

The Contemporary Industrial Relations System in Construction: Analysis, Observations and Speculations

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The construction industry experienced deep transformations coinciding with its three-decade decline in unionization from the 1970s to the present. Several factors shaping its industrial relations system have changed so fundamentally that it would be extremely difficult to recreate the workplace rules and governance mechanisms (e.g. apprentice systems; hiring halls; multi-employer funds) long associated with the industry. This essay provides a prospective look at the construction industry by examining the transformation it has undergone over the past thirty years. I focus on changes in the management of construction projects, the operation of public and private construction markets, and the structure of employer and labor institutions and assess how they affect worker–management relations prospectively. The article also discusses where these dramatic shifts have left us with large holes in our understanding of the current and future characteristics of the construction workplace.

Despite its varied nature across the many sectors of the economy, the industrial relations system for construction in the United States had a set of common features for many decades characterizing the formal and informal rules governing the workplace. The salient elements can be summarized in the following:

- hiring arrangements where labor unions held control over the pool of available workers for job assignment through hiring halls or related arrangements;
- provision of entry skills and standards (apprenticeship) and ongoing skill enhancement (journeymen training) via labor–management programs administered at the relevant trade and geographic level;

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- wage, benefit, and working condition agreements spanning a designated geographic area, typically at a local (metropolitan or sub-metropolitan) area;
- formalized labor–management dispute resolution mechanisms to resolve conflicts arising at the workplace in the conduct of work, safety and health problems and the ongoing administration of contracts;
- formalized labor–management dispute resolution mechanisms to resolve conflicts arising between trades and contractors regarding the assignment of work (i.e. resolving jurisdictional disputes);
- joint labor–management financing and administration of apprenticeship and journeymen training through multi-employer organizations;
- joint labor–management financing and administration of health and pension benefits through multi-employer funds.

These workplace rules and practices arose from an intricate set of relations between building trades unions, contractors, subcontractors, and construction end users. They also reflected a wider set of government regulations and practices that in many ways reinforced these practices. Except for those sectors where unions had a limited presence (such as residential and remodeling construction) and certain geographic areas of the country (southern states), this system was pervasive, at its peak characterizing well over half of all construction in the US.

Other essays in this volume and Palladino¹ describe how this industrial relations system emerged and then unraveled in the final decades of the twentieth century. There is a fair degree of unanimity about what led to the dramatic declines in unionization and the erosion of the industrial relations system related to it. In brief, trade unions operated with a ‘country club’ mentality, leading them to focus on existing members while excluding a large—and growing—set of nonunion workers who were trained in union sector apprentice systems but were prevented from attaining full membership rights—and access to jobs—in that sector. At the same time, major construction end users, frustrated by the increasing costs of the traditional system, helped to build the nonunion sector’s capacities to undertake larger and more complex projects in both private and public markets. Nonunion contractors slowly built their capabilities, gradually encroaching on the union sector by doing work in geographic areas (outside the main metropolitan areas) and market segments (residential, small commercial, remodeling work) eschewed by the major unions. By the early 1970s, the confluence of a large and restive supply of nonunion workers and the emergence of increasingly sophisticated and rapidly growing nonunion contractors led to a rapid decline in unionization in construction markets across the nation.²

As a result, union density steadily eroded. Nationally, the percentage of unionized construction fell from almost 50 percent in 1966 to less than 33 percent in 1983 and from 18.3 percent in 2000 to below 15 percent by 2004.³ This decline in union density masks the virtual elimination of unionized building trades in some metropolitan areas. Even in cases of cities with longstanding union strength (e.g. New York,

Boston, Chicago), building trades witnessed continuing erosion of their control of the market throughout the 1980s and 1990s.

Focusing only on declining union market share, however, misses deeper transformations that occurred simultaneously. In fact, factors now shaping the industrial relations system have altered its operation so fundamentally that it would be extremely difficult to recreate the workplace rules and governance listed at the outset of this article. This is to argue not that labor unions will be unable to re-establish a major presence in the industry in the future; only that to do so will require very different sets of relationships than they had in the past.

This essay provides a prospective look at the construction industry and its industrial relations system by highlighting the deeper changes it has undergone over the past thirty years. My purpose here is to highlight key attributes of the contemporary industrial relations system and assess how they affect worker–management relations prospectively. I also point out areas where the dramatic changes have left us with large holes in our understanding of the current and future characteristics of the system. Accordingly, I end by offering a set of speculations that will hopefully stimulate further debate and research.

An Industrial Relations System Perspective of the Construction Industry

The work place of construction is highly variable; the sites of work frequently change and no two projects are identical The technical conditions place great stress on organization building in management, since contractors must be continuously expanding or contracting a work force . . . and adapting an organization for new conditions These conditions place a great premium on a flexible and skilled work force, on continuously matching jobs and available men, on shifting the work force around among different contractors, and on uninterrupted operations.⁴

John T. Dunlop's description of the underlying nature of the construction industry still characterizes many of its core features today. Construction remains an industry where variability in the technical features of projects creates a challenging managerial environment, a dynamic worksite, and complex labor market and worker–management relationships at all levels of the industry.

Dunlop's perspective on construction was built on the notion of an industrial relations system (indeed, his development of that framework came in part from his long applied and academic interaction with the industry). An industrial relations system for Dunlop was an analytic means to capture the interaction between actors, economic, technical, and social contexts, and a surrounding set of beliefs which collectively lead to a body of rules created to govern the interrelations of the actors.⁵ The framework serves both analytic and problem-solving ends, in both cases seeking to explain how changes in one part of the system ripple through to other parts of the system.

In discussing the ‘context’ of an industrial relations system, Dunlop focused on four major features:

- technical conditions under which construction takes place;
- character of the markets for construction services and for building trades labor;
- status of relationships among contractor organizations, labor organizations, and government agencies;
- commonly shared ideas, beliefs, and values within the industry.⁶

I do not attempt to formally test this framework using construction. The industrial relations system has been the object of such debates.⁷ Rather, I use the industrial relations system perspective as a useful lens to observe some of the central factors (but by no means all) shaping how management and workers interact at the worksite prospectively.

Technical Characteristics of the Construction Industry

A construction project of any complexity requires the coordination of a large number of separate business enterprises and workers, with varied responsibilities, skills, and roles. At its most basic level, the construction process entails risk management. Owners (public or private) construct buildings for their own direct use or to be leased or sold for the use of someone else. To undertake the project, someone must put up capital to fund the acquisition of materials, labor, insurance, and other costs associated with the project. This entails substantial risk since the costs are borne upfront and the stream of benefits from direct use or from sale/rental of the property come only after construction completion.⁸ This means that management of the project to ensure its timely, successful, and cost-effective completion is fundamental. Project management entails balancing the need to coordinate the many moving parts entailed in construction against being the party that bears the downside risks attendant to the process.⁹

Relations between the different parties have always required developing mechanisms to deal with the inherent financial risks. Commons describes the institutional arrangements at the turn of the last century:

The building industry in New York, as well as elsewhere in the United States, is conducted, unlike in England and Europe, on a system of sub-contracting. The mason builder, or general contractor, secures the contract from the owner, or ‘client,’ and generally puts up the brick-work; but he sublets, by competitive bidding, all of the other work to as many contractors as there are kinds of work. This system enables the contractor to enter the field with little or no capital, since it is usually arranged that partial payments shall be made by the owner to the general contractor, and by him to the sub-contractors, as the work progresses.¹⁰

Figure 1 depicts the relations that characterized much of construction from the 1940s to the 1980s and the current organization of the construction sector. At the top of each diagram are the end users of construction projects. These can be public or private players whose interest is in putting up a structure of some type. The owners’

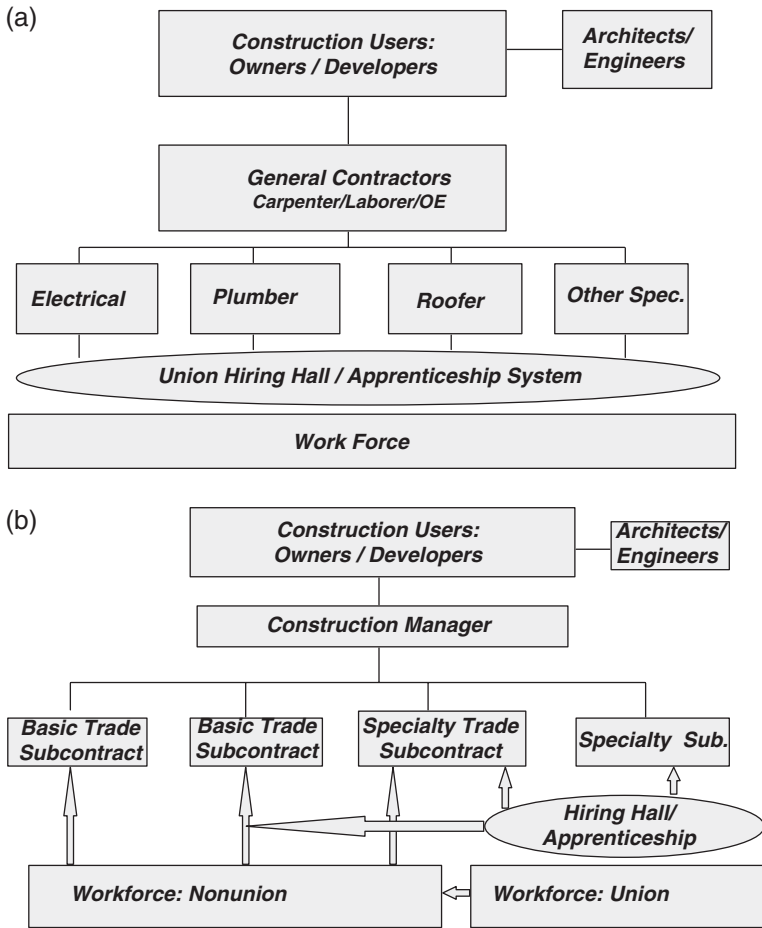


Figure 1 Organization of the Construction Industry. (a) Traditional organization. (b) Current organization.

interest might be extremely short term—as in the case of developers seeking to build and then lease or sell a building. Alternatively, owners might take a longer-term view if they intend to use the structure, as in the case of companies building manufacturing facilities or government organizations providing some type of public good (e.g. a school, highway, or sanitation facility).

The owner, in turn, typically hires a firm to oversee construction. Historically, this role was filled by a general contractor (GC) who served two functions: managing the construction project and being the direct employer of ‘basic trades’—that is the trades engaged in construction work throughout the project in various forms (e.g. carpenters and laborers). Like the mason builder of Commons’s era, the general contractor was responsible for overseeing and coordinating the work of subcontractors associated with skilled and semiskilled specialty trades such as electrical, plumbing, sheet metal, roofing, and other contractors. The larger and/or

more complex the project, the more subcontractors typically would be on a job. This relationship is depicted in the upper panel of Figure 1.

Increasingly since the early 1980s, the GC has been replaced by a different type of project manager: the construction manager (CM). A construction manager works for the owner/developer, and coordinates with architects and engineers. Unlike the general contractor, a construction manager does not directly employ any workers on the site. Instead, the construction manager contracts with basic trades much in the same way as specialty trades. This removes the CM from many of the responsibilities of employing construction workers and has major implications for traditional forms of union leverage in construction. In addition, collective bargaining agreements between basic trades and unionized GCs usually stipulated that all subcontractors on a project would be selected from unionized firms. Because the CM does not directly employ any construction workers, this method of assuring an all-union work site no longer applies and projects are more likely to have a mix of union and nonunion trades present.¹¹ These new relations are shown in the lower panel of Figure 1.

Decoupling the role of project management from construction work itself has a number of impacts on the industrial relations system. First, it has altered the ability of building trades unions to create 'wall-to-wall' agreements on the construction site, wherein a collective bargaining agreement between the basic trades and the GC (who traditionally hired them) created a platform for collective bargaining for other trades on the site.

Second, removing the construction duties from the project managers' responsibilities has the effect of more directly aligning the interests of the end user and the project manager. While a GC shared many interests with the end user (e.g. cost control, given that a GC's bid on a private project typically included those of subcontractors), part of the GC's profitability on a project arose from its own construction activities. This meant that in some decision situations the GC would weigh its own interests as another contractor on the project against its larger role as project manager. In contrast, a CM's interest is in delivering the project within the cost, time, and quality constraints set out by the end user. Everything from the decision of the design of the construction sequence, to the bidding pool (the contractors included to bid work), to selection of contractors, to their management on the site are driven by the CM's interest in the end user's outcomes. A CM will therefore view the problem of how to complete the user's project less as the lead contractor of a set of contractors, and more as the owner's voice at the construction project. This has many ripple effects elsewhere in the industrial relations system, including on assumptions about trade jurisdiction.

Finally, the GC held a considerable portion of the risk on a project as the prime contractor among a set of subcontractors. In part, the ability of other subcontractors to come onto the site on schedule, to complete their work, and to be ready for the next set of subcontractors turns on the GC's management of its own workforce. Therefore, the GC bears part of the risk attendant in completing construction within time and cost constraints. Construction manager compensation also turns on overall

performance at the work site, and they therefore bear part of the risk arising from the vagaries of construction. However, since CMs do not directly employ any of the workforce, they can shift part of the risk onto the system of contractors undertaking the project: if unexpected conditions arise in the course of the project, they have a greater ability to shift the attendant costs onto the parties undertaking work than to bear those costs themselves. This raises the cost pressure on the group of firms now acting in the construction roles formerly held by GCs as well as other subcontractors involved in the project.

The Market Context: Who Drives the Sector?

A critical component of market context comes back to end users in construction and the market forces surrounding their decisions. Once again, the diagram in Figure 1 is a good place to start. The substitution of the traditional GC for some form of CM exemplifies the user's interest in controlling costs and risk. The market context facing end users will affect the specific set of problems they face in achieving these objectives and in turn their relationships with GCs, CMs, and subcontractors.

Table 1 breaks down annual construction activity from 2002 to 2004 based on the end uses of construction. The total value of US construction 'put in place' in 2004 was US\$999.6 billion (and is estimated to go over US\$1 trillion in 2005). Of that, about 77 percent of construction was undertaken in the private sector versus 23 percent for public end users (federal, state, and local). Within the private sector (and indeed for construction overall) the largest end use for construction is residential construction, which comprised 71 percent of private sector construction and 55 percent of all construction activity. Commercial and office construction together comprise about 12 percent of private construction. The two largest categories of public construction are educational uses (27 percent of all public construction) and highway and street, making up another 28 percent of activity.

An important part of the market context derives from the incentives and interests of the major end users in construction. For example, the industrial relations system in the major residential sector has been changing in recent years, in part because the sector is driven by large-scale homebuilders who have been increasing their market share in many metropolitan markets. Major homebuilders act as CMs, directly employing few of the basic trades in residential construction, while coordinating all phases of development, construction, marketing, and sales. Their strategies of managing risk (arising from holding land, deciding when to move it into development phase, deciding how many homes to build on a speculative versus pre-sold basis) ripple through to the many subcontractors who are responsible for building homes. An analysis of the major sectors portrayed in Table 1 would provide differing pressures affecting the major actors of the industrial relations systems of each.

The structure of bidding and winning construction work differs markedly between private and public sectors. The differences in bidding procedures between the private

Table 1 Value of US Construction by End Use, 2002–2004.

	Value of construction put in place (current US\$ million)			
	2002	2003	2004 ^a	% of total (2004)
Total Construction	871,342	915,742	999,600	100.0
Total Private Construction ^b	651,706	690,019	766,784	76.7
Total Public Construction ^c	219,636	225,724	232,816	23.3
Total Private Construction ^b	651,706	690,019	766,784	100.0
Residential	421,912	476,143	544,424	71.0
Nonresidential	229,794	213,876	222,361	29.0
Lodging	10,467	9,946	11,758	1.5
Office	35,296	30,413	32,189	4.2
Commercial	59,183	57,680	61,098	8.0
Health care	22,438	23,648	25,918	3.4
Educational	13,109	13,384	12,866	1.7
Communication	18,059	12,412	13,016	1.7
Power	31,073	27,930	25,843	3.4
Manufacturing	16,403	14,231	14,750	1.9
Total Public Construction ^c	219,636	225,724	232,816	
Residential	6,693	6,759	7,409	3.2
Nonresidential	212,943	218,965	225,407	96.8
Office	10,687	11,080	11,791	5.1
Health care	5,653	6,287	6,800	2.9
Educational	58,839	60,830	62,815	27.0
Public safety	9,231	8,857	8,223	3.5
Amusement and recreation	12,358	12,121	11,089	4.8
Transportation	18,986	18,767	19,016	8.2
Power	3,662	5,262	6,962	3.0
Highway and street	61,316	62,667	65,083	28.0
Sewage and waste disposal	13,368	13,397	14,337	6.2
Water supply	10,046	10,023	9,881	4.2

^aRevised.

^bIncludes the following categories of private construction not shown separately: public safety; transportation; water supply; sewage and waste disposal; highway and street; amusement and recreation; religious; conservation and development.

^cIncludes the following categories of public construction not shown separately: commercial, lodging, religious, communication and manufacturing; conservation and development.

Source: US Department of Commerce, Bureau of the Census, 'Value of Construction Put in Place', <www.census.gov/constructionspending>, 2005.

and public sectors are particularly important in understanding the prospective industrial relations system.¹²

The Changing Private Market in Construction

Bids for private projects can come from construction managers or general contractors who bid for an entire project, based on a team of subcontractors assembled by the lead firm. Alternatively, bidding can be done more informally, with an end user going to a preferred short list of contractors and subcontractors or even a single GC/CM for bidding for or negotiation of a project price. The GC or CM with the project,

in turn, may elect to undertake a formal or informal bidding process for the subcontracted work. The methods of such bidding are primarily in the hands of the private parties involved, but influenced by the scale of the project, the availability of contractors with pre-existing relationships to the project manager, and the degree of specialization required.

Winning work as a subcontractor in the private market is therefore a function of the ability to participate in formal and informal bidding processes. Organizations have emerged in the market to facilitate these transactions, such as the F. W. Dodge Corporation (now a division of McGraw Hill Construction), which provides information on prospective work in a geographic area. Yet given the large number of potential contractors in a sector, the potential variability in their capabilities, and the significant costs to an owner or project manager of engaging in searches, bidding pools in the private sectors are often a limited subset of all potentially available contractors in an area. As a result, key decision-makers on a project (owner, architects, or construction managers) elect to seriously review (or solicit) only a subset of all potential bids. Similarly, GCs or CMs can announce potential subcontracted work broadly via Dodge reports and other mechanisms, but seriously consider only a subset of the bids they actually receive. It is common among major residential homebuilders, for example, to choose from a very limited subset of subcontractors (who sometimes effectively are 'captive' subcontractors) in the mechanical trades like heating and air conditioning or electrical work.

One of the pillars of the traditional industrial relations system in construction was market relationships between key private end users (e.g. major real estate developers or dominant businesses in a geographic area like automobile companies in Michigan or steel companies in Pennsylvania) and dominant GCs. The 'short list' for new construction would include these dominant players, who would, in turn, seek bids from their own short list of subcontractors. In major metropolitan markets where many projects tended to be larger and more specialized, competition occurred more frequently between unionized contractors rather than between union and nonunion firms (the latter tending to be focused on different markets and geographic areas).¹³ The GC form of project management ensured that the short list consisted of only union subcontractors.

As the union sector has declined and a new generation of nonunion contractors have gained capacities to bid larger and more complex projects, new networks have arisen in private markets. Compounding this is the project management model, where CMs, no longer directly tied to the construction process, can seek bids from a wider pool of potential contractors in and out of the unionized sector.¹⁴

The industrial relations systems in private markets for construction will therefore be shaped by the new networks that have and will continue to form between end users, project managers, and subcontractors along lines that no longer include significant players of the traditional system. Gaining a clear understanding of the nature of those emerging networks is essential to understanding who will be bidding, winning, and setting conditions of work on construction sites.

The Changing Public Market in Construction

Because funds for building at the federal, state, or local level ultimately come from taxpayers, bidding processes in public markets are more formal and subject to a range of regulations. Bidding and awarding work are regulated by federal statutes regarding wages and working conditions (Davis–Bacon; Fair Labor Standards Act; Occupational Safety and Health Act), by laws regarding discrimination (Equal Employment Opportunity), small business set-asides, and other regulations that seek to provide access to the federal bidding process.

In addition, states also regulate bidding to insure against favoritism and patronage in the letting of public construction projects. The laws regarding public bidding vary considerably by state and locality. At the most basic level, the laws provide for public announcement of forthcoming projects, with publicly posted bids that stipulate who can bid (bonding requirements; prevailing wage requirements; set-asides) and the basis of bid selection. In some states, bidding is done at the GC/CM level, who in turn are allowed to put their own team of subcontractors together. In other states, bidding occurs at both the GC/CM and subcontractor level. In such cases, a GC does not select the team, but the work is awarded on a subcontract-by-subcontract basis.

Under the traditional system, union contractors have been very successful in participating in public markets for several reasons. First, public bidding procedures—where upcoming projects must be vetted, bids made public, and winning bids and bidders announced—are more transparent and rule driven. At the same time, interested parties can more readily intervene in processes related to public work at all stages of construction. Because the decision for awarding work itself may be affected by political processes, unions and unionized contractors have been able to exercise considerable influence, such as by lobbying for particular projects.

Perhaps most importantly, prevailing wage laws at the federal level (principally the Davis–Bacon Act of 1931) and in 31 states plus the District of Columbia removed disparities in compensation rates from the bidding process of public work. To the extent that prevailing wage laws were enacted are enforced, wages and benefit policies are taken out of competition in public work, in theory making bids for a project differ on the basis of efficiency, quality, and lower material and overhead costs. With wage levels removed from the equation, the public system of bidding provided a basis of stability for the traditional industrial relations system in ways that paralleled the stabilizing role of unionized general contractors on the private side of construction.

The public bidding market for construction has changed in a number of ways that have undercut the traditional industrial relations system. First, state prevailing wage laws have come under attack. Since 1979, nine states have repealed the laws entirely and a tenth (Oklahoma) has had its law suspended by the state Supreme Court.¹⁵ Other legislative and administrative changes, short of repeal, have weakened the laws' role in setting a wage floor in the bidding process.¹⁶ Efforts to scale back federal prevailing wage rates arising under the Davis–Bacon Act have been unsuccessful to date, but remain a political priority of groups like the Associated Builders and Contractors (ABC).¹⁷ The changes in prevailing wage policies allow more direct

competition between union and nonunion companies on the basis of wage and benefit levels as well as on comparative productivity.

Second, many states are re-evaluating and revising methods of public bidding. In some cases, this has meant using criteria beyond the traditional 'lowest qualified bidder' to select contractors (through such evaluation methods as 'full value' bidding). Other states have modified systems to provide lead contractors or construction managers greater latitude in setting the overall bids, such as by allowing them to include areas of subcontracting formerly subject to separate bidding rounds in the overall bid. This increases the importance of the project manager's network of subcontractors in the public market.

A third change arises from recent restrictions placed on the use of so-called 'project labor agreements' (PLA) for federal contractors as well as efforts to restrict their use at the state and local level. A project labor agreement is a multi-employer, multi-union pre-hire agreement designed to coordinate contract terms and labor relations at a construction site. Project labor agreements were originally designed to reduce the chance of labor disruptions and redress skill shortages related to military production during World War II. They require that all contractors selected for a project abide by the terms of a master collective bargaining agreement during the course of the project, adopt common hours of work, vacation, and other terms across unions, and agree to dispute resolution procedures to resolve all disputes on the project including those related to jurisdiction.¹⁸ Although PLAs can be found in private sector construction (typically on very large and complex projects) they became popular devices for major public sector projects in the public sector, such as the 'Big Dig' transportation mega-project in Boston, and were adopted more generally for even smaller-scale public projects like schools.

Shortly after being inaugurated, President George W. Bush issued Executive Order (EO) 13202 establishing in section 1(a) that no federal agency or construction manager acting for the government 'shall in its bid specifications, project agreements, or other controlling documents require or prohibit bidders...contractors, or subcontractor to enter into or adhere to agreements with one or more labor organizations, on the same or other related project(s).' Although EO 13202 does not prohibit contractors on a project from voluntarily entering into such an agreement, it prevents the federal government as a contracting authority from either requiring or forbidding the use of PLAs. The Executive Order (ultimately upheld by the US Court of Appeals) had the effect of ending a Clinton-era policy of encouraging their use on major federal projects. Similar efforts to reduce the use of PLAs in state-level public works have also become widespread since imposition of the Bush administration policy.

The obvious effect of all three changes is to increase competitive pressure on union contractors. The changes in public sector bidding, however, are also rippling through the industrial relations system in more subtle and lasting ways. Given the effects of prevailing wage laws and the active involvement of building trades in the political sphere, public work historically provided a means for union contractors to gain experience, grow, and gain a reputation. That is less and less true now and

in the future. Smaller-scale public projects now provide a more and more attractive opportunity for small, nonunion contractors in many markets, providing them opportunities to gain experience and expand. This substantially changes the nature of entrants into the construction industry and therefore the profile of employers prospectively (see below).

Large union contractors may continue to have competitive advantages to bid larger public work because of their experience and specialization as well as skill in playing in these more complicated markets. But this advantage also has diminished as other nonunion players have built their capacity to undertake work, and the rules governing public markets (such as potential state-level restrictions on PLAs mirroring those enacted at the federal level) continue to change. Once again, this implies that a different profile of employers now and in the future will shape the industrial relations system at the realm of the largest and most complex projects in public construction.

Organizations and Institutions

Labor Organizations

Others in this volume have described the causes and consequences of building trades union decline in many labor markets in the last quarter of the twentieth century, in particular arising from loss of control of the supply of labor and skill. Two changes in the structure of labor organizations in the industrial relations system bear particular attention here.

Centralization in union structure. Through most of their history, local building trades unions tended to be fairly autonomous from their international unions. This autonomy reflected the local nature of construction industry activity in many trades and the local focus of collective bargaining and contract administration.¹⁹ In fact, most building trades unions originated as local organizations, only evolving into national unions later, in part in response to problems between local unions in regard to jurisdiction, traveling members, portability of benefits, and other intra- and inter-union issues.²⁰

Aforementioned changes in construction management have gradually expanded the set of players included in private and public bidding. These changes have been augmented by the falling costs of information—from the internet to cell phones—which make it less expensive for owners or project managers to solicit bids and for contractors and subcontractors to find out about work outside of their geographic base. Couple these changes with the growth of a new generation of larger and more sophisticated nonunion players and it becomes clear that the level of competition in construction has shifted increasingly to a regional or even national level.

Contractors are forced by competitive pressure to adjust to a regional focus of competition (e.g. by creating partnerships, through mergers and acquisitions, or by expanding their geographic operations). Building trades unions, affected by these

pressures in a less direct way, have adapted far less rapidly. Historic autonomy, usually formalized in union constitutions and supported by internal politics where local leaders (business agents and business managers) hold considerable influence, precluded national building trades leaders from unilaterally attempting to adapt their organizational structures to mirror changes on the employer side. This harkens back to earlier periods when union leaders at the international level had to adapt their organizations gradually through leadership suasion and careful political maneuvering.²¹

The increasing disparity between union structures and market organization, however, has led several of the building trades unions in recent years to take dramatic steps in reforming internal structures. No case is more dramatic than the changes instituted by Douglas McCarron of the United Brotherhood of Carpenters (UBC) following his election as General President in 1995. Drawing on authority granted the General President under its constitution, the UBC adopted at its 1996 Convention a plan to replace over 2000 local union and council structures with a centralized structure consisting of 65 regional councils to serve as the fulcrum of collective bargaining, contract administration, organizing, and market recovery efforts.²² Regional councils were designed to correspond with regional construction markets rather than historic trade union boundaries. At the same time, governance of the union was also centralized, with effective authority moving from local officers and agents to the Executive Secretary-Treasurer of the Council. Business agents, key actors in any building trades unions, became appointed staff of the regional council rather than elected by local members, shifting their line of accountability to the Council (and in particular to the Executive Secretary-Treasurer of the Council).²³ Members would eventually elect delegates to the Council, who would in turn select the Council leadership, but the UBC General Executive Board appointed the first set of Council leaders across the union.²⁴ This allowed the installation of a set of players in the key Council positions favorably disposed to the new structure and strategic direction.

Although the UBC structural changes are the most dramatic in the building trades,²⁵ they reflect efforts to adapt longstanding, locally focused structures in many unions, including the International Union of Painters and Allied Trades, the Laborers International Union of North America, and the International Union of Bricklayers and Allied Craftworkers. Despite an unresolved debate within and among building trades unions about the appropriate organizational model, pace of change, and democratic processes involved in adapting, most trades seem to recognize the need to move away from locally focused structures in one way or another.

Jurisdictional boundaries and the assignment of work. Though there has been consolidation of jurisdictions within the industry from the early 1900s to the present, there remain a large number of separate major trades (14) in the industry. Jurisdiction has been a fundamental principle, organizational device, and means

of rationalizing construction activity since the early days of construction unionism.²⁶ It has also been a recurring area of friction (explosive at times) between unions and employers/end users and among building trades unions.

With the extent of changes in the context of the industrial relations system, the pressures to challenge existing jurisdictional distinctions have increased. Building trades unions historically focused on the unskilled end of the construction industry, such as the Laborers, have over the last decade expanded apprentice and training programs to cover a wider range of skills and claim new areas of work. Other building trades unions have absorbed some of the smaller trade unions. But, once again, the actions of the UBC exemplify the most dramatic expression of the reassessment of jurisdiction. The union's decision to withdraw from the AFL-CIO was perceived by some in the building trades as the first step towards expanding its claims on work outside of its traditional jurisdiction and on the jurisdiction of other unions. These concerns have been amplified by UBC President McCarron's vision of a form of jurisdiction driven more by the efforts of signatory union contractors to win work than by definitions of jurisdiction arising from the building trades themselves.

The reassessment of jurisdiction has deeper implications beyond signaling more frequent disputes between trades in the future. First, a market-driven approach to jurisdiction would undoubtedly lead to a rapid reduction in the remaining number of building trades, particularly among those trades with a jurisdiction that has little correspondence to the way that contemporary construction contractors and project managers organize their work. Second, absent an alternative means for setting boundaries between trades from those traditionally employed by local and the national building trades, it would place the initiative to redefine jurisdiction outside the purview of unions for the first time in more than a century. We return to this implication below.

Employers and Contractor Associations

Small contractors facing the uncertainties inherent in construction have limited ability and incentive to develop a workforce with high skill levels. They also have few incentives to cooperate with one another in terms of other industry-wide issues, given the low costs of entry, the seasonal and cyclical nature of construction, and the difficulty of keeping a workforce consistently employed. It therefore is understandable that associations of contractors often formed in reaction to the organization of labor unions. For example, Commons describes the emergence of employer associations in New York City in this vein:

A succession of strikes, lockouts, and criminal prosecutions of walking delegates, growing out of trade jurisdiction, rival organizations, union misrule, and ending finally in the organization of the employers and a reorganization of the industry with a joint arbitration board, make this a significant and interesting labor dispute of the year 1903.²⁷

The characteristics of construction give rise to a distinctive training problem. Contractors require a skilled workforce capable of undertaking specific craft activities.

However, because of constantly changing demand, any particular firm will only employ a core group of workers on a steady basis and will call upon additional workers depending on the number of projects underway. The high variability of labor demand lowers the benefit to any given company of investing in training for the workforce (beyond its key workforce). Craft training is also general rather than firm-specific, meaning that a worker can acquire skills through training from one job and employer and use them at another. The portability of craft training also means that individual construction firms will have a disincentive to invest in worker training.

The distinctive labor–management apprenticeship system arose in response to this problem. Typically, a joint labor–management fund finances and administers apprenticeship programs for an area. Funding is accomplished through payments made by all signatory contractors into the apprenticeship fund based on hours of work. The labor–management apprenticeship committee sets policies regarding the qualifications for incoming apprentices, the period of training, curriculum, mix of classroom and on-the-job requirements, and size of the incoming class. Local apprentice programs are often supplemented by regional and International union apprentice programs that attempt to standardize and upgrade curricular materials and provide support for training programs. As a result, at its most effective, the apprenticeship system serves as a means for labor unions to control the supply of labor in local labor markets by controlling skill training. Together with the hiring hall, historically these labor market functions provided labor unions with leverage in terms of their control of both people and skill (see the upper panel of Figure 1).²⁸

Thus, the development of contractors and their associations paralleled the growth of unions in the building trades. Many of the largest union contractors currently in operation began with a member of the trades, or built market specialties through the careful development of a core group of trade workers. The business life cycle of those union firms explains both the strength of the sector as well as the challenges facing it now.

The development of union electrical contractors in the Boston area illustrates this life cycle story. Many of the largest unionized electrical contractors in eastern Massachusetts originally entered the construction business by bidding on public jobs such as schools. Bidding on public work was attractive for young companies (frequently started by union electricians who desired to go into business for themselves) in part because of the more level playing field afforded by public construction. This allowed companies that began with little reputation to gain experience, scale, bonding capacity, and a core workforce. As these firms grew, they moved to larger-scale public work in the 1960s and 1970s, and, as time passed, developed areas of specialization and focused increasingly on more lucrative submarkets in private markets.²⁹

The path of nonunion employers often mirrored that of union contractors in terms of gaining experience and reputation through bidding and winning small work and gradually expanding their businesses over time. The nonunion experience differs, however, markedly from the union sector in several respects. First, nonunion contractors, often gaining experience in areas with little penetration (in sectors like

Table 2 Characteristics of Union versus Nonunion Contractors: Specialty Trade, 2002.

	All	Union	Nonunion
Frequency of union status (%) ^a	—	35	65
<i>Years in existence</i>			
10 or less (%)	21	13	25
11–20 (%)	33	40	29
21–30 (%)	24	19	27
31+ (%)	22	28	19
Mean (%)	24.4	27.2	22.9
<i>Number of workers employed in a typical month in the last year^b</i>			
10 or less (%)	58	35	71
11–20 (%)	14	24	8
20+ (%)	28	41	21
Median (%)	~10	~15	~8
<i>Background of contractor</i>			
Personally been a construction worker (%)	87	73	95
Firm used to be a union contractor (%)	8	NA	8
Firm seriously considered becoming nonunion (%)	9	9	NA
<i>N</i>	150	53	97

^aFrequencies represent weighted averages from survey data.

^bExcluding clerical and administrative workers. Survey excluded contractors with four or fewer workers.

residential or small commercial construction or in geographic areas far outside of metropolitan areas), have been less affected by the jurisdictional distinctions of the union sector and therefore more willing to adapt to the boundaries set by construction project managers or end users. Second, although many of the older nonunion companies began by drawing off workers trained via the union apprenticeship system, increasingly they have been recruiting from a workforce that is new to the industry and outside of formalized apprenticeship training.³⁰ Not only does this mean that employers must find other mechanisms to deal with the public goods training problem attendant in construction, but also that an increasing percentage of workers in nonunion construction have had little exposure to and therefore knowledge of unions.

These differences are illustrated by a comparison of union and nonunion contractors in a major specialty trade.³¹ Table 2 illustrates that nonunion contractors tend to be smaller (median of eight employees versus 15 for union) and in business for less time (with 25 percent in business for 10 or fewer years versus 14 percent for union contractors). Very few of the surveyed contractors had formerly been unionized, although a *higher* percentage indicated that the current business owner had been a construction worker prior to opening the business than among the union contractors.

Table 3 compares areas of business activity between union and nonunion contractors. Most striking are the very different markets served by the two sectors. Although both union and nonunion contractors indicate that they undertake a significant amount of work in commercial development (63 percent of union

Table 3 Reported Areas of Business Concentration: Masonry Contractors, 2002.

	All	Union	Nonunion
<i>Significant area of business concentration (percentage responding more than 25% of revenue from type of work)^a</i>			
Commercial development	56	63	52
Single-family residential	39	7	56
Multi-family residential	37	7	53
Schools	27	59	11
Hospitals and other health care facilities	21	44	9
Private office buildings	19	27	15
Government buildings other than schools	16	39	4
Hotels and casinos	14	27	7
<i>Percentage of work done in the public sector</i>			
None	13	1	20
More than 25% of work	38	61	25
More than 50% of work	19	38	9

^a Frequencies represent weighted averages from survey data.

contractors responding that 25 percent or more of their revenue comes from commercial work versus 52 percent among nonunion contractors), union contractors are virtually absent from the residential market, where nonunion contractors dominate, while nonunion contractors in this trade are absent from institutional settings like schools and hospitals. Finally, union contractors remain far more active in public markets than their nonunion counterparts.

Combining the prior discussion of the different technical and market contexts of the current and prospective industrial relations systems with the very different business trajectories of union and nonunion contractors has several important implications. Most importantly, it underscores that a new generation of contractors and construction workforces have developed in an industry and in sectors (most dramatically residential construction) where they have had limited experience with the union sector. At the same time, many established union contractors active in commercial and public construction are likely to have limited interest in expanding market share in areas where unions have lost their presence over time. This means that it will be difficult for unions to re-establish a foothold in many markets absent the recruitment or development of new contractors along with organizing new members. Existing union contractors might be potentially more successful in building market share in the public sector market for reasons described above. But that market is also becoming increasingly challenging given the changes in public sector bidding.

The Future of the Industrial Relations System in Construction

An impact in the form of a permanent change made at some point in an industrial relations system will work through the system to create a variety of other changes in the system and in the rules generated... [I]n a comparative statics sense, to change a

context of the environment, a policy of an actor, or the relations among them means an industrial relations system will play out changes in the rules.³²

The context of the industrial relations system in construction has changed fundamentally in the past few decades. The dramatic erosion of union market share is the most visible sign, but focusing only on density (and in a normative sense regaining market share) understates the magnitude of change that the industrial relations system has undergone and the difficulty of rebuilding a union presence in construction markets. I close this essay with a set of implications and open questions raised by the foregoing analysis.

1. Dunlop argued that a set of commonly shared ideas, beliefs, and values underlie an industrial relations system. These shared beliefs can be thought of as an underlying set of assumptions that actors use in making ongoing choices. The growth of a substantial and varied nonunion sector over the past decade, managed in large part by employers with little direct experience with unions and the historic model of industrial relations in construction, has profound implications for these shared assumptions. Although it is difficult to isolate new sets of assumptions that have arisen in the construction industrial relations system, the foregoing discussion implies that several longstanding assumptions may no longer be as widely held.

First, a significant portion of the construction industry now operates with relatively little union presence. This means that many workers currently active in the industry do not see unions playing a significant role in their industry. This differs markedly from the situation present through much of the last century where building trade unions played a role throughout a construction worker's time in the trades, from offering initial training in apprentice classes, to helping them find work, to providing for retirement security. The importance of unions was further supported by the tradition of one generation handing down the trade and union affiliation, usually from father to son. Although this tradition was a double-edged sword (in part reinforcing exclusion of racial and ethnic groups as well as women from the unionized sector), with so many workers now in the industry with few ties to the past industrial relations relationships, prevailing beliefs about the importance—or even relevance—of unions are now subject to question.

Second, assumptions about the definition of craft and trade are also in play, as the traditional role of jurisdiction has become increasingly challenged by how work is actually assigned on construction sites. Traditional questions about jurisdiction revolved around what craft should be awarded work, given agreements between trades and their associated contractors, as well as past practice and custom. Disputes arose from the introduction of a new technology that blurred historic dividing lines between crafts or from evolving practices in markets. But the premise of these definitions was that trade boundaries were ultimately definable (even if in dispute). Even more fundamental was the notion that it was the role of unions—not employers—to establish and enforce those boundaries.

As noted above, this conception of jurisdiction is now in dispute. Although the process of construction will continue to require specialization, the determination

of craft boundaries is becoming contested terrain. Without unions participating in the determination and policing of craft, construction managers operating outside of the traditional system play a growing role in determining boundaries. This represents a sea change that flows through the entire industrial relations system. Reasserting a role in the definition of craft—and at some level insisting that the idea of craft and jurisdiction are fundamental concepts to the operation of construction labor markets—will be a growing challenge in the future.

2. At the turn of the last century, building trades elicited the formation of employer associations and the development of the multi-employer structures that characterized the traditional industrial relations system. In contrast, owners and project managers are now driving the evolution of many aspects of the industrial relations system. I have presented a number of ways the ascendancy of construction managers and the growing influence of certain end users are reshaping the industrial relations system, including a shift in focus of competition to a regional/national rather than local basis in many sectors.

Some unions—the United Brotherhood of Carpenters being the most obvious case—are adapting to this by centralizing their structures to operate at a regional (state or multi-state) level. Internal tensions have arisen within those unions undertaking such organizational change where such consolidation is viewed as eliminating the identities of the most visible level of the union to many rank-and-file members as well as threatening the political position of local officers. But the larger forces of change that are making many local union structures irrelevant to the functioning of construction markets will force unions to either adapt or face further marginalization. As a result, even the most extensive organizational changes currently underway among the building trades are essentially reactive to the larger set of contextual changes discussed in this essay.

3. The continuing growth of the nonunion sector has raised fundamental questions about its future organization and its ability to deal with certain core problems in construction. The most obvious issue is skill formation. In the 1980s, the Business Roundtable (an organization composed of the CEOs of the largest corporations in the US and an early exponent of building nonunion competition to the building trades in the 1970s) argued that the open shop contractor was perfectly capable of handling its own training needs, and implied that the existing system overemphasized the skill content of construction: ‘The major economic advantage enjoyed by open shop contractors, who have snared most of the last decade’s growth in U.S. construction, is their freedom to use a high percentage of semiskilled workers, paid accordingly.’³³ Fifteen years later, the same organization admitted that

a major problem facing the construction industry is the industry’s inability to attract new people . . . and that . . . there is also a general feeling starting to bubble to the surface of deficiencies in the skill levels of craft workers caused by a lack of training or outdated training that has not kept pace with technological advances.³⁴

Training in construction represents a classic collective action problem. The multi-employer, labor–management apprentice system provided a lasting solution to

this problem, and remains one of the greatest competitive strengths of the union sector. The growth of the nonunion sector and the emergence of large and sophisticated contractors have not thus far generated an alternative solution to the skill problem. Although the Associated Builders and Contractors (the main open shop employer association) have publicized the development of open shop apprenticeship systems, analyses of their impacts on the development of skilled apprentices have shown them to be weak at best and paper facades at worst.³⁵ Future research should focus on how skill formation—however incomplete—is accomplished in different nonunion sectors, how construction methods are adapting to cases of skill shortage (such as through changes in the use of technology and other forms of labor substitution), and whether any evidence exists that sustainable multi-employer, nonunion forms of organization have emerged in any pockets of that sector.

4. One of the most important implications of this analysis is that for the union sector to survive, it must recruit a new generation not only of workers, but of employers as well. As hard as it is for unions to organize workers at the grassroots level, organizing and/or developing new contractors may prove even more challenging, because it entails dealing with a generation of employers with little or no experience with or ties to unions as established contractors of middle- and large-size leave the scene.

Elsewhere I have described the need for unions to develop comprehensive market recovery strategies that address both the labor and product markets.³⁶ Failing to integrate market recovery policies directed at organizing potential contractors with more focused organizing efforts inherently will yield limited results given the current position of the union sector in many construction markets. Sustainable shifts in market share require strategies composed of complementary policies by unions and employers that link tools of market recovery (e.g. developing new contractors to bid in markets long abandoned by the union sector) with organizing and other core activities such as apprenticeship development. The interrelated nature of market recovery efforts makes them difficult to put in place politically and institutionally, which helps explain why construction unions and their employer counterparts continue to adopt less effectual, single-pronged efforts.

5. John Dunlop often remarked that there was no such thing as an ‘unorganized workplace.’ All workplaces, he argued, had formal and/or informal rules and shared community beliefs. Roughly 80 percent of the construction sector operates under systems of workplace rules that are shaped by the forces described in this article. In some sectors of construction, such as the vast residential market, a significant percentage of the workforce are recent immigrants.³⁷ Many of these workers are undocumented and find work, acquire skills, receive compensation, and move between labor markets through informal networks of the above-ground as well as underground economy.³⁸ In other sectors, such as among very large nonunion contractors undertaking major industrial projects, the workforce has acquired skills through a combination of formal and informal training opportunities far different than the apprenticeship system historically associated with the building trades.

Yet the bottom line is that we do not know a great deal about the characteristics of day-to-day workplace practices at nonunion job sites in many markets. A final implication of this essay is the need to learn much more about the operation of the emerging industrial relations system of construction, through careful collection of quantitative microdata as well as through rigorous qualitative studies of the nonunion job site. Whether one seeks to employ an industrial relations system perspective for analytic or problem-solving purposes, it is imperative to understand how the contextual factors analyzed here have created and in turn are affected by the formal and informal rules governing the contemporary construction workplace.

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Notes

- [1] Palladino, *Skilled Hands*.
- [2] Erlich, 'Who Will Build the Future;' Grabelsky, 'Lighting the Spark;' Grabelsky and Erlich, 'Recent Innovations;' Linder, *Wars of Attrition*; Lewis and Mirand, 'Creating an Organizing Culture.'
- [3] For historic estimates and analysis, see Allen, 'Declining Unionization.' Based on household survey data from the Current Population Survey, the Bureau of Labor Statistics estimate unionization rates in construction of 16.0 percent in 2003 and 14.7 percent in 2004. See US Department of Labor, Bureau of Labor Statistics, 'Union Affiliation of Employed Wage and Salary Workers by Occupation and Industry.' News release, USDL 05-112, 27 January 2005, Table 3.
- [4] Dunlop, 'Industrial Relations System,' 258.
- [5] See Dunlop, *Industrial Relations Systems*, 44–48.
- [6] Ibid.
- [7] See, for example, Kaufman, *Origins and Evolution*, for an overview of the debate around Dunlop's framework.
- [8] Sweet, *Legal Aspects*, also discusses the complex legal risks in terms of worker and product liability arising in construction.
- [9] Eccles, 'The Quasifirm,' analyzes the relationship between general contractors and subcontractors in terms of transaction cost theory, arguing that the nature of construction makes 'quasifirm' forms of contracted organization superior to vertically integrating subcontractor trades into the general contractor.
- [10] Commons, 'New York Building Trades,' 410.
- [11] A hybrid form of GC/CM is also active in commercial and industrial sectors of construction. Unlike a CM, these contractors employ a small core group of skilled workers, but, in contrast to a traditional GC, this represents a very small group of workers.
- [12] There are other significant sectors of construction not addressed here, for example at one extreme heavy and highway construction characterized by very large-scale projects often

involving multi-state or national companies and at the other extreme the remodeling sector, characterized by single pick-up truck contractors. Some of the factors described above (such as the more permeable lines around jurisdiction) apply to these sectors as well. Other distinctive factors, however, are having an impact on some of the sectors not addressed here. For example, remodeling contractors are increasingly affected by changes in the supply chain of products. Home Depot and Lowe's have changed the dynamics of this sector by both expanding customers' choices of products and their knowledge of product pricing. This has had the secondary affect of squeezing contractors who are less able to hide part of their margin in the price of materials. See Roth, 'Consolidation in Distribution;' Abernathy et al., 'Residential Supply Chain;' Colton, *Housing in the Twenty-First Century*.

- [13] For example, large and established electrical contractors in the Boston-area market tend to view other unionized contractors as their most frequent competitors in the jobs they bid for rather than nonunion contractors. Based on a survey conducted by the author for the International Brotherhood of Electrical Workers (IBEW), Local 103 and the New England chapter of the National Electrical Contractors Association (NECA), October 2000.
- [14] This change is also illustrated among electrical contractors in the Boston area: only 23 percent of 'new' union contractors (those which have been in business fewer than five years) report competing against other union contractors for private sector work (IBEW/NECA Survey of Union Contractors, October 2000).
- [15] Azari-Rad et al., 'Introduction.'
- [16] For example, the formula for determining the 'prevailing' wage for federal projects has been adjusted a number of times under the Davis-Bacon Act.
- [17] The impacts of changes in prevailing wage laws on a variety of labor market outcomes are analyzed in detail in Azari-Rad et al., 'Introduction.'
- [18] See Dunlop, 'Project Labor Agreements,' for a history of PLAs and US General Accounting Office (GAO), *Project Labor Agreements*, for a discussion of their use and prevalence more recently.
- [19] This is not uniformly true, however. Those building trades associated with segments of construction that have long had a regional or national focus have emulated this structure in collective bargaining. For example, the Boilermakers union has long operated at a national level, given that many of its employer counterparts operate at a national level in the market for large-scale power plant construction projects. Other building trades unions have national collective agreements covering those employers that work at a national or international scale.
- [20] Ulman, *The Rise*; Palladino, *Skilled Hands*.
- [21] See, for example, Mangum, *Operating Engineers*, in regard to the Operating Engineers; Segal, *The Rise*, in regard to the United Association of Plumbers and Pipefitters; and Galenson, *United Brotherhood of Carpenters*, in regard to the United Brotherhood of Carpenters.
- [22] Section 6A of the United Brotherhood of Carpenters and Joiners of America constitution states, in part, 'The United Brotherhood is empowered, upon agreement of the Local Unions and Councils directly affected, or in the discretion of the General President subject to appeal to the General Executive Board, where the General President finds that it is in the best interests of the United Brotherhood and its members, locally or at large, to establish, or dissolve any Local Union or Council, to merge or consolidate Local Unions or Councils, to establish or alter the trade or geographical jurisdiction of any Local Union or Council.'
- [23] The Council By-Laws adopted with these changes state that 'the Executive Secretary-Treasurer shall be the Chief Executive Officer of the Council. The Executive Secretary-Treasurers shall be responsible for the management and supervision of the field activities, business office(s), and for conducting the daily business of the Council... [and] ... shall have the authority to appoint, hire, suspend, promote, or terminate Council representatives and organizers, subject to the approval of the executive committee of the Council.'
- [24] The UBC members were not allowed to vote for delegates to the Councils for five years following these appointments. When the first delegate elections under the new council

system were held in 2001, many of the appointed Council leaders were turned out as leaders from the pre-1996 period were elected as delegates. The Council structure has been challenged as a violation of member rights under the Labor Management Disclosure and Reporting Act.

- [25] For example, the number of regional councils had been further reduced from the target of 65 Councils adopted at the 1996 UBC Convention to only 43 Councils in the US and Canada in May 2005.
- [26] Dunlop, 'Industrial Relations System;' Mills, 'Construction.'
- [27] Commons, 'New York Building Trades,' 409.
- [28] Control over skill also causes areas of disagreement between unions and union contractors regarding a variety of training-related policies. Most common among them are disagreements relating to the ratio of apprentices to journeymen used by contractors on sites (unions typically support lower ratios and employers higher ratios). Setting the size of incoming apprentice classes can also be a controversial area, particularly during periods of construction growth. Employers on the one hand may seek to expand apprentice programs in order to meet growing labor needs. On the other hand, unions may be reluctant to expand programs rapidly because of concerns about the long-term consequences of increasing the number of people on the bench in the event of economic downturns.
- [29] Weil, 'Rebuilding Market Share.'
- [30] The exception to this would be workers trained via technical high schools or vocational two-year college programs. In fact, the Nixon administration increased funding and support for the community college system in part to create an alternative to the union apprenticeship system at a time of significant labor shortages in construction in the early 1970s (see Linder, *Wars of Attrition*, for a discussion of this issue).
- [31] These tables are based on a random, stratified survey of 53 union and 97 nonunion contractors undertaken by Peter B. Hart Associates, a major survey research firm, in 2002. Results are weighted averages based on overall employment by union status in the specialty trade.
- [32] Dunlop, *Industrial Relations Systems*, 17. Although he used the comparative statics approach in the core chapters of *Industrial Relations Systems* to examine national differences in a set of industries (including construction), Dunlop was uncomfortable with stopping there. Instead, he described the importance of historical evaluation of the 'development pathway' of industrial relations systems as they evolved in different national systems. This reflected his work with Clark Kerr, Frederick Harbison, and Charles Meyers regarding the convergence of economic and industrial relations systems generally. See Kerr et al., *Industrialism and Industrial Man*.
- [33] Business Roundtable, *More Construction*, 35.
- [34] Business Roundtable, *Construction Workforce Shortage*, 1.
- [35] See, for example, Bilingsoy, 'The Hazards of Training.' A recently released report by the AFL-CIO's Building and Construction Trades Department, using data from the Registered Apprentice Information System of the Office of Apprenticeship, Training, Employer and Labor Services of the US Department of Labor, concludes that 'almost every Associated Builders and Contractors apprenticeship program fails to provide this training to the majority of its apprentices,' based on the extremely low completion rate among ABC-sponsored programs (see Building and Construction Trades Department, 'A Final Report,' 1).
- [36] Weil, 'Building'.
- [37] Sum et al., 'New Immigrants,' estimate that more than 13 percent of all new immigrants in the US in 2003 worked in the construction industry as a whole.
- [38] This includes the practice of misclassifying construction workers as 'independent contractors' to avoid among other things unemployment insurance and workers' compensation costs (see Carre and Wilson, 'Social and Economic Costs,' for an analysis of the extent of this problem in Massachusetts).

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