (Currie, Harvey, West, McKenna, and Keeney 2005). This article uses the framework employed by Hospital Quality Alliance (HQA) and the Centers for Medicare and Medicaid Services (CMMS). That framework, called Hospital Compare, is based on a ranking system that includes 14 core measures separated into three categories: Acute Myocardial Infarction (AMI); Congestive Heart Failure (CHF); and Community-Acquired Pneumonia (CAP). It has been argued that AMI represents an ideal measure:

An AMI is an ideal condition with which to evaluate hospital performance for any institution that provides cardiovascular care because it is a common life-threatening condition with guideline-based interventions that improve survival rates. Therefore, performance in the care of patients with AMI should be excellent in any hospital that is rated as a top cardiac center. (Wang, Wang, Lichtman, Bradley, Normand, and Krumholz 2007:1346).

As such, we use the risk-adjusted AMI mortality rate in this research as the metric for health care quality. This measure was obtained from 2009 Hospital Compare database (U.S. Department of Health and Human Services 2009).

*Patient Satisfaction.* There is disagreement as to the validity of the patient satisfaction construct and the appropriate measure. Still, the Centers for Medicare and Medicaid Services (CMMS) and the Agency for Health care Research and Quality developed an 18-item survey, the Hospital Consumer Assessment of Health Care Providers and Systems (HCAHPS). The development of HCAHPS is discussed elsewhere (Darby, Hays and Kletke 2005; Goldstein, Farquhar, Crofton, Darby, and Garfinkel 2005).

In 2008, hospitals began publicly reporting their performance on HCAHPS. The results can be found on the Hospital Compare website. The particular measure used in this study is one of HCAHPS's two overall ratings, a global rating of the hospital on a scale of 0 to 10. Hospital Compare puts the ratings into three categories: 0–6, 7–8, or 9–10. We use the percentage of ratings a hospital received in the top category (9–10).

*Hospital's Net Income.* We obtained each hospital's net income from the American Hospital Directory.

*Unionized.* This is simply whether a hospital is unionized or not. The Bureau of National Affairs provides a service called BNA Plus. Among other things, union representatives report company names and number of people in their bargaining units. As long as a hospital had some people in at least one bargaining unit, we considered it a unionized hospital. Non-union hospitals were coded as 0, and unionized hospitals were coded as 1.

*Union Density.* This is used only for hospitals that are unionized. The extent of unionization in hospitals was obtained from the BNA Plus data set. The union representatives not only report the number of people in their bargaining units, they also report the number of employees in their companies. We calculated the hospital's union density by dividing the number of people in the bargaining unit by the number of employees in the hospital.

*Control Variables.* We control for the following variables: teaching hospital (no = 0, yes = 1), public ownership (no = 0, yes = 1), and right-to-work state (no = 0, yes = 1). To determine whether a hospital was a teaching hospital, we went to the Council of Teaching Hospitals and Health Systems (COTH) compiled by the American Association of Medical Colleges (AAMC). The data source for hospital ownership was the National Association of Public Hospitals and Health Systems. Finally, the right-to-work state location was obtained from The National Right to Work Legal Defense Foundation, Incorporated.

The various data sets noted above all include the hospital's unique Provider ID number. We used that number to merge the separate data sets into one.

### *Statistical Analysis Procedures*

Since having a bargaining unit or not is a categorical variable, we test hypotheses 1a, 2a, and 3a using analysis of covariance (ANCOVA) on the data from all 392 hospitals. To do so, we use SPSS's General Linear Model, entering unionization as the factor and entering the control variables as the covariates. To reject the null hypotheses, the factor (unionization) must be significant even in the presence of the covariates (hospital location, hospital ownership, and hospital type).

We test hypotheses 1b, 2b, and 3b with multiple regressions on the data from the 196 unionized hospitals. The control variables are entered in the first step and the  $R^2$  is obtained. Union density is entered in the second step and the  $R^2$  is obtained. To reject null hypotheses, there has to be a significant increase in  $R^2$  between the first and second steps.

## **Results**

The descriptive statistics and correlation matrix are shown in Table 1. The ANCOVA results testing hypotheses 1a, 2a, and 3a for all 392 hospitals are shown in Table 2. Patient satisfaction is significantly different between the hospital groups. The high patient satisfaction percentage in non-union hospitals averages 63.41, whereas in union hospitals it averages 59.46.

The ANCOVA results show that health care quality as measured by AMI mortality rates does not differ between non-union and union hospitals. Similarly, hospital net income does not differ between non-union and union hospitals. However, the covariate for being a teaching hospital is significantly related to net income. The teaching hospitals have a mean net income of \$23.1 million, whereas the community hospitals have a mean net income of \$9.5 million.

The multiple regression results testing hypotheses 1b, 2b, and 3b using data from the 196 unionized hospitals are presented in Table 3. Union density has a significant negative relationship with patient satisfaction. Union density is not related to health care quality as measured by the AMI mortality rate. Union density is not related to hospital net income.

TABLE 1  
Descriptive Statistics and Correlation Matrix

	Mean	S.D.	Right-to-Work State	Public Ownership	Teaching Hospital	Unionized	Union Density	Patient Satisfaction	AMI Mortality Rate
Right-to-Work State	.29	.46							
Public Ownership	.10	.30	.23**						
Teaching Hospital	.09	.29	.01	.09					
Unionized	.50	.50	-.46**	-.29**	.01				
Union Density	.20	.29	-.20**	-.22**	-.05	.71**			
Patient Satisfaction	61.43	9.42	.07	.13*	.02	-.21**	-.28**		
AMI Mortality Rate	15.96	1.10	.06	.07	-.09	.02	.02	-.04	
Net Income	\$10.8M	\$25.9 M	.01	.04	.15***	-.00	-.01	.14**	-.01

\*p < .05, \*\*p < .01

TABLE 2  
Descriptive Statistics and ANCOVA for Union (Versus Non-Union) Hospitals

	n	Patient Satisfaction			AMI Mortality Rate			Net Income		
		Descriptive		ANCOVA	Descriptive		ANCOVA	Descriptive		ANCOVA
		Mean	S.D.	F	Mean	S.D.	F	Mean	S.D.	F
Corrected model				5.17**			2.13			2.36
Intercept				10362**			49654**			30**
Non-right-to work/Right-to-work	278 114	61.02 62.45	8.71 10.94	.64	15.92 16.06	1.17 0.89	1.94	\$10.7M \$11.1M	\$25.4M \$27.3M	.00
Private/Public	352 40	61.03 65.00	9.20 10.65	2.20	15.93 16.20	1.10 1.08	2.77	\$10.5M \$13.6M	\$25.2M \$32.2M	.18
Community/Teaching	355 37	61.39 61.86	9.54 8.28	.04	15.99 15.66	1.05 1.47	3.70	\$9.5M \$23.1M	\$22.8M \$44.9M	8.91**
Non-union/Union	196 196	63.41 59.46	9.66 8.76	13.33**	15.94 15.98	1.03 1.16	2.04	\$10.9M \$10.7M	\$24.9M \$27.0M	.00

\*p < .05, \*\*p < .01

TABLE 3  
Multiple Regression Results for Union Density of Unionized Hospitals (n = 196)

Variables	Patient Satisfaction		AMI Mortality Rate		Net Income	
	Step 1 Beta	Step 2 Beta	Step 1 Beta	Step 2 Beta	Step 1 Beta	Step 2 Beta
Right-to-work	-.25**	-.16*	.02	.03	.01	.02
Public ownership	-.02	-.03	-.02	-.02	.06	.05
Teaching hospital	.05	.04	-.10	-.10	.02	.02
Union density		-.22**		-.02		-.01
R	.26	.33	.11	.11	.07	.07
R <sup>2</sup>	.07	.11	.01	.01	.01	.01
R <sup>2</sup> change		.04**		.00		.00

\*p < .05, \*\*p < .01

## Discussion

This study demonstrates that there is a negative relationship between union status and patient satisfaction. While this study can establish a correlation between union status and patient satisfaction but not health care quality and hospital net income, it cannot determine whether union status causes lower patient satisfaction or whether lower patient satisfaction appears in organizations characterized by union status. Furthermore, no evidence that union status is related to health care quality or to hospital net income was found.

### *Contributions to the Literature*

This investigation offers several unique contributions to the literature. First, this is the first national investigation of the statistical relationship of unionization in hospitals on health care quality. Previous studies were local, with one study being conducted in California and the other in New York. Second, this is the first local, regional, or national investigation of the statistical relationships among hospital union density on health care quality, patient satisfaction, and net income. Third, this study uses data that are available in public databases on two measures: health care quality and patient satisfaction.

Beyond the unique contributions of this investigation, our results both support the existing literature and contradict the existing literature. Additionally, some of our results seem counter-intuitive.

Beginning with our counter-intuitive results, we found a statistically significant relationship between patient satisfaction and being a public hospital. Another surprising finding was that net income was statistically associated with being a teaching hospital.

Our findings, unlike those found by other investigators (Ash and Seago 2004; Morey et al. 2008), demonstrate no statistically significant relationship between the existence of a union and our measure of health care quality, AMI mortality rate. Neither did we find any statistically significant associations between health care quality and union density. Further work exploring the relationships must be done with a focus on identifying the mechanisms at work.

To our knowledge, this is the first study to empirically investigate the relationship between unionization and patient satisfaction. Specifically, we found that hospitals without unions had higher patient satisfaction. We also found that as union density increases, high patient satisfaction decreases.

We did not find a statistically significant relationship between unionized status and net income. This relationship holds true even when using union density as the independent variable. Our results confirm those found by another investigator (Morey et al. 2008).

### *Implications for Practice*

*Implications for Policy Makers.* New health care laws were passed in March 2010, specifically the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act. Policy makers will be increasingly interested in discovering how health care organizations can absorb 32 million U.S. citizens currently without health insurance into an already strained health care delivery system. As the new health care laws get translated into regulations, policy makers will welcome any research that identifies factors that may be related to improving quality, patient satisfaction, and financial viability. There are several workforce provisions in the Patient Protection and Affordable Care Act, including the establishment of a National Center for Health Workforce Analysis. Our findings may guide policy makers in the rule-making process regarding the relationship between unionized workforces and outcomes of the health care delivery system, specifically quality of care, patient satisfaction, and financial viability.

*Implications for Hospital Boards and Senior Leaders.* Boards of trustees and senior leaders may at first want to heed the advice of Roberts (2006) who writes the following in *Trustee* magazine:

Unions will continue to target health care employers aggressively in the coming years as they attempt to reverse the long downward spiral in union membership. The forward-thinking executive should not assume that his or her organization is invulnerable to organizing activity and should regularly review and update all pertinent employment policies and practices. A proactive stance will always be the best defense. (Roberts 2006)



This advice and similar advice by anti-union individuals, organizations, and associations is seldom backed up with empirical evidence. That is surprising given the advances in evidence-based health care and evidence-based management. Our empirical findings suggest that health care quality, measured by the AMI mortality rate, does not differ based on unionization status. As such, the assertion that union avoidance is best for quality of care is not empirically based. However, remember that causal relationships were not examined in this study.

A chief concern among hospital boards of trustees and senior leaders is that more than one union may be recognized within a given hospital. This is because the National Labor Relations Board allows eight different types of bargaining units in hospitals. Our empirical findings reveal that unionization and union density are not statistically related to health care quality (as measured by the AMI mortality rate). Similarly, we find no empirical relationship between unionization (and union density) and net income. As such, assumptions about lower quality of care and the higher cost of hospitals with unions should be tempered with this empirical finding.

Our empirical evidence suggests that both unionization and union density are negatively associated with patient satisfaction. However, our findings do not indicate whether union status/union density causes lower patient satisfaction. Boards of trustees and senior leaders of health care organizations seeking to enhance patient satisfaction should be cautious in the interpretation and use of this empirical finding.

*Implications for Union Leaders.* Union leaders may postulate arguments that are ideologically driven. Union officials would benefit, like boards of trustees and senior leaders, from looking at the empirical evidence and formulating evidence-based arguments. For union officials, our evidence remains the same, but the perspective is reversed. Specifically, union leaders can legitimately say that management assertions that unions will negatively influence the bottom line and erode quality of care were not empirically supported. However, union leaders cannot say with any degree of empirical confidence that unions result in a better financial position for the hospital based on net income. Furthermore, union officials will have to find ways to address the empirical finding that both unionization and union density are negatively related to patient satisfaction rates, realizing that our analysis did not test for causality.

## Limitations and Future Research

Given that this is the first national investigation of the association of unions with health care quality, patient satisfaction, and net income, there was one challenge that had to be overcome: collecting the data. The data for this investigation came from three separate databases, one of which relied on information provided by the individual union official at each of the participating hospitals. The fact that some of our data relied on self-reporting may represent a constraint in the data with regard to validity.

Another limitation to economic analysis in a union context is that researchers seeking to estimate the causal effects of labor unions on wages find it very difficult to do (Gittleman and Pierce 2007). One of the difficulties is estimating the endogenous effect of unions on wages due to differences in industry structure. Hirsch and Schumacher (1998) found negligible differences in union wage effects across quartiles. Moreover, Card (2007) found that the union wage differentials tend to be higher for those with lower levels of observed skills. (His estimates range from 0.282 to 0.008.) Seniority earning profiles appear to be steeper in the union sector, while occupational expertise is estimated to have a more significant role in non-union jobs (Zangelidis 2008). Yet some scholars have concluded that the difficulties of addressing the endogeneity of union membership, combined with the presence of errors in the measurement of union status, limit the usefulness of these methods (Freeman 1984; Lewis 1986). This issue may be addressed with more replication or in a future longitudinal study.

We framed our research within the service-profit chain model (Heskett et al. 1997). Future research ought to be more theoretically informed, but researchers must realize that there may not be enough empirical data in this area of inquiry to develop full theoretical models.

Another area of future research is to make direct contact with each hospital and determine the union characteristics of each hospital, being attentive to the fact that the validity of the responses may still be challenging. Another possible source of data collection is to contact the union officials at the union headquarters and obtain data about union characteristics. Given that the NLRB does not appear to report the

union characteristics of interest in this investigation, future researchers may want to use the data that is publicly available from the NLRB to formulate and test hypotheses. Finally, a global study of the relationship between union density and health care quality, patient satisfaction, and net income would be valuable given global migration of talent, and even patients, with the rise of medical tourism.

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