

## **Unions, Dynamism, and Economic Performance**

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## ***1. Introduction***

The relationship between unions and economic performance is necessarily central to understanding changes in union membership, the role of unions in the workplace, and public policy. It is central first because union impacts on performance enter into the policy calculus of costs and benefits associated with policies that enhance or constrain union organizing and collective bargaining coverage. Second, whatever the publicly desired level and role for unions in the workplace, the realized level of coverage is heavily influenced by how unionized businesses perform in an increasingly competitive and dynamic global economy.

Maintaining a large union workforce in the US requires financially healthy unionized employers. Competitive pressures limit the size of the union sector if higher union compensation is not fully offset by higher productivity. Compared to nonunion workplace governance, where there is substantial managerial discretion constrained by market forces and law, union governance is more formal, deliberate, and often sluggish. Union companies, therefore, often fare poorly in highly dynamic and competitive economic settings. Union density, defined as the percentage of employees who are union members, has declined sharply in the US private sector, from just over a third in the mid-1950s to only 6.9% in 2010. Among a host of reasons for declining private sector union density, the most fundamental explanation appears to be an increasingly dynamic US economy coupled with the relatively poorer economic performance among union than nonunion establishments and firms.

Collective bargaining in the public sector operates under different labor laws and in different economic and political settings than does private sector collective bargaining. The proportion of public sector workers who are union members in 2010 is 36.2% as compared to the 6.9% seen among private sector workers. Union density for public workers has remained steady for some 30-plus years as private sector density has declined. Just over half of all US union members are now government employees. The success of public relative to private sector unionism lends support to the thesis that dynamism and competitive pressures serve as the principal limiting force on collective bargaining. Although the public sector is not immune to financial pressures, as the last several years have shown, competition and dynamism play far larger roles in the private sector, while long-term employment and constituent (“customer”) relationships are more prevalent in the public sector.

This paper explores the relationship between economic performance and unionism in the US, focusing first on what we do and do not know based on empirical research. Evidence on the relationship of unions with wages and benefits, productivity, profitability, investment, debt, employment growth, and business failures are all relevant in assessing the future of unions and public policy with respect to unions. A coherent story emerges from the empirical literature, albeit one that relies heavily on data that are neither as current nor comprehensive as one would like. The paper’s principal thesis is that union decline

has been tied to competitive forces and economic dynamism. Implications of these findings are discussed briefly in a final section.

## **2. *US Union Membership and Density: A Tale of Two Sectors*<sup>1</sup>**

Without too much overstatement, the 20<sup>th</sup> century can be characterized as having experienced the rise and fall of private sector unionization. The rise was sudden, the result of major economic, social, and political upheaval followed by public policy support for union organizing. The 1935 passage and subsequent Court approval and federal implementation of the National Labor Relations Act (NLRA) provided the legal and administrative framework that facilitated a rapid transition to an industrial US economy in which union governance became the norm. Major industries—coal, steel, automotive—became unionized over a brief period, a transition encouraged by New Deal corporatist policies during the 1930s and reinforced by the industrial buildup for World War II in the 1940s.<sup>2</sup> Following World War II, inflation and widespread strikes shifted majority opinion toward support for greater limits on union power. The Taft–Hartley Act in 1947 outlawed union practices like closed shops and secondary boycotts, allowed states to pass “right-to-work” laws, and gave the federal government the power to block or end strikes that might have national safety or health implications.

Figure 1 shows US private sector union density from 1929 through 2010. The percent of private sector workers who were union members rose from about 12% in 1929 to 24% by 1940 and to 35% by 1947. Union density was largely flat through the mid-1950s, with a peak at 36% in 1953 and 1954. Private sector union density edged slightly downward during the late 1950s and 1960s, and then began its long-term decline in the 1970s. The decline has been gradual, but unrelenting. Private sector union density was 24.5% in 1973, 16.5% in 1983, 11.1% by 1993, and stood at 6.9% in 2010. The number of private sector union members was 15 million in 1973, roughly maintained through the end of that decade, but subsequently fell to just over 7 million in 2010. As private union membership fell by nearly half, nonunion wage and salary employment in the private sector more than doubled from 47 million in 1973 to 103 million in 2010 (down from 108 million in 2008).

FIGURE 1

At the same time that private sector unionism was in decline, public sector unionism increased

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<sup>1</sup> Unless stated otherwise, all figures on union membership and density beginning in 1973 are from calculations by the author from the Current Population Survey (CPS) monthly files. Data are provided at the Union Membership and Coverage Database from the CPS ([www.unionstats.com](http://www.unionstats.com)) and described in Hirsch and Macpherson (2003). Pre-1973 union figures shown in Figure 1 are derived from Troy and Sheflin (1985), as explained in Hirsch (2008).

<sup>2</sup> Wachter (2007) argues that the NLRA, while setting up the administrative machinery that facilitated union organizing and governance, at the same time planted the seed for union decline. The NLRA constituted a break from the cooperative corporatist framework envisioned by the New Deal and instead recognized collective bargaining as an adversarial system that would operate within a market economy. In doing so, the NLRA allowed union power to be constrained and eventually marginalized by competitive pressures.

rapidly in the 1960s and 1970s following enactment of enabling public sector labor laws within (most) states and for federal employees. Figure 1 shows public sector union density beginning in 1977 (the first year that permits a time-consistent definition of membership). Although the size of the public sector has grown considerably since the 1970s, density has remained relatively constant, rising from 32.8% in 1977 to 36.7% in 1983 to a current level of 36.2% in 2010. Union density for all wage and salary workers (the weighted average of the private and public figures), also shown in figure 1 for years since 1977, has declined from 23.8% in 1977 to 11.9% in 2010.

The growth of membership in the public sector combined with decline in the private sector has resulted in a union movement increasingly populated by public sector workers. Private and public membership since 1977 is shown in figure 2. Whereas in 1977 only a quarter (25.8%) of US union members were public employees, public membership overtook private membership during 2009. Data for 2010 show that 52% of members are government employees, 7.6 million public sector versus 7.1 million private sector union members.

#### FIGURE 2

As shown in Hirsch (2008), *all* the private sector decline in private sector union membership since the 1970s can be accounted for by three large sectors of the economy – manufacturing, construction, and transportation, communications and utilities. Union membership in the (very large) remainder of the private sector economy remained flat at roughly 3.5 million as employment grew enormously. Figures 3a-3c show total private sector employment and union density in these three traditionally unionized sectors. In manufacturing (figure 3a), total employment was relatively constant at about 20 million from 1973 through the late 1990s, but since then has fallen sharply to about 13 million in 2010. Much of the decline has been in union employment, from 7.8 million in 1973 to 1.4 million members in 2010. Union density in manufacturing fell from 38.9% in 1973 to 10.7% in 2010 as the dominant norm in the industrial sector shifted from union to nonunion governance.

#### FIGURE 3A

Among the sectors that have historically been highly unionized, only manufacturing shows a long-run decline in employment. In the other heavily unionized industries, there was rapid growth in total employment, as seen in figures 3b and 3c for the private transportation, communications, and utility (TCU) sectors and construction. In construction (figure 3b), wage and salary employment rose from 4.1 to a high of 8.6 million in 2007 before falling sharply to 6.1 million in 2010. As union density declined in construction, membership stayed roughly flat at between 1.0-1.2 million from 1983 through 2008, falling to .8 million in 2010. Union density fell from 39.5% to 13.1% between 1973 and 2010. TCU total employment (figure 3c) also rose sharply, from 4.4 to 7.9 million between 1973 and 2010 (following an 8.7 million 2007 peak). Union density declined from 51.4% to 17.6%, with membership falling from 2.3

to 1.4 million.

FIGURE 3B

FIGURE 3C

Despite the sharp decline in private sector density, the union wage advantage relative to similar nonunion workers has remained fairly stable over time, with modest decline in recent years (shown below). Union pay is determined by a collective bargaining process shaped by the preferences of union members and the bargaining power of the parties, the latter influenced by product and labor market conditions. Union leaders are elected and union contracts must be approved by a majority of rank-and-file. Basic models of union behavior treat the decisions of union leaders as responsive to the preferences of the median voter or member (see Farber [1986] for a comprehensive discussion). Members face a trade-off between wages and employment (although settlements need not strictly lie on the labor demand curve), with the trade-off influenced by the ability of firms and customers to substitute between union and nonunion workers, establishments, and goods. Incumbent workers may place low weight on the greater employment opportunities that could exist at a lower wage, while median (often older) members may feel insulated from layoffs based on seniority, except when establishment closings or bankruptcies are a threat.

In contrast to the highly limited information available on company unionization and economic performance, worker data on union and nonunion wages (but not benefits) are readily available. These data permit estimation of union wage premiums—the percentage difference in the wages of similarly skilled union and nonunion workers in similar jobs. Changes in union wage gaps (premiums) over time provide a rough but useful measure of changes in relative labor costs of union firms. Although the focus here is wages, it is total compensation (wages plus benefits) that is the more relevant measure.

Hirsch and Macpherson (2011, table 2) provide regression estimates of union–nonunion wage premiums (gaps) for the years 1973–2010 from the CPS using a time-consistent specification. Estimates of the union gaps are obtained from annual wage equations, where the natural log of the wage is the dependent variable, while union status and controls for worker/job/location characteristics are included as independent variables.<sup>3</sup> The regression coefficient on union status provides a measure of the union wage premium, as shown in Figure 4 for both private and public sector workers. Because wages are measured in natural logs, the coefficient on union status can be interpreted as a proportional or percentage difference.<sup>4</sup> Estimation issues regarding union endogeneity, two-sided (employer and employee) selection

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<sup>3</sup> Controls variables include years of schooling, potential years of experience and its square (interacted with gender), and variables for marital status, race and ethnicity, gender, part-time work, large metropolitan area, public sector, region, broad occupation, and broad industry.

<sup>4</sup> The log differential is an approximate proportional difference, the union minus nonunion wage ( $W_u - W_n$ ) divided by some “average” wage between  $W_u$  and  $W_n$ . The percentage differential  $[(W_u - W_n)/W_n]100$  is typically approximated by  $[\exp(d) - 1]100$ , where  $d$  is the log differential.

on unmeasured skill, and earnings imputation, inter alia, are discussed in the literature (Hirsch, 2004).

#### FIGURE 4

Have private sector union wage premiums declined over time as density, union organizing strength, and bargaining power have diminished?<sup>5</sup> Yes – but by surprisingly little and only following the run-up in the union wage premium and sharp drop in union employment during the early 1980s (Linneman et al., 1990). Since the estimated peak premium of .249 in 1984, there has been a modest downward trend to an estimated 2010 union wage gap of .188. Although it is generally argued that union wage premiums are countercyclical due to the use of multiyear contracts (Blanchflower and Bryson, 2003), there is only weak evidence of this in these estimates. The most important point to bring away from figure 4 is that union wage premiums in the private sector remain high, on the order of 20%, well above the level found in most developed economies (Blanchflower and Bryson [2003] and included references). As discussed below, the typical union workplace does not generate sufficiently higher productivity to offset the costs of higher compensation, as such, union premiums reinforce the array of forces leading to private sector unionism’s long-run decline.

Evidence on union-nonunion differences in benefits is limited, but that available points clearly to a union benefits premium larger than the wage premium (Freeman and Medoff, 1984; Budd, 2007). In *What Do Unions Do?* Freeman and Medoff provide estimates for 1974-1977 indicating a 20% union wage premium, a large benefits premium (68% absent control for wages and 30% controlling for wages), and a 25% union compensation premium (Freeman and Medoff, 1984, p. 64). Looking at 2010 data from the Employer Costs for Employee Compensation (ECEC) program, benefits as a percent of total compensation among private sector workers in goods producing industries is 41.4% for union and 30.7% for nonunion workers. Equivalent figures in service providing industries are 37.4% and 27.2% for union and nonunion workers, respectively (US Department of Labor, 2011, Table 13, p. 22).<sup>6</sup>

The private sector is our principal interest, but estimates of union-nonunion wage gaps among public sector workers (conditioned on controls) warrant brief mention. Consistent with prior studies, Hirsch and Macpherson (2010) find that union wage effects in the public sector are considerably smaller than in the private sector, more on the order of 10% than 20%. As seen in Figure 4, their estimates rise to

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<sup>5</sup> There is no standard measure of union bargaining power. Union density and wage premiums are the most readily available measures. Firm-level (inverse) labor demand elasticities would be a reasonable proxy, but are not generally available. Cramton and Tracy (1998) construct a model in which weak bargaining power leads to less use of strikes and greater use of holdouts (working with an expired contract). As measured by the ratio of strikes to holdouts, bargaining power fell sharply during the 1980s. They conclude that much of the decline was due to employers’ increased willingness to use replacement workers. Bargaining power should be correlated with union success. Pencavel (2009) provides a weighted average of union density and the wage premium to measure union “utility” over time. Union well-being rises and then falls over 1922–2005, peaking in the early 1950s but with little change through the late 1960s, and then declining continuously thereafter to values slightly below those in the 1920s.

<sup>6</sup>The ECEC includes paid leave and supplemental pay as benefits rather than part of wage and salary earnings.

about 13-14% in the mid-to-late 1990s, but subsequently drop to under 10%. These aggregate estimates represent some sort of weighted average across local, state, and federal employees, as well as across a diverse set of occupations (teachers, police, firefighters, administrators, etc.). Freeman (1986) suggests that public sector unions, while having more limited wage effects than their private counterparts, may be effective in increasing employment for their members via the political process.

This essay argues that a mismatch between a relatively rigid and costly system of union governance and a highly competitive and dynamic economy has been a fundamental reason for the long-term decline of private sector unionism.<sup>7</sup> Compensation premiums not fully offset by productivity increases are a key element of this process. Increasing economic dynamism, say from rapid technological change or shifting trade patterns, reinforces cost disadvantages for union companies that respond slowly to changes in the economic environment. Of course, there are other important reasons for private sector union decline. Complementary to the competitive thesis are structural and legal explanations. I define “structural” as the change in aggregate union density resulting from shifts over time in the types of jobs (industry and occupation) and their geographic location. The legal explanation emphasizes the role of labor (and employment) law, its interpretation and enforcement, and the conduct of union elections. The legal explanation can be broadened to include the role of union “sentiment” among workers, management, and the public. Worker sentiment toward unions is influenced by past and present unionization in one’s community and by workplace protections offered workers absent unionization (e.g., antidiscrimination law). The competitive, structural, and legal explanations are not independent. For example, neither worker nor management sentiment regarding unions is unrelated to the economic performance of union and nonunion companies. I return briefly to these issues in the final section of the paper.

### ***3. Unions and Economic Performance: Theory***

Two theoretical frameworks, a standard microeconomic approach and Freeman and Medoff’s (1984) collective voice/institutional response (CV/IR) approach, have been widely used to organize discussion of union effects on wages, employment, and economic performance. Brief discussion is provided below, first of the economic approach and then of CV/IR.

The standard microeconomic approach treats the labor demand curve as the “labor constraint” or “tradeoff curve” between wages and employment facing labor unions within firms. A firm labor demand curve shows the profit maximizing employment level at each wage rate. All else the same, unions and their members fare better the higher rather than lower the level of demand for union labor (i.e., outward rather than inward shifts of the demand curve) and the less elastic (i.e., less wage sensitive) is demand for

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<sup>7</sup>For a related argument, see Wachter (2007), described in footnote 2.

union labor.<sup>8</sup>

Although the standard model and its underlying assumptions are simplistic and often violated, the “labor constraint” framework is helpful in understanding union behavior and outcomes. For example, policies that shift labor demand outward through an increase in industry-wide product demand are beneficial to both firms and their unions, increasing firms’ output and price and at the same time permitting both wage and employment increases for workers. Stated alternatively, there is a commonality of interest by shareholders and labor in the financial health of the firm and in those policies perceived as helping the firm or industry. Such examples might include mutual industry and union support for an industry-specific policy, be it trade protection, government subsidy, or favorable tax treatment (e.g., rebates for new car purchases were supported by the UAW and their employers).

The more elastic the demand for union labor, the larger the employment (membership) loss resulting from a wage increase. Marshall’s laws of derived demand show that long-run labor demand is more elastic (more wage sensitive) (a) the more elastic or price sensitive is product demand, implying difficulty in passing wage increases through to consumers in the form of higher prices; and (b) the easier is substitution of capital for labor or nonunion for union labor. The first “law” helps explain union support for or opposition to trade liberalization (union policies vary depending on whether union members are employed in predominantly export or import industries), or vehement opposition in the 1970s among affected unions to removing airline and trucking regulations restricting entry and price competition. The second “law” helps explain union resistance to labor saving technologies and unions’ strong interest in implicit or explicit limits to on-site use of nonunion workers or outsourcing (i.e., shifting production to nonunion suppliers in the US or abroad).<sup>9</sup>

The standard framework offers a normative basis to evaluate the effects of unionism, using economic efficiency as the outcome criterion. By this criterion, unions create a distortion (i.e., a welfare loss) from the efficient competitive outcome, causing the price of labor to rise above opportunity costs and leading to too little employment and output in the union sector, and thus too much elsewhere. The ability of unions to raise wages above opportunity cost is made possible by the labor monopoly rights granted to unions in US labor law. The micro distortion approach to evaluating unions and collective bargaining is far too narrow, basically making unionism equivalent to an exogenous wage increase. Taken alone, such an approach fails to account for the many other ways in which unions and collective

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<sup>8</sup> Changes in employment due to wage changes represent movement along the labor demand curve, all else the same, while shifts of the curve (i.e., greater or less employment at each given wage) depend on the level of output and the price of substitute factors – capital and nonunion labor. Of course, unions may move the employer up the demand curve to a wage (employment) level higher (lower) than the competitive outcome, or may move the firm off of its labor demand curve (for a discussion of “efficient contract” models, see Farber [1986]).

<sup>9</sup> If union wage gains derive in part from a “tax” on the returns to long-lived capital, as discussed subsequently, it need not follow that union companies increase capital intensity (i.e., the ratio of capital to labor).

bargaining affect economic performance, positively and negatively, which is the subject of this essay. The standard framework also ignores the difficulty in measuring the value to workers and society resulting from the option for workers to choose workplace democracy and formalized governance.<sup>10</sup>

Since the 1984 publication of Freeman and Medoff's *What Do Unions Do?* their "two faces of unions" framework has been used to evaluate unions. The approach provides a broad umbrella under which scholars can describe union effects on the workplace, cataloguing the effects as either monopoly effects based on standard micro theory summarized above or (often positive) collective voice/institutional response (CV/IR) effects. The monopoly face emphasizes the role of bargaining power, recognizing that the ability of unions to extract monopoly gains for its members is determined by the degree of competition and constraints on substitution facing both the employer and union. This face includes not only the distortionary effects on relative factor prices and factor usage resulting from union wage premiums. Unions may cause losses in output through strikes and decrease productivity in some workplaces through contractual work rules, reduced worker incentives, and limited managerial discretion. The monopoly face of unionism has expanded to include other union effects that decreases efficiency or total value (the "size of the pie") to firm stakeholders (workers and owners) and consumers. Theoretical and empirical literature, discussed subsequently, has emphasized unions' role in taxing returns on tangible and intangible capital and the resulting effects on profitability, investment, and growth (Hirsch 2007b).

The "collective voice/institutional response" (CV/IR) face of unions described by Freeman and Medoff focuses on value-enhancing aspects of unions, emphasizing the potential role unions can play in the operation of internal labor markets. Legally protected unions may make it possible for workers to express their preferences and exercise workplace collective voice. Collective bargaining can be more effective than individual bargaining or regulation in overcoming free-rider problems and underproduction of public-goods in the workplace. As the workers' agent, unions may facilitate the exercise of the workers' rights to free speech, acquire information, monitor employer behavior, and formalize the workplace governance structure (Weil, 2005). Unions are more likely to represent average or inframarginal workers, whereas nonunion employers are most responsive to their more mobile employees and potential hires. The exercise of effective voice potentially can increase workplace productivity, an outcome depending not only on voice but also on a constructive "institutional response" and a cooperative labor relations environment. Freeman and Medoff emphasize that supportive management response to union voice is a necessary condition for positive union outcomes. Where management is inherently

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<sup>10</sup> The standard micro theory approach to unions also addresses the possibility of monopsony or oligopsony (i.e., a single or few employers, with minimal worker mobility across markets). In the monopsony model, a union wage increase over a particular range can increase efficiency by raising both wages and employment toward competitive levels. There exist few examples of "classic" monopsony in today's economy, but a "new" monopsony literature has arisen that emphasizes labor supply frictions that tie workers to firms (Manning, 2003). Unlike the classic monopsony model, the welfare and policy implications of new monopsony models are rather opaque.

hostile to union governance, regardless of union behavior, one cannot expect unions and CV/IR to produce positive performance outcomes.

Freeman and Medoff broadened not only the theoretical lens through which economists viewed unions, but also the scope of empirical evidence. Rather than focus primarily on union wage effects and strike behavior, the staples of older literature, empirical labor economists (and others) extended the literature to include union effects on wage inequality, benefits, productivity and productivity growth, profitability, investment, and turnover, among other things (for a comprehensive retrospective of the CV/IR framework, see the papers in Bennett and Kaufman [2007]). Most of the empirical evidence summarized in Freeman and Medoff has held up rather well, with two important exceptions (see Freeman, 2007; Hirsch, 2007b). Freeman and Medoff were overly optimistic regarding the rather mixed evidence on unions and productivity, relying heavily on the study by Brown and Medoff (1978) that suggested large positive effects across U.S. manufacturing. As discussed below, subsequent evidence indicates that union productivity effects in the U.S. are not only variable, but on average close to zero.<sup>11</sup> The second exception regards unions and investment, an important measure of performance about which Freeman and Medoff had little evidence. They did not anticipate subsequent literature finding unions associated with significantly lower investment in long-lived physical and innovative (R&D) capital.

In what follows, I borrow from both the monopoly and CV/IR approaches, emphasizing the importance of union governance and how it operates in a competitive and dynamic economic environment. The role of competition on sustainability is well understood. For union companies operating in competitive, largely nonunion, industries, cost increases cannot be passed forward to consumers through higher prices. Substantial union wage premiums in such settings, absent productivity improvements that largely offset labor cost increases, should lead establishments to contract over time.<sup>12</sup> Unions have greater ability to acquire and maintain wage gains in less competitive economic settings, but there are fewer and fewer such settings in an increasingly competitive global economy. Also emphasized is a point not widely expressed in the union performance literature; highly formalized, deliberate union governance and reduced managerial discretion can prove particularly disadvantageous the more dynamic the economic environment.<sup>13</sup>

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<sup>11</sup> Freeman and Medoff argue that a competitive environment may be a necessary condition for positive productivity effects. “Higher productivity appears to run hand in hand with good industrial relations and to be spurred by competition in the product market, while lower productivity under unionism appears to exist under the opposite circumstances.” (Freeman and Medoff, 1984, p. 180)

<sup>12</sup> By the same reasoning, union companies that prosper in a competitive environment are not a random draw from among all possible (and largely unobserved) union-company experiences.

<sup>13</sup> The clearest precursors are Wachter and Wright (1984) and Wachter (2004, 2007), the first two papers comparing internal versus external labor markets and union versus nonunion governance, and the third the fundamental role competition plays in limiting union strength. Dynamism and the sluggishness of union governance is emphasized in

#### ***4. Unions and Performance: Measurement and Interpretation***

Because theory provides reasons why unionization can improve and harm economic performance, both the qualitative as and quantitative effects of unions are largely an empirical question. Before turning to issues of measurement and evidence in this section, it is worth emphasizing three related points. First, union effects on performance are typically measured by union-nonunion differences in outcomes across firms or sectors within an economy. Such differentials, however, do not measure union effects on aggregate or economy-wide performance because resources move across sectors. For example, evidence summarized below establishes that unionized companies have had lower profits and growth than similar nonunion companies. The relatively poorer performance of union businesses leads to a shift of production and employment out of union and into nonunion sectors. Overall union effects on economy-wide performance are likely to be modest.

A second point is that what are referred to as “union effects” on performance are the results of the interactions between management and unions (i.e., executives, managers, union leaders, rank and file) within the collective bargaining process as compared to some nonunion counterfactual. Measured union-nonunion differences in performance reflect these joint actions and not just the actions or behavior by unions. Were management (union) attitudes and actions with respect to unions (management) different, “union effects” on performance would no doubt differ. Value-added unionism and a stronger CV/IR face would be more likely if the collective bargaining process were less adversarial, were management less ideologically hostile to unions, and were unions (and rank and file workers) more far sighted and less focused on capturing rents. The third point follows naturally. The effects of unions on productivity and other aspects of performance will vary substantially across companies, industries, time, and countries given that both the collective voice and monopoly activities of unions depend crucially on the labor relations and economic environments.

As in other areas of study, the empirical literature on union performance effects in the US is imperfect. The most serious impediment to progress in this field is the almost total absence of current, publicly available data on collective bargaining coverage at the establishments and firm level. Data are more readily available for other developed countries, but results from other countries cannot be readily generalized given the considerable variability in labor institutions across countries. The US has publicly available data on individual worker union membership and coverage from CPS household surveys that can provide union density estimates for industries, occupations, and localities (Hirsch and Macpherson, 2003; the [www.unionstats.com](http://www.unionstats.com) database), but not measures of establishment or firm level union coverage. Labor unions provide reports of their membership and finances to the Department of Labor, but

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Hirsch (2008) and Hirsch and Hirsch (2007). For a related discussion on contracts and workplace governance, including an application to unions, see MacLeod (2011).

membership cannot fully be allocated across specific establishments and companies based on these reports.<sup>14</sup> The National Labor Relations Board (NLRB) reports on union elections and outcomes, but these data have several limitations.<sup>15</sup> The empirical literature on unions and performance has therefore relied on unique data sets containing measures of unionism; for example, coverage among establishments in a single industry or coverage among a nationwide sample of companies responding to a researcher's survey questionnaire. And much of the evidence for the US, including that in recently published studies, is based on older data on unions and performance, most often from the 1970s and 1980s. Absent readily available data on past and current union coverage among US establishments and firms, it has been difficult to provide broad-based descriptive evidence on union-nonunion differences in performance, let alone reliably estimate causal effects.

Although never fully achievable, the goal of empirical studies (and theory) is to make possible reliable inferences about the causal effects of unionization on economic performance throughout the economy. In principle, we would like to observe something equivalent to a laboratory experiment in which some establishments or firms were randomly "treated" or assigned collective bargaining coverage while other were not. We could then compare subsequent performance outcomes of the "treated" union businesses with the non-treated "control" group of nonunion businesses. Of course, unionization is not randomly determined. Today's union coverage is the result of past and present preferences, decisions, and interactions among workers, unions, and management, all occurring within environments heavily influenced by economic, legal, political, and cultural forces.<sup>16</sup> Empirical studies attempt to condition on measurable differences across businesses when comparing union and nonunion outcomes. But even when one can control for a large number of covariates, estimation issues remain.

A large number of existing studies utilize cross-sectional data at a single or multiple points in time, where differences in outcomes (productivity, profits, etc.) across establishments, firms, or industries with different levels of union coverage. Regression analysis is then used to provide estimates of union relative to nonunion differences in performance, conditioned on other measurable covariates. Such results are highly informative, but caution must be used before inferring that estimated differentials provide good measures of causal union effects. Among the key issues here are whether there is omitted variable bias, union endogeneity, measurement error, and external validity.

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<sup>14</sup> Holmes and Walrath (2007) provide a careful and enlightening longitudinal analysis of such data. Among the issues that arise are that figures provided by union locals sometimes include members for a single establishment, sometimes for a single firm across establishments, and sometimes for members across multiple employers.

<sup>15</sup> NLRB reports do not include small election units, union election wins need not translate into collective bargaining coverage (i.e., a contract), aggregating from elections up to the firm level is difficult, flows into union membership via elections for a given year (or set of years) are a small proportion of the total stock of members and there is no obvious way to account for flows out of union employment.

<sup>16</sup> It can be argued that unionism is an "experience good" for workers, organizers, and management (Gomez and Gunderson, 2004). Holmes (2006) provides evidence on the geographic link between past and current unionization, consistent with the experience good framework.

As applied to unions and performance, omitted variable bias results when one is unable to control for an important performance determinant correlated with union density. For example, if older plants have lower productivity and union density is higher in older plants, inability to control for plant age (or its correlates) in a production function would bias downward estimates of the union impact on productivity. A second concern is that union status may be determined endogenously rather than independently of the outcome measure. For example, unions are most likely to organize, obtain contracts, and sustain employment in firms (or industries) with higher potential profitability. Standard estimates of union effects on profitability would thus be biased upward, understating the negative impact of unions on profits. It has proven difficult to account for union endogeneity in the union literature. It is less clear whether or not this produces any substantial bias in estimates of union effects.

A third concern is external validity. Even when a study is internally valid, it need not follow that its results are externally valid; that is, that its results can be generalized beyond the particular setting from which the data are drawn. Some of the more reliable estimates of union effects on productivity are based on specific industries (e.g., cement, sawmills) where output is homogeneous and measured in physical units rather than by value added. Yet it is not clear whether results for, say, the western sawmill industry (Mitchell and Stone, 1992) can be generalized to the economy as a whole, particularly given that we expect union effects to differ across time, establishment, and industry.

In short, the unions and performance literature is limited by the paucity of US data sets containing data on establishment and firm level union coverage and performance outcomes. Among the studies that do exist, most cannot be strictly interpreted as measuring the causal effects of union coverage. But it does not follow that the empirical literature is uninformative. Depending on the question and data analysis at hand, it is sometimes possible to make reasoned inferences about the direction and size of bias in the estimates. Moreover, the studies can be interpreted as measuring partial correlations; that is, the correlation between union coverage and performance outcomes holding constant other measured covariates. Such “descriptive” evidence is informative and relevant. For example, evidence that unionized companies have, on average, substantively higher wages, at most modestly higher productivity, and lower profitability, can help explain why private sector unionism has declined in an increasingly competitive economy, even if these partial correlations are biased measures of causal union effects. Biased estimates may be less helpful for policy evaluation. If we are considering labor law policies that either enhance or restrict union organizing, it would be preferable to know the causal effects of unions on economic performance.

### ***5. Unions and Performance: Evidence***

Rather than provide an encyclopedic survey of the empirical literature, this section will interpret what I believe are some of the more important or representative studies and assess what we can and

cannot say about unions and performance. Readers can refer to existing surveys for a comprehensive set of references.<sup>17</sup> The focus is on US studies, with some attention given to studies from Canada where evidence on unions and performance aligns well with that from the US. Union data at the enterprise level are less readily available in the US than in several other countries, but it is difficult to generalize results across countries given that union effects can vary with the economic and institutional environments.

#### A. *Productivity and Productivity Growth*

The unions and performance literature has rightly emphasized the importance of how unionism affects productivity. If collective bargaining in the workplace were to systematically increase productivity along with worker compensation, but not retard investment and growth, a much stronger argument could be made for policies that encourage union organizing.

Most studies have estimated some variant of the Cobb-Douglas production function developed by Brown and Medoff (1978),

$$Q = AK^\alpha (L_n + cL_u)^{1-\alpha} \quad (1)$$

where  $Q$  is output;  $K$  is capital,  $L_u$  and  $L_n$  are union and nonunion labor;  $A$  is a constant of proportionality; and  $\alpha$  and  $(1-\alpha)$  are the output elasticities with respect to capital and labor. The parameter  $c$  reflects productivity differences between union and nonunion labor. If  $c > 1$ , union labor is more productive, in line with the collective-voice model; if  $c < 1$ , union labor is less productive, in line with conventional arguments concerning the deleterious impact of such things as union work rules and constraints on merit-based wage dispersion. Manipulation of equation (1) yields the estimating equation

$$\ln(Q/L) \approx \ln A + \alpha \ln(K/L) + (1-\alpha)(c-1)P, \quad (2)$$

where  $P$  represents proportion unionized ( $L_u/L$ ) in a firm or industry or (in some studies) the presence or absence of a union at the plant or firm level. Equation (2) assumes constant returns to scale, an assumption relaxed by adding  $\ln L$  as a control variable. The coefficient on  $P$  measures the logarithmic productivity differential of unionized establishments. If it were assumed that the union effect on productivity solely reflects the differential efficiency of labor inputs, the effect of union labor on productivity would be calculated by dividing the coefficient on  $P$  by  $(1-\alpha)$ .

The conclusion that unions substantially raise productivity rests primarily on Brown and Medoff's results using aggregate two-digit manufacturing industry data cross-classified by state groups for 1972. Brown and Medoff's preferred coefficient estimates on union density are from .22 to .24

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<sup>17</sup> Early surveys and interpretations of the US literature include Addison and Hirsch (1989), Booth (1995), and Kuhn (1998), while recent surveys include Hirsch (2007b) and MacLeod (2011). Greater emphasis on non-US studies is provided in Aidt and Tzannatos (2002) and Metcalf (2003). Doucouliagos and Laroche (2003, 2009, 2011) provide meta analyses of the literatures on unions and productivity, profits, and innovative activity, respectively.

(approximately 22-24%), implying values (obtained by dividing the union coefficient by  $1 - \alpha$ ) for  $c-1$  of from .30 to .31. Such large union productivity effects, if correct, would more than offset union wage effects. Using alternative assumptions about relative union to nonunion capital usage (i.e., allowing for higher rather than equivalent capital/labor ratios within industry-by-state groups), Brown and Medoff obtain sharply lower estimates of union productivity effects.

The production function approach has limitations, many of which are identified by Brown and Medoff. In particular, the use of value added as an output measure confounds price and quantity effects, since part of the measured union productivity differential may result from higher prices in the unionized sector, particularly in those markets sheltered from nonunion and foreign competition. Estimated effects of unions on productivity tend to be lower following price adjustments, possible in industry-specific studies such as construction (Allen, 1986) and western sawmills (Mitchell and Stone, 1992). Use of value added is less a concern in firm or business level analyses that measure firms' union status plus industry union density or other industry controls (Clark, 1984; Hirsch, 1991a). The Brown-Medoff results are also inconsistent with other pieces of evidence. As argued by Addison and Hirsch (1989), parameter estimates from Brown and Medoff would imply an increase in profits resulting from unionism, contrary to widespread evidence of lower firm and industry profitability, on average, associated with union coverage.

Subsequent studies using the Brown-Medoff approach have been as likely to find negative as positive union effects on productivity. Two studies with manufacturing-wide data and firm or business level measures of union coverage are Clark (1984) and Hirsch (1991a). Clark uses data for 902 manufacturing lines-of-business from 1970 to 1980 to estimate value-added production functions, among other things. He obtains marginally significant coefficients on the union variable between -.02 and -.03. The Clark study has the advantage of a large sample size over multiple years, business-specific information on union coverage, and a detailed set of control variables. A similar study by Hirsch (1991a), examines over 600 publicly-traded manufacturing firms during 1968-1980, with 1977 (retrospective) firm-level union coverage data collected by the author. A strong negative relationship between union coverage and productivity is found when including only firm-level controls, but the union effect drops sharply with the inclusion of detailed industry controls, a result highly comparable to that in Clark. Hirsch interprets his results as providing no evidence for a positive economy-wide productivity effect and weak evidence for a negative effect. Regrettably, recent US firm or business level data with measures of union coverage similar to those used by Clark and Hirsch have not been readily available.

Both Clark (1984) and Hirsch (1991a) find considerable variability in union productivity effects across manufacturing industries.<sup>18</sup> These results support the expectation that union effects on productivity

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<sup>18</sup> A recent survey article by Syverson (2011) examines productivity differences across firms. He emphasizes that there exist large differences in productivity at any point in time, even among firms producing homogeneous products

vary with the labor relations environment. Several studies provide evidence showing that productivity or quality suffers as a result of strikes and labor unrest. Kleiner et al. (2002) conclude that negative productivity effects from strikes and slowdowns at a commercial airline manufacturer are temporary. Krueger and Mas (2004) find that tire defect rates were particularly high at a Bridgestone/Firestone plant during periods of labor unrest. Using auction data, Mas (2008) finds that construction equipment produced by Caterpillar at its US plants during periods of labor unrest was more likely to be subsequently resold and sold at a deeper discount.

A largely distinct literature examines how productivity is related to human resource management (HRM) practices (e.g., incentive pay, intensive screening of hires, teamwork, flexible job assignments, skills training, etc.) and workplace culture within establishments. This literature offers some insight into the relationship between union governance and productivity. Ichniowski et al. (1997) examine how productivity differs with respect to individual HRM practices and bundles of practices across steel finishing line plants. Although union effects on productivity were not their principal interest, they did have a measure of union coverage. They found that union plants or lines of production were somewhat less productive overall than were nonunion lines, but that this result was due to the HRM practices (largely not) adopted in union plants. Among those steel finishing lines that adopted the most productive bundles of HRM practices, union lines were more productive than were nonunion lines. These most productive bundles of workplace practices, however, were least likely to be adopted in union plants.

Black and Lynch (2001) provide a similar finding. They estimate production functions for a sample of US manufacturing plants over the period 1987-1993, focusing not on union effects but on the effects of workplace practices, information technology, and management procedures. Absent interaction terms, Black and Lynch find slightly lower productivity in unionized plants following inclusion of detailed controls, a result equivalent to that found throughout manufacturing by Clark and Hirsch, and by Ichniowski et al. for steel production lines. Black and Lynch conclude that the negative union result is driven by low productivity among unionized plants using traditional management systems. Union plants that adopted human resource practices involving joint decision making (i.e., total quality management or TQM) and incentive-based compensation (i.e., profit sharing for nonmanagerial employees) were found to be more productive than their nonunion counterparts, which in turn had higher productivity than union plants using traditional labor-management relations. But the Black-Lynch sample contains few union plants adopting the most productive HRM systems.

Economy-wide, union plants are among those least likely to adopt modern human resource practices and incentive based compensation (Verma, 2007). This stylized fact is consistent with the strong

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in the same product markets (e.g., cement). Much of the variance in productivity cannot be accounted for by measurable factors; union status is one of many unmeasured factors. Over the long run, firms with the lowest productivity tend to be weeded out of the market.

rise in such HRM practices during a period of declining unionism and by relatively compressed pay in union as compared to nonunion companies.<sup>19</sup>

In summary, the conclusion of this section is that average union-productivity effects are close to zero. This conclusion is reinforced in other surveys. The authors of a meta analysis of the unions-productivity literature conclude that the average effect in the US is very small but positive, while negative in the UK. (Doucouliagos and Laroche, 2003). A survey of labor economists at leading universities asking for an assessment of the union effect on productivity produced a median response of zero and mean of 3.1% (Fuchs et al., 1998).<sup>20</sup>

No less important than the effect of unions on productivity levels are the dynamic effect of unions on productivity growth. Productivity growth is typically measured as a residual; that is, by the growth in output that cannot be accounted for by changes in factor inputs (e.g., labor and stocks of tangible and intangible capital). Some studies (Hirsch, 1991a) measure not only the “direct” effect of unions on growth, but also indirect effects that work through union effects on profits and investment (discussed in a subsequent section). Union effects on productivity growth need not match the evidence on productivity levels. For example, unionization might initially be associated with higher levels of productivity owing to “shock” or voice effects, but at the same time retard rates of growth. Of course, over time low (high) rates of productivity growth will produce low (high) productivity levels.

Analysis in Freeman and Medoff (1984) suggested lower but not statistically significant union productivity growth effects using alternative industry-level data sets, evidence they regarded as inconclusive. A more comprehensive analysis using firm-level data (with control for industry effects) was provided by Hirsch (1991a) based on a sample of 531 firms and covering the period 1968 to 1980. Following control for company size and firm-level changes in labor, physical capital, and R&D, union firms have substantially lower productivity growth than nonunion firms. Accounting for *industry* sales growth, energy usage, and trade, however, cuts the estimate of the union effect by more than half. Addition of industry dummies cuts the estimates further, while remaining effects are fragile when subjected to econometric probes regarding the error structure. Hirsch concludes that unionized companies during these years displayed substantially lower productivity growth than nonunion firms. But most of the difference was an indirect effect resulting from lower profits and investment among union firms or from operating in industries with slower growth.

Despite the contentiousness surrounding the effects of unions on productivity levels and growth, the most comprehensive studies find little evidence that unions substantially increase or decrease

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<sup>19</sup> For comprehensive US and international evidence on HRM practices, see Bloom and Van Reenen (2011).

<sup>20</sup> The specific question asked was: “What is your best estimate of the percentage impact of unions on the productivity of unionized companies?” (Fuchs et al., 1998, pp. 1392, 1418).

productivity once one accounts for non-labor factors of production, among other determinants. The conclusion that unions have a minimal average effect on productivity runs counter to the belief that unions decrease productivity, the conventional wisdom among economists prior to Freeman and Medoff. And it runs counter to a conventional wisdom arising in some circles following Freeman and Medoff's (1984) overly rosy assessment of the productivity evidence in *What Do Unions Do?*<sup>21</sup>

Assuming that one accepts (as I do) the conclusion that average union productivity effects are small, several caveats attach to interpretation of this result. First, the finding that union firms have lower productivity and productivity growth absent detailed industry controls is important in its own right, even if it tells us little about unions' causal effects. Second, the critical finding is that unionization fails to produce a positive effect on productivity sufficiently large to offset union compensation gains. This implies lower profitability and, indirectly, lower investment among union businesses. Third, a small or zero union productivity effect is difficult to interpret. This could mean that all or most channels through which union coverage might affect productivity are unimportant, or that both positive and negative channels matter but cancel out. Fourth, studies reporting average effects of unions almost certainly mask considerable diversity in outcomes across firms and industries. Fifth, studies of productivity and productivity growth control for differences in levels or changes in factor-input usage. But unionization is associated with lower rates of investment and accumulation of physical and innovative capital. These indirect effects of unionization appear to be an important route through which union companies and sectors in the US have realized slower growth.

## B. *Profitability*

Evidence on unions and profits is reasonably clear-cut, indicating lower profitability in union than in nonunion companies. This is not surprising as long as union productivity (output) effects do not fully offset union increases in compensation. Absent such an offset, the only way profits would not decline is if union companies could shift higher costs to consumers through higher prices. In some US industries, this once may have been possible.<sup>22</sup> In today's competitive markets where union companies compete with nonunion domestic companies and traded goods, there is limited ability to pass forward higher costs to consumers. Nor can it be argued that unions are simply capturing monopoly or super-normal profits and thus have limited effects on resource allocation. Such an argument had some plausibility thirty years ago,

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<sup>21</sup> Controversy did not surprise Freeman and Medoff. They end their productivity chapter stating: "This 'answer' to the debate over what unions do to productivity is probably the most controversial and least widely accepted result in this book .... While the new work deals with these [listed reasons for] problems, at least in part, the controversy is unlikely to disappear. Age-old debates do not often end with a bang, even with computerized evidence." (Freeman and Medoff, 1984, p. 80)

<sup>22</sup> The most obvious examples were regulated industries with restricted entry (e.g., airlines, trucking, and utilities) where prices were administratively determined to approximate average costs. Substantial pass-through of costs to consumers also may have occurred in oligopolistic industries facing little foreign or domestic nonunion competition (e.g., the 1950-70s automotive industry).

but a careful evaluation of the evidence failed to support this thesis (see Hirsch and Connolly 1987). The argument is implausible in today's competitive economic environment.

Differences in profitability should lead to a movement of resources out of union into nonunion sectors over the long run, thus mitigating differences in returns. Specifically, investment in and by union operations should decline until these firms' rates of return (after a union "tax" on profits) are equivalent to nonunion returns. Remaining union coverage (companies) should be restricted to economic sectors realizing above-normal, pre-union rates of returns and those where unionization provide some special advantage and/or where competitive entry is difficult. Such an adjustment process may be rather drawn out, particularly in less competitive environments where quasi-rents accruing to long-lived capital have provided a principal source for union gains. Resource movements should be accelerated the more dynamic and competitive the economic environment.

The process described above appears to approximate the long-run de-unionization process seen in the US private sector. The gradual nature of this transition coupled with data limitations (i.e., the absence of publicly available data on firm unionization) make it difficult to empirically establish, isolate, and quantify the specifics of such a process. The paucity of such evidence, however, does not rule out such a characterization of the US experience.

Lower profits among union companies should be evident in current earnings, measured by rates of return on capital or sales, and in lower stock market valuation of firms' assets. Ex-ante returns on equity (risk-adjusted) should not differ between union and nonunion companies, since stock prices adjust downward to reflect lower expected earnings (for evidence, see Hirsch and Morgan [1994]). Lower profits are found using alternative measures of profitability. Studies have used industry price-cost margin, accounting profit measures of rates of return on capital and sales, and market-value measures such as Tobin's  $q$  (market value divided by the replacement cost of assets). "Event studies" have examined changes in stock market returns associated with union election wins (and losses) relative to predicted market returns based on estimated parameters from capital asset pricing models (CAPM). The body of existing evidence points unambiguously to lower profitability among union companies.<sup>23</sup>

Estimates from a prototypical study suggest that unionized companies firms had profits 10% to 20% lower than in nonunion firms during the late 1960s through early 1980s (e.g., Hirsch, 1991b). Economists are understandably skeptical that large profit differentials could survive in a competitive

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<sup>23</sup> See Hirsch (2007b) and Doucouliagos and Laroche (2009) for references. A notable exception to the negative profit result is DiNardo and Lee's (2004) regression discontinuity analysis, which finds virtually no significant outcome effects (including wages) associated with close union wins versus close union losses. Their methodology is designed to estimate the causal effects of collective bargaining, holding constant union sentiment among workers (i.e., roughly 50/50 support). It is not clear that the effects of union wins with "marginal" support can be generalized to union effects more generally. A substantial extension of their analysis by Lee and Mas (2009) shows that the equity value of companies is substantially reduced following average and large-margin union wins.

economy. Because rates of profit are not typically large, small absolute differences can produce large percentage differences. Whether one believes 10-20% differences in profitability can be sustained for “long” periods of time may hinge on one’s beliefs regarding how closely the US economy is approximated by the competitive model. One interpretation of the evidence is that union-nonunion differences in profitability did survive for a long period, but that the very long run has now arrived with the competitive process having largely played itself out.<sup>24</sup> Absent the ability to fund union compensation premiums from super-normal profits, the alternative is for labor to capture a share firms’ quasi rents; i.e., the normal returns to prior investments in long-lived physical and intangible capital. If this is how union premiums are funded, it has serious implications for investment and long-term growth, a topic addressed in the next section.

### C. Investment

Union effects on investment were not a focus of work by Freeman and Medoff (1984) or others summarized in *What Do Unions Do?* This is not surprising given the absence of empirical work on unions and investment at that time. Subsequent research has concluded that investment is an important route through which unions affect economic performance. The earliest empirical paper appears to be Connolly et al. (1986), who proffered a rent-seeking framework in which unions appropriate (i.e., tax) the returns from investments in tangible and intangible capital. Their framework relied on theoretical papers by Baldwin (1983) and Grout (1984). Connolly et al. found unionization, measured at the industry level, associated with lower firm-level investments in R&D.

As developed further in Hirsch (1991a, 1992), it is argued that average and more senior union members may be “rationally myopic” in that their time horizons are shorter than those of owners. This leads unions to “tax” or “capture” a share of the returns on past investments in long-lived, nontransferable capital (e.g., a large plant). Union wage premiums are thus funded in part by appropriation of a share of the quasi-rents that make up the normal return to past investment in long-lived physical capital and R&D.<sup>25</sup> Knowing this, firms reduce their investment in vulnerable capital until marginal returns on investment are equalized across the union and nonunion (i.e., taxed and non-taxed) sectors.<sup>26</sup> Contraction of the union sector, it is argued, results from the long-run response by firms to such union rent seeking.<sup>27</sup>

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<sup>24</sup> The title of Addison and Hirsch’s (1989) paper on union effects on performance asks: “Has the long run arrived?”

<sup>25</sup> Using firm-level union data from Hirsch (1991a) matched to Compustat financial data, Cavanaugh (1998) shows that deleterious union effects on market value and investment are directly related to the ease with which quasi-rents can be appropriated.

<sup>26</sup> Chen et al. (2011) provide rather direct evidence on this point. They find that firms with “reduced operating flexibility” (measured by whether a firm is unionized) face a higher cost of capital.

<sup>27</sup> The “hold-up” models of unions and investment proffered by Baldwin (1983) and Grout (1984) involve inefficient contracts. In principle, worker wages could be reduced during the investment period in order to “pre-finance” the subsequent rent-sharing (i.e., tax on investment returns). Card et al. (2010) carefully test such a rent sharing model using matched employer-employee data from the Veneto region of Italy (the data contain no information on union

The union tax or rent-seeking framework has rather different implications than does the standard economic model of unions. In the standard model, a union wage increase causes a firm to move up and along its labor demand schedule by decreasing employment, hiring higher quality workers, and increasing the ratio of capital to labor. Capital investment can increase or decrease owing to substitution and output effects working in opposing directions. In the rent-seeking framework, a high union wage need not decrease the relative cost of capital if the union wage is funded in part by taxing capital (Hirsch and Prasad, 1995). Thus, there should be no presumption higher union wages increase capital intensity (the ratio of capital to labor,  $K/L$ ). The little empirical evidence that we have finds no significant effect of union coverage on the capital-labor ratio (Clark, 1984; Hirsch, 1991a).

Empirical analysis of union effects on investment in tangible and intangible capital by Hirsch (1991a) distinguishes between “direct” and “indirect” investment effects of unions. The direct effect stems from the union tax that leads firms to decrease investment until the marginal post-tax rate of return is equated with the marginal financing cost. The indirect union effect on investment arises from the higher financing costs owing to reduced profits (and, thus, reduces internal funding of investment). Using data for 1968-1980 for approximately 500 publicly traded manufacturing firms and a model with detailed firm and industry controls, including profitability, Hirsch estimates the effect on investment for a typical unionized company compared to a nonunion company. Other things equal, the typical unionized company has 6% lower capital investment than its equivalent nonunion counterpart. Adding in the indirect effect of lower profits on investment increases the estimated union effect to about 13%. For annual investments in R&D, Hirsch finds that the average unionized company has 15% lower R&D, holding constant profitability and the other determinants. Allowing for indirect effects induced by lower profitability raises the estimated effect only modestly.

Subsequent empirical studies for the US provide strong support for the conclusion that unions are associated with lower physical and intangible capital investments (for references, see Hirsch [2007b] and Doucouliagos and Laroche [2011]).<sup>28</sup> More broadly, evidence consistent with the rent-seeking model should be evident from wage studies as well as investment studies. The labor economics literature suggests that rent sharing (i.e. higher wages associated with higher profits) exists in nonunion as well as

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status). The authors conclude that there is evidence for efficient dynamic bargaining, with workers paying up front for the returns to sunk capital that they will capture in later periods. The evidence on unions and investment summarized in this section suggests that one should be cautious in generalizing the Card et al. results to union contracts in the US.

<sup>28</sup> Consistent with US evidence, Odgers and Betts (1997) conclude that in Canada unions significantly reduce investment in physical capital, while Betts et al. (2001) conclude likewise for R&D. In a comparative study of the US and Britain, Menezes-Filho et al. (1998) conclude that the US evidence for a deleterious union effect on R&D investment is robust but that unions have little effect in the UK following detailed industry controls. They speculate that British unions have fewer deleterious effects than do American unions owing to more explicit bargaining over employment levels and a preference for longer contracts than in the US. The R&D evidence is also consistent with the evidence finding far smaller union wage effects in Britain than in the US (Blanchflower and Bryson, 2003).

union establishments, but collective bargaining provides a formal mechanism to identify and capture above-normal returns.<sup>29</sup> A recent paper by Felix and Hines (2009) uncovers the interesting empirical finding that in states with lower corporate income taxes, union wage premiums are higher. They interpret this outcome as evidence of rent sharing. A more nuanced explanation might be that low corporate income tax leads to higher capital intensity and creates a pool of quasi-rents susceptible to union bargaining power and wage demands.

A related literature has arisen on debt financing, arguing that unionized companies will maintain higher debt to equity ratios to hold down union bargaining power.<sup>30</sup> Support for this was found in an early paper by Bronars and Deere (1991). Recent studies include Matsa (2010) and Klasa et al. (2009).

#### D. *Employment Growth and Survival*

The effects of unions on employment growth and survival are not independent of their effects on productivity, profits, and investment. It would be surprising were lower profits and investment not accompanied by slower growth, and this is what the evidence shows. Leonard (1992) found that unionized California companies grew at significantly slower rates than did nonunion companies. In a study using longitudinal plant-level data, LaLonde et al. (1996) show that employment (and output) decrease following a vote in favor of union certification.<sup>31</sup> More broadly, Linneman et al. (1990) showed that much of what had been represented as a “de-industrialization” of America was largely “de-unionization” – within most narrowly defined manufacturing industries during the 1980s nonunion employment grew while at the same time there were substantial decreases in union employment (for an update and extension, see Bratsberg and Ragan, 2002). Not explored in the literature owing to data limitations is the extent to which companies with both union and nonunion plants tend to shift production toward their nonunion operations over time. Although it seems likely that the expectation of lower financial returns is the chief explanation for slower growth in union than in nonunion employment and output, one cannot rule out that noneconomic factors (say, union animus among corporate decision makers) play a role in investment decisions.

There exists a small but related literature focusing on unions and business closings. Given that we observe slower growth among union than nonunion businesses, we would expect to observe higher business failure rates as well. Such a pattern is not readily evident in the few, albeit dated, studies available. Dunne and Macpherson (1994) utilize longitudinal plant-level data (grouped by industry-by-size) to show that there are more employment contractions, fewer expansions, and fewer plant “births” in

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<sup>29</sup> Guertzgen (2009) uses linked employer-employee data from Sweden and shows that wage contracts are related to firm quasi-rents, but that industry-wide agreements (common in Sweden but not the US) have much lower responsiveness to firm-level profitability than do local agreements.

<sup>30</sup> Similar reasoning is used to argue that union companies have incentive to underfund pensions (Ippolito 1985).

<sup>31</sup> Studies of Canada (Long, 1993; Walsworth, 2010) and Britain (Addison et al., 2003) likewise find unionization associated with slower employment growth.

more highly unionized industries. Yet they find that unions have no effect upon plant “deaths,” even after controlling for plant size. Freeman and Kleiner (1999) analyze two sets of data, one including insolvent and solvent firms, each with information on union status, and a second on individuals surveyed in the CPS Displaced Worker Surveys. Using the first data set, Freeman and Kleiner conclude that failed firms or lines of business (most lines of business remain in operation following bankruptcy) have similar union density as do solvent firms and lines of business. Using individual data, they find that being a union worker does not lead to a higher probability of permanent job loss from plant closure or business failure. DiNardo and Lee (2004) examine survival rates for establishments following union certification elections. Using a regression discontinuity design, they compare survival rates for establishments that have just under and just over a 50% vote in union elections. Combining NLRB election data for 1983-1999 with a matched listing of whether establishments named in the NLRB file continue to exist at that address in May 2001, they conclude that the effects of a successful union organizing drives on survival are negligible. For that matter, they find few differences between any economic outcomes, including wages, among businesses with close union wins versus losses.<sup>32</sup>

In short, the rather limited empirical literature that exists finds that US unions are associated with slower employment growth, but appear to exhibit little difference in rates of business failure or survival. At first blush, these results appear inconsistent and require some explanation. One possibility is that survival rates are affected by union status but that we have not had sufficiently rich and reliable data to establish this. For example, not all studies have been able to control for firm age and size. Older and larger firms are both more likely to survive and to be unionized. None of the studies cited above examines recent years in which bankruptcies and plant closings among large union companies have been quite visible (see discussion below on the airline and automotive industries).

An alternative explanation (Freeman and Kleiner, 1999; Kuhn, 1998) is that rent-seeking unions will drive enterprises toward the cliff but rarely over it.<sup>33</sup> In an uncertain world, however, it would be surprising if unions and management did not sometimes miscalculate location of “the cliff” and thus have “accidental” business failures. This appears to be exactly what has happened in the airline and automotive industries, as discussed below. But even in these industries, most businesses have survived following their

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<sup>32</sup> As mentioned previously, Lee and Mas (2009) provide data refinements and extend the DiNardo and Lee analysis to examine how the effect of union wins on equity value vary with the strength of union support. They conclude that union wins with average and large margins are associated with large declines in market value. They do not examine how survival rates are affected by the strength of union support.

<sup>33</sup> “Unions reduce profits but they do not ‘destroy the goose that lays the golden egg’” (Freeman and Kleiner, 1999, p. 526). “Like successful viruses, unions are smart enough not to kill their hosts” Kuhn (1998, p. 1039). More formally, Kremer and Olken (2009) provide an evolutionary biology model of unions, noting that parasites that kill their hosts do not spread whereas those that do little harm spread and may evolve to become essential to their hosts. They conclude that unions maximizing the present value of members’ wages are likely to be displaced by more moderate unions. In their model, exogenous firm turnover lowers equilibrium union density since unions must work harder (organize more) to stay in place.

restructuring through bankruptcy. Hirsch (2008) has argued that union governance has often proven sluggish or insufficiently flexible (i.e., too little, too late) in the face of dynamic competitive changes. The next section addresses this broader question regarding union versus nonunion governance, an area in which we have little systematic evidence.

## **6. *Union Governance, Dynamism, and Competition***

This section first discusses differences in union and nonunion governance and how each operates in dynamic and competitive economic environments. The airline and automotive industries are then examined as case studies of how union governance has operated in the face of rapid change and increased competition. A brief final section addresses differences between the public and private sectors.

### **A. *Union Workplaces and the Economic Environment***

Collective bargaining once provided the dominant workplace governance structure in the private industrial sectors of the US economy. This is no longer so. Although there are many reasons why private sector unions have been in decline, the discussion below emphasizes the relative disadvantage faced by union governance in highly competitive and dynamic economic environments.

In the nonunion private sector, the dominant governance structure is employer-fiat personnel systems wherein outcomes are determined by some combination of employer norms, government regulations and mandates, and the incentives and constraints produced by market forces, in particular, financial viability coupled with the need to attract and retain qualified employees. Subject to economic constraints, plus governmental constraints with respect to discrimination, minimum pay, hours of work, safety, and the like, nonunion employers are free to dictate pay and governance methods.

Unionized companies face largely the same external legal and economic constraints as do nonunion businesses. Union workplaces, however, are characterized by relatively formalized governance structures that rely on collective bargaining, explicit contracts, and structured channels for worker voice. As envisioned in the NLRA, industrial workplaces are typified by top-down control moving from managers to workers, the latter having minimal need for discretion or decision-making. Such a characterization may have been defensible during the NLRA's formative years, but not today. In contemporary workplaces, job hierarchies are not so clear-cut and worker decision-making, often done in teams, is essential at most levels of production. Incentive pay, flexible job assignments, and the like are widespread within nonunion companies, but far less likely in union establishments (Verma, 2007; Ichniowski et al., 1997; Bloom and Van Reenen, 2011). Although collective bargaining contracts permit considerable employer authority in the daily operation of a workplace, managerial discretion and flexibility are constrained, with substantive changes in wages and methods of pay, benefits, job assignments, and working conditions requiring negotiation with the union.

Union governance by its very design is deliberative and often slow in responding to changes in the economic environment. This stems in part from the adversarial nature of traditional unionism and the limited opportunity for worker voice outside of formal union channels. Sluggish governance and high “transaction costs” are also the inevitable result of unions’ democratic structure. Contracts have to be negotiated and approved by the rank-and-file. In order to gain and maintain their positions, union leaders cannot steer far away from the preferences of their members. When product and labor market conditions change, contractual revisions in the workplace relationship must await sufficient acceptance by workers of the need for or inevitability of such changes. Contracts are typically negotiated every three years or so when an expiring contract is to be replaced or when there are substantial unanticipated shocks requiring concessions by workers or changes by management. Formal contracts have advantages, among them increasing certainty about the future and limiting opportunistic behavior by employers. But they come with a cost, reducing the ability of employers to make needed adjustments in the face of unanticipated shocks.

More generally, all workplaces confront a set of contractual issues that must be addressed through its governance structure, be it union or nonunion. Neither a union nor nonunion governance structure is uniformly superior to the other, a priori. As discussed by Wachter and Wright (1984), Wachter (2004) and Williamson et al. (1975), critical factors in any labor-contracting relationship include the ability to effectively deal with match-specific investments, asymmetric information, and risk (each being discussed below), and to do so in a relatively low cost manner (i.e., with low transaction costs). Wachter (2004) argues that the predominance of nonunion enterprises is primarily the result of low transaction costs. In a related vein, I have emphasized that formalized and deliberate union governance may not be particularly disadvantageous in a static, non-competitive economic environment, but that it becomes increasingly costly the more competitive and dynamic the environment (for earlier presentation of this view, see Hirsch and Hirsch [2007] and Hirsch [2008]). As the economic environment has become more dynamic (i.e., rapidly changing) and competitive, traditional union governance has become more disadvantageous. Note a subtle but important point. What is being emphasized here is that slow-moving union governance and the exercise of voice may limit firms’ ability to adjust in highly dynamic and competitive economic environments. This argument neither contradicts nor negates points made earlier that competitive market pressures serve to limit union rent-seeking and may spur productivity enhancements.

One contractual issue concerns match-specific investments in human and physical capital not valued by or transferable to other firms. As workers acquire firm-specific skills, they become more valuable to their current employer than to alternative employers. As firms acquire long-lived capital, some of it will be specific to the firm and not readily transferable to other companies. A problem associated with match-specific investments is the possibility of hold-up; once a party makes such investments, the

other party can behave opportunistically and capture *ex post* “quasi-rents.” One solution for firm-specific human capital is for workers and firms to jointly invest in these skills, with wages greater than those same workers can earn elsewhere but below the marginal revenue product of the workers to the firm. This arrangement creates a self-enforcing implicit agreement that gives both parties an interest in continuing the employment relationship so as not to lose returns on their investments. Opportunistic behavior by employers may be constrained by concern for their reputation among current and potential workers. As discussed previously, not so easily solved is the hold-up problem faced by union firms with respect to long-lived firm-specific investments.

Asymmetric information between workers and management creates a risk that the advantaged party will behave opportunistically. For example, firms possess information on product demand superior to that of workers, providing firms the opportunity to misstate market conditions and gain an advantage in workplace negotiations. A result of the product-demand asymmetry has been the widespread norm under which firms are relatively free to adjust employment levels, but rarely adjust wages downward (Bewley 1999).<sup>34</sup> This self-enforcing mechanism reduces opportunistic use of the information asymmetry by generally taking off the table the option of understating the level of demand to achieve wage cuts. With wages fixed, employers lack incentive to misstate demand because they do not want to cut employment if demand is strong. In union workplaces, this process is somewhat more formal. Most collective-bargaining agreements allow employment level changes, but not wage adjustments, absent negotiation. Unions may grant employer requests for wage concessions, but generally only if financial records are disclosed to union representatives. Unions serve the useful purpose of verifying employer claims.

Risk bearing is a third contractual issue addressed in the employment relationship. Because workers have much of their income tied to their jobs with little ability to diversify, they are in a poor position to bear company-specific earnings risk through variable hours (including job loss) and compensation. Moreover, variability in company earnings is largely beyond the control of its workforce. Investors, in contrast, can readily diversify investments and bear such risk. Efficient risk bearing would largely insulate the compensation of (non-managerial) workers from variability in firm revenue and profit. Consequently, both union and nonunion workplaces have relatively fixed wage rates, in the union case through collective bargaining agreements and in nonunion companies through largely self-enforcing implicit contracts or norms.

Any advantage of nonunion over union pay and governance determination is not likely to arise from the above factors – match-specific investments, asymmetric information, or risk bearing – but, rather, from lower transaction costs in adjusting to contractual changes associated with these and other

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<sup>34</sup> Sharp, widespread downturns such as the Great Recession beginning in 2008 provide the exception to the general rule of no unilateral pay cuts. Such downturns in business are readily evident to workers, in which case employers’ stated need to impose pay cuts, reduced benefits, furloughs, etc. are credible and more readily accepted by workers.

issues. Were changes in the economic environment very gradual and competitive pressures weak, a formal and highly deliberate union governance structure might pose few problems.<sup>35</sup> The costs of deliberate or sluggish union governance, however, increase with the speed of change and the degree of competition. New information is constantly coming to a firm and its workers and it is prohibitively costly to have explicit contract terms for every possible contingency. Revising formal contractual terms is costly. Although many collective bargaining agreements have broad management rights clauses, formalized contractual governance limits flexibility and managerial discretion in union companies.

It is widely believed that the US industrial sector operates in a highly competitive and dynamic environment. Arguably, the US economy has become more competitive and dynamic over time, increasing the cost of union relative to nonunion governance. There is no single definition or measurement for the competitiveness and dynamism of an economy.<sup>36</sup> In the discussion below, I briefly look at measures of concentration, trade, productivity growth, and job creation and destruction.

A common, albeit imperfect, measure of product market competition is a concentration ratio, which measures the share of value added, sales, employment, etc. by the largest companies (often the share of the largest four companies).<sup>37</sup> Concentration ratios for value added, employment, and payroll, both economy-wide and in manufacturing, have remained steady or decreased over the last 50 years, suggesting steady or increasing competitiveness in the US (White, 2002). Moreover, most measures of concentration do not account (or fully account) for international trade, thus understating the level and increases over time in competitiveness. Competitive pressures from international trade are strong and have grown over time. The value of imports as a percentage of GDP increased from 5.4% in 1970 to 17.8% in 2008, falling sharply to 13.9% in 2009 due to the worldwide recession, and rebounding to 16.0% in 2010 (the latter figure a preliminary estimate) (US Council of Economic Advisers, 2011, table B-1).

An economy's dynamism can be evidenced by high rates of productivity growth (due to technological change and a host of other factors) and high levels of job creation and destruction (Schumpeter's "creative destruction" or what labor economists refer to as "job churn"). Output per work hour in the nonfarm business sector of the economy has more than doubled since 1970, from an index (with 2005 = 100) of 50.2 in 1970 to 111.0 in the third quarter of 2010 (US CEA, 2011, table B-49).

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<sup>35</sup> Our attention here is focused on differences in governance structure in union and nonunion workplaces. We ignore here any costs (or benefits) associated with union monopoly or employer monopsony power.

<sup>36</sup> The term "dynamism" has become increasingly associated with 2006 Nobel laureate Edmund Phelps, whose use of the word has a broader emphasis than in this essay (Phelps, 2007). Phelps discussion of dynamism emphasizes, among other things, innovation (which changes jobs), entrepreneurship, openness, and inclusion and self-realization through one's work. Phelps argues that dynamism can serve to increase self-realization among the disadvantaged and that economies without dynamism cannot be just.

<sup>37</sup> A concentration ratio need not be a good measure of monopoly power, which we expect to be associated with restricted output and high prices, since some firms grow very large relative to their competitors because of low prices and/or high quality. But concentration ratios are informative.

Productivity growth in manufacturing exceeds that economy-wide. As further evidence on productivity, one could point to relatively high growth rates in research and development expenditures and patents granted.

The US labor market is characterized by high rates of job churn. Between 1990 and 2005, the private sector (manufacturing sector) had a job destruction rate of 7.6% (4.9%) per quarter and job creation rate of 7.9% (5.3%), implying a net employment growth rate per quarter of 0.3% (−0.4%) (Davis, Faberman, and Haltiwanger, 2006, table 2A). High rates of employment growth and job churn make it difficult, in a nearly mechanical sense, for unions to maintain their share of covered workers. To maintain density at, say, 7% as total employment is increasing, unions must organize enough existing and newly created jobs to offset union members lost plus 7% of the net employment growth. Maintaining union density is particularly difficult since most new jobs are “born” nonunion and declining union membership decreases the financial base from which organizing is funded. And of course organizing workplaces is difficult in the US given widespread management opposition and mixed support among workers.

Evidence directly linking union decline to competition or dynamism is limited. Magnani and Prentice (2010) use a data set on US manufacturing industries from 1973-1996 and simulate the effects of unions on flexibility and average costs. They conclude that more highly unionized industries have lower flexibility and higher average costs, the latter due mainly to higher fixed costs (e.g., worker benefits), than do less unionized industries. Slaughter (2007) shows that union density is lower in manufacturing industries with a high degree of global engagement, in particular those with inward foreign direct investment. His interpretation is that increased capital mobility has raised labor demand elasticities and weakened union bargaining power. An implication of the competitive thesis is that a highly competitive economy not only constrains union density, but also limits the economy-wide costs of unionism since resources are more readily reallocated to sectors with the highest expected returns.

Recent research by Bloom and Van Reenen (2007, 2010) on differences in management practices across firms and countries have found that productivity and financial performance are associated with differences in management practices. Moreover, more favorable management practices (i.e., those with better outcomes) are associated with competitive market environments and a relatively “light touch” in labor market regulations. Although Bloom and Van Reenen’s work provides little direct evidence on union effects on performance, it is suggestive given that changes in management practices, the expansion in use of incentive pay schemes, and increasing market competition have coincided with declines in unionization in the US and elsewhere.

#### *B. Case Studies: A Sluggish Response to Shocks in the Automotive and Airline Industries*

Although it is difficult to link in a systematic way deliberative union governance and union decline in the face of increasing competition and dynamism, case studies can illustrate such a possibility.

Examples include Hirsch's discussion of collective bargaining in the automotive and airline industries (Hirsch, 2007a, 2008). The US automotive industry is emblematic of the narrative provided in this essay. The industry was almost completely unionized and faced little international competition in the decades following World War II. There was then increasing penetration of imported vehicles (in particular from Japan) and, subsequently, the establishment of numerous assembly plants by foreign-owned producers in the US, often locating in southern states and typically being nonunion establishments. At the same time, more and more production moved out of assembly plants and into a growing and increasingly nonunion auto parts supply chain, with plants clustered within a one-day drive of assembly plants.

Prior to the Great Recession and the concomitant restructuring of the US auto industry, total US employment in motor vehicle and equipment manufacturing had remained relatively constant over a nearly 35 year period, a period over which there was a considerable increase in productivity and production. Calculations from Current Population Survey (CPS) data for 1973–2006 by Hirsch (2008) show employment in the automotive industry moving from 1.2 million in 1973 to 1.0 million in 1983, 1.1 million in 1990, 1.3 million in 2000, and 1.4 million in 2006. At the same time, union membership (and density) dropped sharply from 830 thousand (71.0%) in 1973, to 590 (58.8%) in 1983, 540 (48.4%) in 1990, 470 (35.9%) in 2000, and just 360 thousand (26.0%) in 2006.<sup>38</sup> In short, the US maintained a large automotive industry, but one with a much smaller union presence. Michigan, Ohio, and a few other states had sharply reduced shares of automotive industry employment over this period, with states such as Tennessee, South Carolina, Alabama, and Kentucky gaining employment shares of 2–3 percentage points each.

Technological change in the automotive industry over this period was rapid, with substantial increases in productivity and decreases in quality-adjusted prices. After falling well behind their Japanese and European competitors in productivity and quality, US companies made considerable progress in narrowing these gaps. But change was not nearly fast enough. Competitive prices are set at the margin – and in the automotive industry it was increasingly the “Toyotas” and “Hondas” rather than “Detroit” that determined market prices (US branded vehicles in fact sold at a discount based on perceived quality differences). In order for the Big Three to have prospered, they would have needed to maintain their market shares and avoid substantial price discounting. Had they been able to do so, they could have spread their legacy retiree pension and health commitments over a larger number of automobiles and employees. This scenario did not play out. Instead, the Big Three US companies lost market share (in particular, General Motors) while at the same time paying higher wages and benefits than their competitors and retaining the commitment to pay retiree health and pension costs. Their ability to cut labor costs was further limited because workers displaced due to technology or restructuring were paid

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<sup>38</sup> By 2010, employment in the automotive industry stood at 945 thousand, of whom only 192 thousand or 20% were union members (Hirsch and Macpherson, 2011, also shown at [www.unionstats.com](http://www.unionstats.com)).

while in a “jobs bank” (now eliminated). Vehicle manufacturers trimmed costs of inputs by putting pressure on their auto parts suppliers to lower prices, at the same time demanding improved product quality and just-in-time delivery.

Something had to give. During the mid-2000’s auto parts suppliers Delphi (a corporate spin-off of GM), Dana, Collins & Aikman, and others filed for bankruptcy and worker wages and benefits were lowered substantially. GM and Ford structured various lump-sum buyouts of workers in order to reduce employment. UAW contracts, which had maintained generous health plan coverage with no employee or retiree cost sharing, introduced cost sharing. The UAW subsequently assumed the administering of health benefits from a “VEBA” fund financed by promised lump-sum payments from the companies. When the Great Recession hit in 2008, neither GM nor Chrysler could maintain solvency. GM went into a federal structured bankruptcy that broke out its “dead” assets (abandoned plants, etc.) into a separate company (Motors Liquidation or “Old GM”) supported by federal loans, while shaping what is hoped to be a viable entity with the federal government as principal (non-active) shareholder. In order to help make the “New GM” viable, not only were equity owners wiped out, but bondholders took large losses, a two-tier wage structure was adopted for use once GM hires new employees, brands were eliminated, dealers thinned out, and numerous plants were closed. Chrysler was reorganized with ownership from Fiat, a UAW VEBA, and minority ownership shares from the US and Canadian governments. Ford was able to avoid bankruptcy because it had taken on a very large amount of debt (i.e., had a large infusion of cash) just prior to the collapse of sales.

While the Great Recession’s severity could not have been anticipated, the underlying structural problems facing the Big Three were widely acknowledged for years, if not decades. Had the Big Three not been unionized or had the UAW been more flexible far earlier, what might have happened? Of course we cannot observe such a counterfactual. It is at least possible that rather than “hitting the (bankruptcy) wall” and thus producing substantial employment and compensation decreases, an earlier and more gradual adjustment process might have occurred. Over time, plants and dealerships might have been closed, staffing levels decreased, and compensation growth slowed. As seen elsewhere in the private sector, employee health plans would have included considerable cost sharing, and promises for retiree pension and health benefits would have been more constrained. Of course, there is no assurance that management at the Big Three, absent the constraints of the union governance process, would have steered their companies toward healthy financial outcomes. What is clear is that the collective bargaining process could not shield employees from long-run market forces or company-specific strategic failures.

The automotive industry, it should be noted, is typified by large and medium-sized companies and plants. Whether union or nonunion, US or foreign-owned, employee governance will be relatively formalized in all but the smallest organizations. But a formalized governance structure need not produce

rigidity. What I am suggesting is that adversarial union governance has proven a disadvantage relative to nonunion human resource management and greater managerial flexibility, in particular when facing technological advances, domestic and international competition, market demand shocks, and the like. The tendency of union governance to be sluggish is not an economic law. Some union workplaces have well-functioning employee governance, good labor relations, and respond well to economic change. No doubt more workplaces would fit this characterization were not antipathy toward unions so widespread among US managers. But adversarial union governance, both economy-wide and in an automotive industry characterized by a generally stable labor relations system, too often fails the market test. This conclusion is not intended as a critique (or endorsement) of behavior by union leaders, rank-and-file, or management, but as criticism of the current US labor relations system.

In contrast to most US industries, unions in the airline industry have largely maintained coverage and retained substantial bargaining power, subject to economic conditions in the industry. Roughly half of all workers in air transportation were unionized before deregulation in the mid-1970s and about half remained unionized through 2006 (Hirsch, 2007a), although density has since fallen to 39% in 2010 ([www.unionstats.com](http://www.unionstats.com)). All major carriers, including Southwest, are unionized (Delta pilots but not other workers are unionized), while mid-size national and regional carriers include a mix of union and nonunion companies. The high union density is in part a carryover from the pre-1978 regulatory period. More fundamentally, density was maintained because strong bargaining power makes representation attractive to workers; a profitable nonunion carrier paying well below other carriers would quickly be organized. Bargaining power is substantial because of the strike threat. A strike by a carrier's pilots, flight attendants, or mechanics (and possibly other workers) can shut down all flight operations. A shutdown in a service industry can be particularly costly. Unlike consumer durables, transport services cannot be stored or shifted in time. Many customers can switch to non-struck carriers. Because shutdowns are so costly, strikes are rare, but unions are able to capture rents for their members.

What has emerged in the airline industry is compensation that reflects a "union tax" cycle. Union airline workers, particularly pilots among the larger carriers, realize substantial wage premiums (Hirsch and Macpherson, 2000; Hirsch, 2007a). Following periods in which airlines have been relatively profitable, such as the late 1990s, union contracts "tax" those profits and premiums rise. Following substantial losses, unions provide contract concessions. But union response to changing economic conditions takes time. In the perfect storm that hit the airline industry in the early 2000s, the response was too slow. Adverse conditions faced by airlines included a recession hitting in 2001 as high contract wages were taking force; the 9/11 attacks and a 20% reduction in flights; a stock market downturn destroying pension wealth; Internet pricing that lowered carrier margins; increasing market shares of "low-cost carriers"; and later, increasing fuel prices. US Airways and United entered bankruptcy protection in 2002

(and US Airways again in 2004), while Delta and Northwest entered bankruptcy on the same day in 2005.<sup>39</sup> American Airlines, the only legacy carrier that had not disappeared, been acquired, or entered bankruptcy since deregulation in 1978, faced a bankruptcy filing in 2003 until it received concessions from its unions.

In most industries, companies that have high costs and respond slowly to economic shocks are likely to wither as customers switch to goods produced by domestic or foreign competitors. Emerging successfully from bankruptcy may not be a viable option for such companies. In the airline industry, however, carriers continued operations and retained much of their customer base, emerging from bankruptcy with a lower cost structure that in turn set the pattern for much of the industry. There has been industry consolidation, with recent mergers by US Airways/America West, Delta/Northwest, United/Continental, and Southwest/AirTran, coupled with removal of capacity from the system.

Despite a long-run relationship between the major carriers and their unions, labor relations throughout much of the industry have remained contentious, with the notable exception of Southwest. As this narrative is written, airlines are beginning to show profitability following a period of unusually high oil prices then followed by the Great Recession. Because airlines operate under the Railway Labor Act (RLA), union contracts remain active at existing terms absent a new contract or either the union or firm asking for release from the existing agreement following a mediation process. Absent agreement on new contracts or desire among workers to call a strike, much of the industry has maintained its low cost structure (by historic standards) and allowed the airlines to earn modest profits despite relatively low prices and traffic. Airline unions and their members, however, are determined to recover wages and benefits lost through bankruptcy and poor market conditions. A key factor determining future labor compensation will be product market competition and prices. The recession and increased penetration and competition from domestic low-cost carriers (some union and some nonunion) have constrained prices and labor compensation. Recent mergers among major carriers, however, may increase their pricing power if air travel demand is robust.

It remains to be seen whether there can emerge a reasonably cooperative labor relations environment in the airline industry, with agreements on new contracts providing sustainable labor costs. One scenario would have the parties learning a common set of lessons from their decade-long roller-coaster ride and then finding their way toward sustainability. A more likely scenario may be a return to

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<sup>39</sup>Delta's experience is instructive. Prior to 2001, Delta had a strong balance sheet with low indebtedness and, with the exception of its pilots, a nonunion workforce, although pay for nonunion workers had to be similar to that for union workers to deter union organizing. By 2003, Delta faced deteriorating product market conditions coupled with industry-leading pay for its pilots and other workers. Financial viability required that Delta sharply reduce labor and other costs, but this could not be done without substantial concessions from pilots. Despite its initial advantages, the company was unable to steer a path to financial viability, instead accumulating massive debt and finally resorting to use of the costly bankruptcy process to achieve lower costs. For an analysis of the use of corporate debt by airlines to limit union bargaining power, see Benmelech et al. (2011).

the past – a strained labor relations environment, resumption of lagged wage-profit cycles, and eventually an upending of the status quo following the failure to respond quickly to future market shocks.

The examples of the automotive and airline industries are based on very different types of industries operating in different economic environments. Yet each of their histories provides examples where lack of flexibility by management and sluggishness in union governance failed to respond in a timely fashion to large economic shocks. It might be argued that the shocks faced in these two industries were unusual and extreme, although this does not strike me as a good argument. Shocks occur throughout the economy. The point is that economic shocks are generally dealt with continually through resource movements (including business failures) in response to price signals, where “price” includes product prices, wages, interest rates, profits/losses, etc. The thesis here is that governance within unionized companies has often been sluggish in responding to such shocks and this has proven disadvantageous in an increasingly dynamic and competitive economy.

### *C. A Note on the Public Sector*

A brief look at the public sector provides support for the thesis that a competitive and dynamic economic environment has been a fundamental constraint on unionization in the private sector. Since federal and state labor laws cleared the way for collective bargaining for government employees, public sector union density has greatly exceeded private density and has been maintained over time as private density has fallen. In 1977, the first year in which current union variable definitions were adopted in the CPS, union membership (coverage) density in the public sector was 32.8% (40.1%). In the private sector, 1977 membership (coverage) density was 21.7% (23.3%). By 2010, private sector density had fallen sharply to only 6.9% (7.7%), whereas public sector density remained largely unchanged at 36.2% (40.0%). The number of public sector union members overtook private sector membership during 2009. In 2010, government workers accounted for 52.0% of all union members ([www.unionstats.com](http://www.unionstats.com)).

The public sector is not immune to economic forces and pressure from voters to hold down taxes, as has been readily evident in recent years. But competitive forces and change (dynamism) are far less important in the public than in the private sector. In much of the public sector, be it unionized or not, there exists a highly formalized workplace structure with civil service or other codified personnel systems. Governance is deliberate and often sluggish in the face of economic (and political) shocks. Because of this, governance differences between union and nonunion government entities are typically smaller than are the private sector union-nonunion differences that have been a major focus of this paper.

In the private sector, large employers with well-defined internal labor markets and low turnover are often those most likely to have unionized employees or well-developed HRM systems. It is therefore not surprising that the public sector has highly formalized workplace governance and that collective bargaining is widespread where permitted or facilitated by law. Most public employees display relatively

low turnover (strong attachment) and lengthy tenure. Part of the explanation for this is the widespread use of defined benefit pension plans in the public sector. More fundamentally, for many public workers (in education, law enforcement, social assistance, etc.), there are few private employers and limited ability to move across government jurisdictions, an immobility often reinforced by seniority-based pay.

The presence of gradual rather than rapid change in the public sector also emanates from the “product market.” In comparison to private employers, local, state, and federal jurisdictions see far more limited movement of “consumers” (constituents) to competitive jurisdictions, face little risk of competitive “entry”, and face a lower threat of bankruptcy (or going out of business if bankrupt). Whereas the goals of for-profit firms in the private sector are reasonably clear, the goals of public agencies are diverse and inherently political. As emphasized long ago by Freeman (1986), union power and outcomes in the public sector occur in no small part via the political process and they may influence expenditures and employment as much or more than they do wages.

## **7. Concluding Remarks**

This essay argues that traditional union governance in the US private sector has proven poorly suited to flourish in an increasingly competitive and dynamic world. Evidence on unions and economic performance – wages and benefits, productivity, profitability, investment, employment growth, and business failure – are relevant in assessing public policy and the future of unions.

Unions increase wages and benefits for their members, substantially so in many sectors of the economy. These union premiums are not offset (or not offset fully) by higher productivity. Rather, average union productivity effects within establishments and firms are close to zero, although likely positive. These average effects mask what is a high variance across economic environments, with outcomes sensitive to the state of labor relations. Because union wage premiums are not offset by productivity enhancements, profitability is lower in union companies, whether measured by accounting profits or market valuation measures. Investors’ risk-adjusted expected returns must equalize, which occurs through a lower market valuation of equity in union than in nonunion companies.

Union premiums cannot be funded (or fully funded) from sustained super-normal profits because such profits are rare in a highly competitive economy. A principal way that wage premiums are funded is through appropriation of a share of the normal returns from prior investment in long-lived physical and innovative capital (so-called quasi-rents). In response to the tax on the returns to long-lived capital, union companies invest less in physical capital and R&D. Investment is reduced further due to lower profits among union firms, which limits the ability to finance investment internally. Lower investment in physical and innovative capital by union companies has led to slower growth in productivity, sales, and employment (i.e. union membership). A simple way to think about the long-run decline in US private sector union density is that it is part of a broader shift in resources (capital and land as well as labor) away

from union and toward nonunion companies and establishments both within and across economic sectors, inside and outside the US. More competitive and dynamic economic environments accentuate this process, while at the same time limiting the potential costs of unionism economy-wide by speeding the movement of resources to their most valued uses. In the US economy of today, the macroeconomic (i.e., aggregate) effects of private sector unionism are likely to be minimal.

There is little basis for expecting private sector unionism in its current form to increase substantively over time, absent a strong shift in worker and voter attitudes and adoption of policies that would greatly ease union organizing and obtaining first contracts. Indeed, it will be difficult for unions to maintain density at its current 7% current level. This conclusion follows naturally if one accepts this paper's thesis that the fundamental constraint on the size of the union sector is the growing competitiveness and dynamism of the US economy, epitomized by globalization (i.e., international flows of goods, capital, and people) and technological change. Advances in information technology, among other technologies, have led to shifts in the occupations, industries, and locations of jobs. These "structural" shifts in jobs account for perhaps a quarter of the long-run union decline. Most of the union density decline, however, has not been due to employment shifts but to union density decline within narrowly-defined industries and occupations (Hirsch, 2008, pp. 159-161). In a highly competitive world, neither traditional unions nor any other worker voice institution can flourish unless it has high value added and limited rent seeking.

Of course there are other explanations for declining private sector unionization – strong management opposition, unfair labor practices, a less favorable labor law environment during recent Republican administrations, and weaker sentiment among workers to join unions as they are exposed to fewer union community members and as nonunion workers receive protections offered by federal and state employment laws (antidiscrimination laws, pension insurance, etc.).<sup>40</sup> But these explanations appear to be less fundamental and of second-order importance compared to the role played by a competitive, dynamic economic environment. Opposition to union organizing by management, lack of enthusiasm for unions among many workers, and limited political support among the public for union-supported policies that would enhance organizing are not unrelated to beliefs (some correct) as to how unions affect economic performance.

Although this paper has focused on the economic links between changes in union density and economic performance, it is informative to think about union density in an accounting sense. Changes in density are arithmetically determined by the magnitude of union and nonunion "flows" into and out of employment relative to the existing "stocks" of union and nonunion employment. To maintain a given

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<sup>40</sup> As emphasized in work by Weil (2005), unions facilitate the enforcement of workplace regulations and use of employment-based social insurance programs.

level of union density, more organizing of new workplaces is needed the higher is the existing level of density and the higher the rate of job churn (i.e., job creation and destruction). For example, beginning around the early 1980s, organizing rates fell substantially below the level needed to maintain density. Private sector union density declined sharply and over a sustained period, as seen in Figure 1. But far less organizing is necessary to maintain union density at, say, 5% than at 15%. Depending on assumptions about union and nonunion job destruction, coupled with overall employment growth, rates of organizing achieved prior to the Great Recession can probably support a steady-state private sector density close to 5%, not too far below current rates (Farber and Western, 2002).

While maintaining density close to current levels might be possible with organizing rates seen prior to the recession, it will not be easy to achieve these rates. Low current unionization begets low organizing of new members. First, organizing is costly and declining membership decreases the financial base that funds it. Second, union services are an “experience good” – those exposed to unions in their community, among family members or friends, or in early jobs are more likely to be union members. Lower density today therefore implies less union experience and less positive union sentiment among potential future members (Holmes, 2006; Budd, 2010).

Under any likely scenario, union governance in the private sector will remain a minority model largely restricted to a few sectors of the economy. This is not a terrible outcome, at least not if the alternative were to have a large, uncompetitive union sector in a highly competitive world. But it is far from a first-best outcome. The current system provides too little worker voice, participation, and worker-management cooperation in both union and nonunion workplaces. The adversarial relationship envisioned and reinforced by the NLRA holds little appeal for workers (Freeman and Rogers, 1999).<sup>41</sup> While desirable levels of voice and cooperation have evolved in some, perhaps many, US companies, enhanced worker voice and participation on a larger scale is likely to require (politically difficult) labor and employment law initiatives. For any initiative to be successful, it would need to produce new forms of voice and workplace governance within the large nonunion sector, creating new options short of full collective bargaining rights. Rather than being a substitute for traditional unionism, movement in this direction might reinvigorate the union movement and help create a larger set of participatory workplace institutions, traditional unions being one of several available options.

The discussion of possible reforms of this sort is well beyond the scope of this paper. In previous

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<sup>41</sup> Freeman and Rogers (1999) administered worker surveys in the US in the early 1990s, along with subsequent surveys in other countries. My reading of their results is as follows. First, many workers want greater voice and participation in workplace decision-making, but the voice they desire is as much individual voice as the collective voice associated with traditional unions. Second, workers want a more cooperative and less adversarial worker-management relationship, coupled with management support for worker participatory organizations. Third, workers who desire voice do not only want to express themselves but want their views to affect workplace outcomes. And fourth, workers see management resistance as the primary obstacle to worker participation and cooperation. Despite some differences, workers’ expressed wants and concerns are surprisingly similar in union and nonunion workplaces.

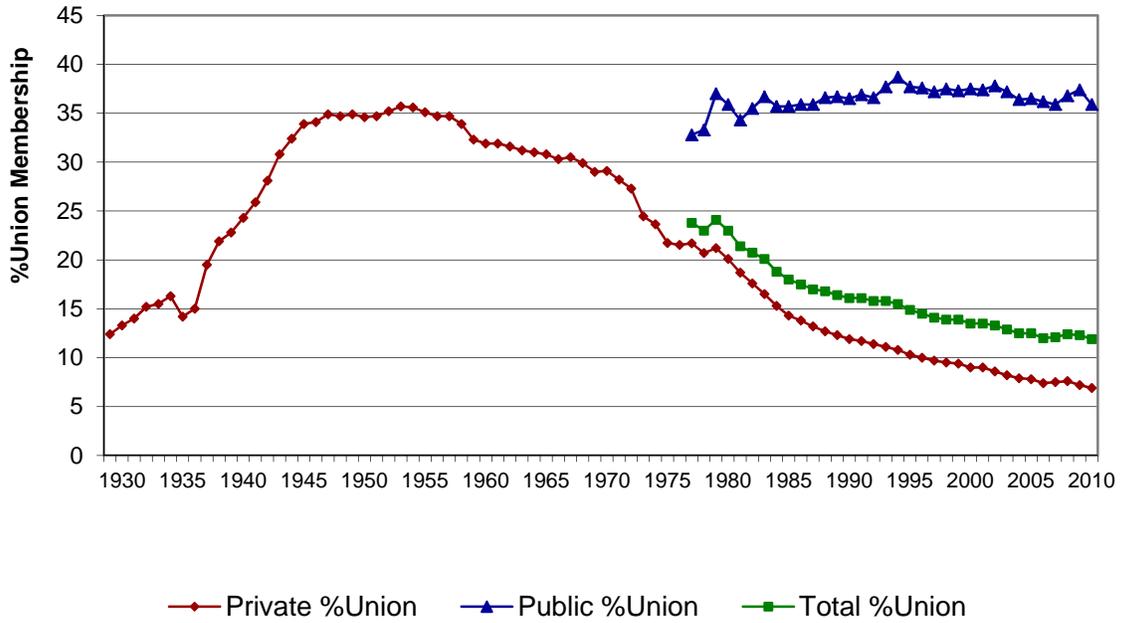
work (Hirsch and Hirsch, 2007), possible expansion of nonunion voice via reforms in the NLRA have been proposed (building on Estreicher [1994]), along with a speculative proposal to move the labor law default from nonunion status to a worker option for a governance structure akin to German works councils. Traditional NLRA collective bargaining or the absence of any formal voice mechanism would remain options that workers could adopt. Sachs (2010) examines the issue of labor law defaults more broadly, his principal focus being changes in the NLRB election process that would facilitate workers' ability to express their preferences for a union under strict confidentiality and free of management influence.<sup>42</sup> More in line with the emphasis in this paper, Estlund (2010) recognizes that with the decline in collective bargaining, workers have many legal rights, but little representation at work, depending instead on self-regulation within firms. Estlund accepts that self-regulation is here to stay and discusses ways in which effective worker voice and participation can be secured within a nonunion or self-regulatory process.

Specific workplace institutions, human resource management practices, and vehicles for voice and participation that may emerge in the coming decades cannot be reliably identified. What can be said with some confidence is that whatever the forms of workplace governance, they will have to provide value-added in the workplace and flourish in what will likely remain a highly competitive and dynamic economic environment.

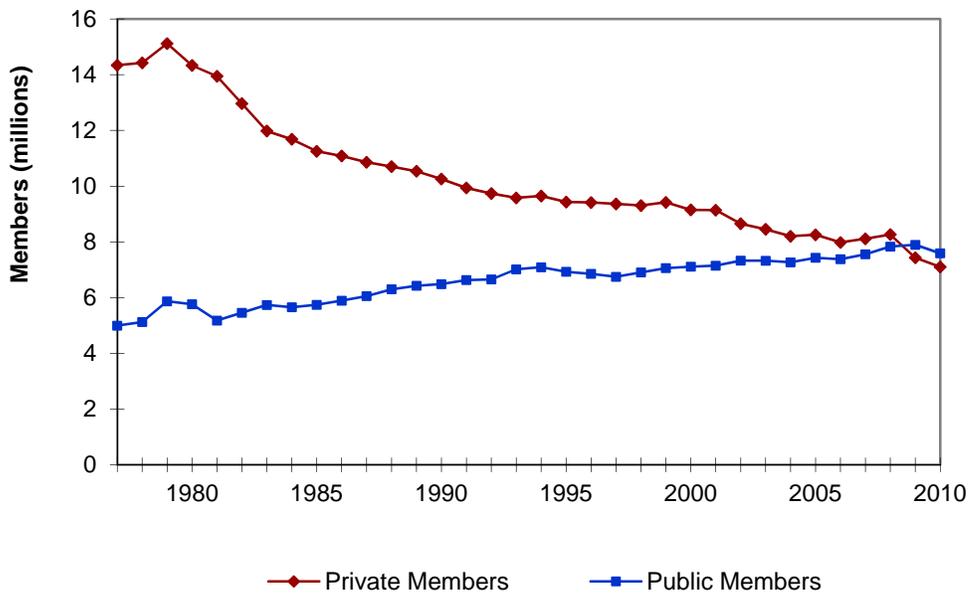
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<sup>42</sup> I find appealing Sachs' proposals to utilize electronic voting, protect worker confidentiality, and adopt procedures used by the National Mediation Board (NMB) in the airline and railroad industries. While Sachs emphasizes steps that would fully insulate workers from management influence, my preference would be for procedures that would enhance the quality of information that workers receive during campaigns from both unions and management. Claims by both parties might be moderated if subjected to rebuttal and discussion. Although not currently feasible, I would like to see NLRB-sponsored forums, perhaps akin to a political debate, with representatives from the union and management, an NLRB moderator, and worker Q&A. Eligible workers could attend such forums or view them later on-line.

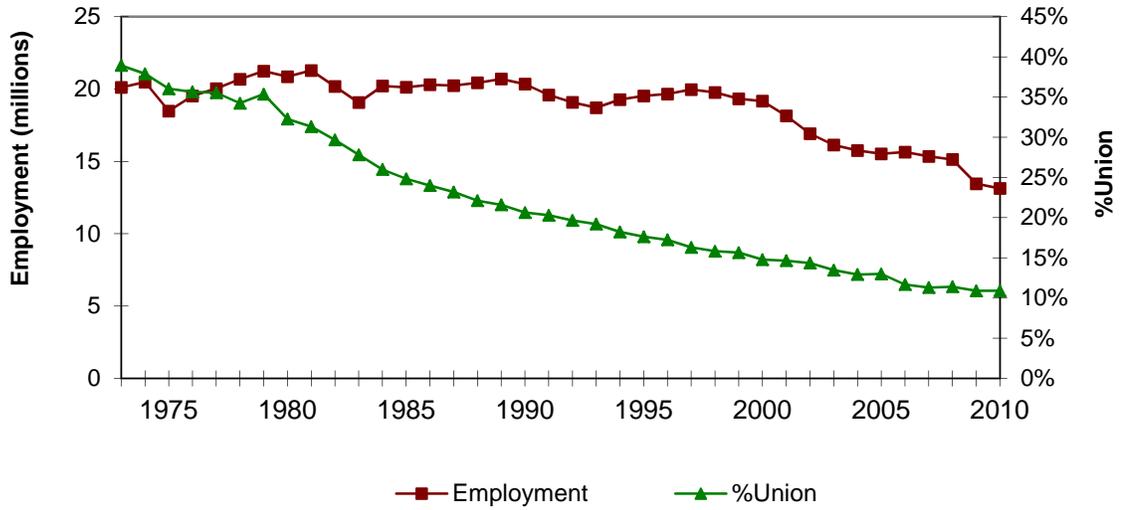
**Figure 1: U.S. Private Sector Union Density, 1929-2010  
Total and Public Sector Union Density, 1977-2010**



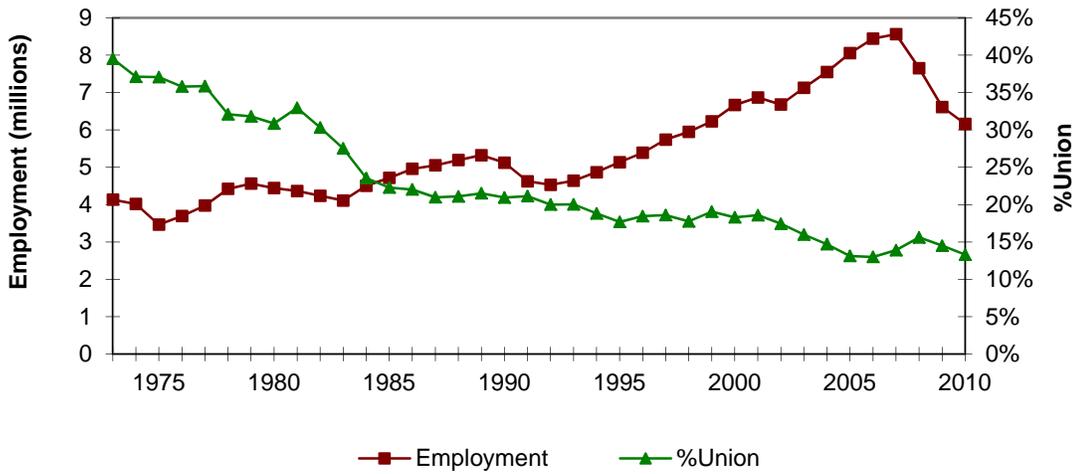
**Fig. 2: Private and Public Union Membership, 1977-2010**



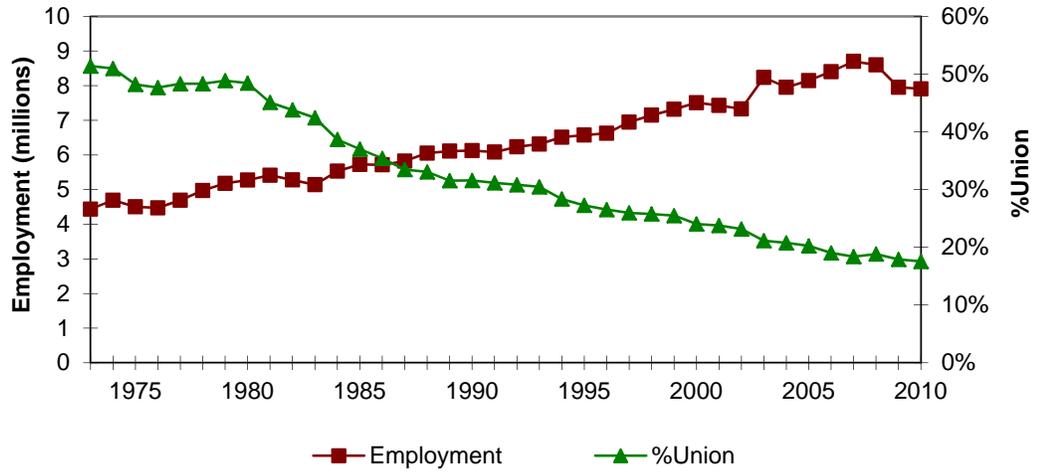
**Fig. 3a: Employment and Union Density in Private Manufacturing, 1973-2010**



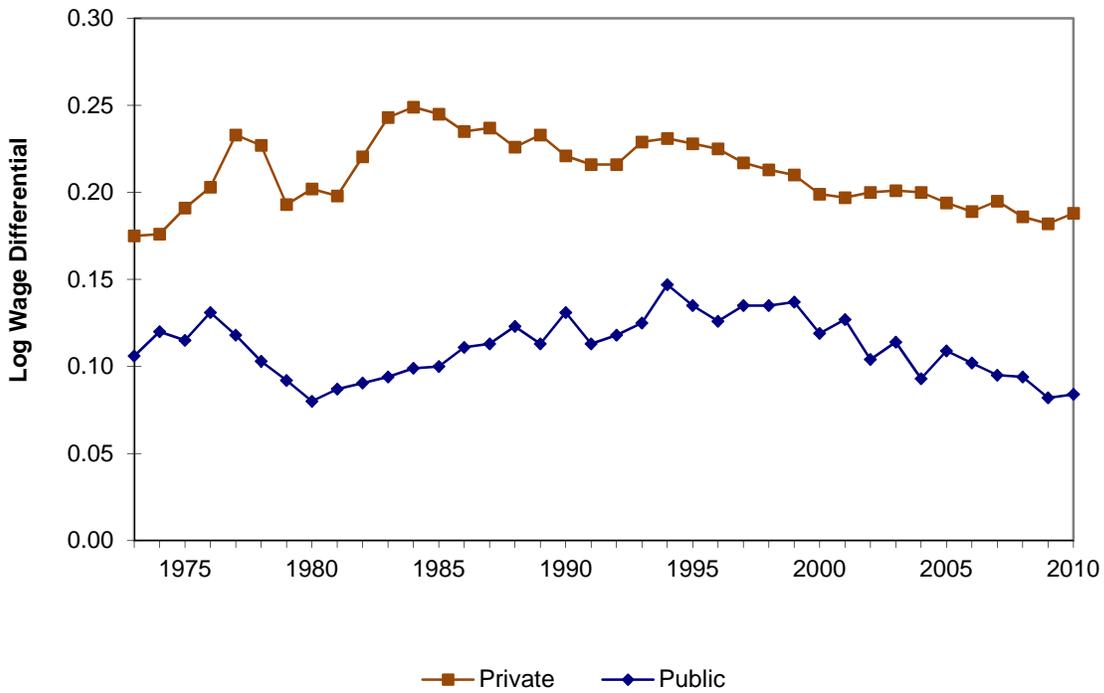
**Fig. 3b: Employment and Union Density in Private Construction, 1973-2010**



**Fig. 3c: Employment and Union Density in Private Transportation, Communications, and Utilities, 1973-2010**



**Fig. 4: Private and Public Sector Union Wage Premiums, 1973-2010**



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