# The Changing Structure of Work:

# Implications for Workplace Health and Safety in the US

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**Abstract:** The structure and organization of work are continually changing. Changes may be cyclical, reflecting economic and social conditions, including business cycles and labor market structures. Other changes, often resulting from new technologies, may be unidirectional. Whether or not the changes are temporary or permanent, employment arrangements affect worker exposures to workplace hazards and their ability to address them. In this paper, we focus on the effects on occupational safety and health (OSH) of relationships that have been described as fissured or market-mediated, including the staffing agency model, the franchised relationship, same site contracting, supply chain relationships, and contracting by a firm with many individuals. Worker safety may be affected by several factors, including economic pressures on contracted employers, the separation of control of the work environment from the employment relationship, and the short tenure of workers in some dangerous jobs. After summarizing the limited number of studies that attempt to measure the impact of these non-standard employment relationships on worker safety and health, we briefly discuss other changes in the labor market that affect OSH, and then turn to the policy and legal implications of these mediated relationships. Finally, we highlight the need for better data, safety and health surveillance, and research when employment relationships are fissured. The paper focuses on changes and strategies in the U.S., but provides some references to relevant international studies.

## Introduction

The structure and organization of work are continually changing. Changes may be cyclical, reflecting economic and social conditions, including both business cycles and changing labor markets. Other changes, often resulting from new technologies, may be unidirectional. Whether or not the changes are temporary or permanent, there is legitimate concern that some of these changes result in increased pressure on workers and working conditions and decreased regulatory effectiveness. The starting premise of this paper is that there should be no variance in the level of protection from workplace risks for workers, no matter what the employment relationship between employer and employee and no matter what the contracting relationships among firms. Today's complex world of work poses some new challenges while also retaining many of the risks that are the consequences of work organization and hazards that have existed for a long time. The challenges for effective intervention are therefore both continuing and evolving. We believe that this has always been true, and it requires policy experts and regulators to continually re-evaluate strategies based upon new risks, changing work organization, evolving technologies, and shifts in industrial mix.

Firms adopt various contracting and employment strategies in an effort to increase profitability, to focus on core expertise, to increase flexibility, to affect labor relations, and to create new boundaries that limit their statutory responsibilities or financial liabilities. These arrangements include firm to firm contracting for goods (through supply chains), contracting for workers (through staffing/ temp agencies or subcontracting to gain access to special expertise), delivering a branded product or service (through franchising), and delivering services through individual workers who may, or may not, be sufficiently independent to be classified accurately as independent contractors. In the "standard" employment relationships – often mythologized as ubiquitous in the past – the lead firm directly employs the workers and controls the site of work. In contrast, alternative employment arrangements may divide the core or lead firm from the site of work or from the direct employment of the workers. These arrangements may create uncertainty about responsibility for maintaining safe workplaces; lead to inadequate training, personal protective equipment, and communication with workers exposed to hazards; increase the number of workers in short-term or new places of employment (a known risk factor for injuries); increase the likelihood that reporting of injuries or illnesses will be incomplete or inaccurate; and decrease the ability of workers to communicate with each other and with the firm with the greatest ability to control the hazards.

At the same time, the attractiveness of these work arrangements is influenced by technological changes that enable firms to engage in control and monitoring techniques that further encourage the use of contracting arrangements to maximize firm profits. These new technologies also enable entirely new forms of work in what has become known as the "gig" or "sharing" economy, exemplified by Uber and Lyft ride services and internet-based job bidding web sites such as Task Rabbit and Mechanical Turk that have blurred the separation of work space and private space.

These new technologies also can result in increased oversight and monitoring within workplaces for both direct and contracted workers. Innovative computer algorithms and widespread use of smart phones have had a profound impact on some kinds of work and workplaces. Computer-enabled "just in time" staffing of enterprises to accommodate temporally variable client demand have changed

scheduling, created uncertainty for workers, and increased work-related stress in some segments of the workforce.

Other changes are occurring at the same time. New materials such as manufactured nanoparticles are being introduced into workplaces. Demographic and organizational changes within the workforce have changed the way in which workers themselves can respond to risk. Shifting labor force participation of female and older workers, decreasing worker voice as unions have declined, and a rise in the number of immigrants with a diversity of languages all affect safety and health prevention strategies.

This paper focuses on the nature of these employment relationships in relation to occupational safety and health risks and the adequacy of current regulatory mechanisms to respond to workplace risks. Contracting relationships may exert considerable downward pressure on wages and benefits, but relationships may have varying effects on occupational safety and health (OSH): while decreased attention to safety characterizes some models, there are also emerging relationships that may offer new opportunities for improved management of health and safety risks. New forms of production may include widespread adoption of less hazardous materials or processes. Shrinking of some higher-risk occupations, such as underground coal mining, means that over-all population risks may decline, while large and growing industries, such as health care, pose different and significant risks to workers.

These are all critical changes in the evolving nature of work, and some of them are beyond the scope of this paper. Here, we consider the following issues.

First, Part I focuses on evolving employment arrangements between and within firms and summarizes existing research regarding the effects of these changes on health and safety of workers. In discussing these arrangements, we provide an analysis of labor-market relationships, and we point to the specific consequences for OSH, noting both the potential opportunities for risk reduction and the areas of likely increased risk for workers. Our discussion of changes in the structure of work is necessarily brief. For more in-depth analyses, we refer the reader to Weil [2014] and Appelbaum et al. [2016].

In Part II of the paper, we turn to established regulatory models to ask how they function currently and can best respond to these challenges. Some of the changes require continued application or expansion of existing regulatory strategies. Others should motivate the development of new strategies. Changing work and work organizational issues pose regulatory challenges, but, within the context of OSH, some of these changes may present opportunities to leverage limited inspection and enforcement resources more effectively.

Part III briefly summarizes the challenges to injury and illness surveillance, data collection, and research created by the changes in work. It provides limited recommendations for future research that would focus on the effects of these changes in OSH and the effectiveness of regulatory interventions.

We reiterate one beginning point here: The inquiry with regard to health and safety effects of changing workforce relationships is not completely parallel to the inquiry regarding effects on wages and benefits. Pressures to reduce costs are likely to lead both to reduced wages and less attention to health and safety conditions. However, other aspects of the structure of work may affect health and safety conditions and wages differentially. For example, franchising arrangements create a central lead

firm that might require improved equipment to be adopted by all franchisees that thus gives better protection against hazards than equivalent independent small businesses might provide. We present one example of how this has worked in our discussion below.

## Part I. The effects of the changing labor market on safety and health

In Part I. A. we describe various employment relationships and the issues of increased risk that may be associated with these arrangements. Following this discussion, in Part I.B. we discuss some of the other changes in work that also impact safety and health.

### A. Standard and fissured employment relationships

We begin this section with a description of the "standard" employment relationship, which we believe remains the primary work organization model in the U.S. at this time. We describe the evidence of growth of alternative work arrangements and the evolving employment relationships that influence the nature of work and the OSH risks at work: contracting relationships among firms, including subcontracting and use of staffing agencies to provide labor; franchise arrangements and supply chains; and, to some extent, individual contracting arrangements. Note that we do not address the full category of contingent employment, which includes a variety of part-time and temporary work within firms, although there may be substantial commonalities with some of the arrangements described here.

We use the following definitional structure in discussing these models.

LEAD FIRM: The lead firm has the power to decide about contracting and to control the contracts with host and staffing firms. It is the 'top of the pyramid' or, as described by David Weil, the firm that sits "in the catbird's seat." [Weil 2014] p. 60.

SITE OR HOST FIRM: The site firm controls the work environment directly. In situations involving multi-employer sites, the employing firm may also be at the site, but may not have control over the full site. Note: OSHA refers to the primary contractor that has overall responsibility at the site at a multi-employer site as the "controlling contractor."

EMPLOYING FIRM: The employing firm directly employs the workers. The employing firm generally hires, pays wages and obtains mandated insurance coverage for its workers (unemployment, workers' compensation). In situations involving staffing agencies that supply workers to a site, this employer will share responsibility for a wide range of OSH issues with the host and lead firms.

**The lead, host and employing firm *may* be the same firm, or not, depending on the nature of the relationships.**

**The standard employment model**

In the standard employment model, the lead, host and employing firm are all the same. Production is carried out within the boundaries of a single firm, as differentiated from what Abraham and Taylor [1996] call "market-mediated work arrangements" and Weil [2014] calls "fissured employment." (We will use both terms.).

During a significant portion of the last century, firms sought vertical integration, that is, all activities from producing raw materials through sales to final consumers within the boundaries of a single firm. Of course, total vertical integration is virtually impossible. For example, it would have been impossible for an automobile company to do everything from mining coal, iron, and other raw materials through selling the cars to consumers; moreover, it would have had to own the companies that provided electricity to light its buildings and power its machinery, provided fuel to heat its factories, and so on. In fact, historically, there has always been subcontracting.

When observers and researchers talk about the single firm model, they generally describe large, profitable firms, typically of national or international scope. They also describe firms that have a particular labor model: long-term employment engagements, much of promotion coming from within the firm, and wages and benefits that often are better than could be expected in a firm that hired from the outside at market wages. These are the internal labor markets as described in the 1950s by Clark Kerr [1954] and later in more detail by Piore and Doeringer [1971].This type of employment arrangement was typified by the "big three" U.S. automobile manufacturers in the 1950s.

Many much smaller firms also are unified, in the sense that the same firm operates at a site with workers who were direct employees of the firm. The regulatory statutes governing employment that were passed in the 20$^{th}$ century were largely designed to address issues within these types of firms, where the lead firm, the firm that controls the worksite, and the firm that employs the workers are all the same.

In this standard model, employment, wage, and OSH issues arise within a single firm, and they are therefore easiest to regulate: the same firm controls the site, manages the workers, bears the risks, and makes the profit. This is similar to the description of Kalleberg, Reynolds, and Marsden [2003], although we do not distinguish here between part-time and full-time workers or between workers who are directly hired for a limited duration or are on call and those who are not. This unified employment arrangement, particularly in larger firms, often makes it simpler for an employer to maintain a safe and healthy work environment.

**Why would firms choose to externalize activities?**

Several factors may increase the attractiveness of having work done by individuals or firms outside the umbrella of the centralized firm.

First, if the firm experiences fluctuations in demand, it can respond by using workers who are not part of the regular workforce during those periods, rather than choosing to keep a regular workforce that will be fully employed only at peak demand, or scheduling substantial overtime work during periods of

high demand, or hiring workers directly during times of high demand and then laying them off as demand slows.

Second, work done outside the firm may yield economies of scale or indivisibilities that would make within-firm services more expensive than those that can be obtained in the marketplace. Examples include specialized information technology services, complex accounting services, specialty intermittent support services, or workers' compensation or health care claims administration.

Third, firms may simply choose to externalize work from the central firm in order to reduce employment costs by reducing wages, benefits and other employment costs. In economic theory, workers would be paid wages and benefits equal to their marginal product. In practice, there are many reasons why this will not be the case. In some cases, the rents (that is, excess profits above the minimum needed to keep the firm in operation) that some firms enjoy may end up shared with its workers. This may happen because a union bargains for a share of the firm's rents. Or firms may want to pay higher-than-market wages to workers who have gained firm-specific skills because this is more cost-effective than hiring and training workers from the outside. There is also evidence that firms that pay high wages do so throughout the skill spectrum. This evidence comes both from studies of the firm contribution to wage heterogeneity [Barth, et al. 2014, Gruetter and Lalive 2009] and from studies of changes in the wages of less-skilled workers when jobs are outsourced [Dube and Kaplan 2010]. On the other hand, there is less reason for a firm to pay high wages to relatively unskilled workers, particularly if they do not need firm-specific skills. Having lower-skilled work done by non-employees allows the lead firm to capture some of the difference between the wages paid to less-skilled employees within the firm and outside the firm.

Fourth, firms may seek to reduce regulatory and social insurance costs, some of which may also be employment costs. If jobs are moved to firms that evade U.S. labor and environmental laws and regulations or to countries with more permissive laws, then those firms' costs may be lower—thus allowing the contracting firm to buy goods or services at a lower cost. Similarly, if jobs are moved to small contractors that are not experience-rated for workers' compensation, then these contractors will have injury costs that are unresponsive to injury rates. Lower workers' compensation costs may also reflect misclassification of workers by staffing agencies to categories that reflect less overall risk, and thus lower insurance rates.

Finally, staffing agencies may be used to employ potentially permanent hires. Going through a staffing agency may make it easier to quickly replace workers who don't meet the company's needs. This may be particularly true in unionized firms.

Weil [2014] also argues that institutional factors can lead firms to shed employment of low-skill or non-essential workers. These include greater pressure to increase profits from capital markets, executive compensation tied to firm profits, and management theories that encourage firms to focus on their core competencies.

**What is the evidence of significant recent growth of alternative models?**

There is evidence that the fraction of employment that lies outside the umbrella of the consolidated 'standard' firm model has been growing for decades. This growth has become the focus of

considerable policy debate in recent years, fueled most recently by the publication of David Weil's research on fissured employment.

Evidence of this growth is strongest in the professional and business services sector, in which services are provided by firms in this sector to other firms. In contrast, the administrative and support services subsector of this sector, probably the most directly relevant to this paper, employed over eight million workers in 2014, almost double its 1990 employment. This subsector includes both professional services such as accounting, legal, and information technology, and less-skilled services including janitorial and security services where OSH risks may be high. Firms in this sector provide general staffing assistance (ranging from professional employer organizations that provide administrative services to temporary help firms that employ unskilled workers) or specialized services such as payroll, benefits administration, or workers' compensation administration.

Evidence of growth of non-standard employment arrangements also comes from studies of specific occupations. For example, Dube and Kaplan [2010] examined outsourcing of janitors and guards from 1983-2000 using the Current Population Survey (CPS). They found a 31 percent increase in the proportion of janitors with outsourced jobs and a 24 percent increase for guards.

Notably, growth in specific areas of outsourced employment has varied among specific types and over time. Tables 1A and 1B compare the overall change in employment for the U.S. economy with employment changes in specific industries within the administrative and support services sector for 1990-2000 and for 2000-2014. During the earlier period, overall employment grew by 21%, as compared with only 5% in the later period, which includes the Great Recession. Employment in the administrative and support services sector grew by 80% in 1990-2000 (at almost four times the overall growth in employment) but only 6% in 2000-2014, or one percentage point more than the overall employment growth rate. Employment services, the largest industry within administrative and support services, showed an even greater fluctuation between the two periods, plummeting from growth of 154% in the earlier period to a decline of 9% in the later period (Figures 1a and 1b). Some of the other industries in this sector showed growth that was slower than overall employment growth in the later period, but some showed faster growth.

It is not surprising that the employment services industry saw a large downturn during the Great Recession. A major function of this industry is to provide temporary employees for firms during times of increasing demand because releasing temporary employees is easier and cheaper than laying off longer-term employees. They are often hired for jobs involving relatively little firm-specific skills. However, we do not know the extent that the change in employment in this sector is related to the business cycle and to what extent this represents a change in the trend toward using temporary employees. We suspect that the trend in growth of the employment services industry has slowed considerably.

Weil [2014] makes a convincing qualitative argument that there is substantial and continuing growth in franchising, offshoring, and domestic outsourcing of production. Still, there is limited quantitative evidence of past growth in these activities, in large part because of data availability. We see no strong reasons for assuming that there will be continued growth in these sectors, although we cannot rule this out.

**Types of market-mediated work arrangements and their impact on OSH**

The downward pressure on wages and working conditions that may be created by the forms of many of these models has been well-described previously. (See [Weil 2014] and [Handwerker and Spletzer 2015].) If the motivation to go outside the lead firm is to capture firm-specific rents and the firm supplying the labor, services, or products is in a more competitive market than the lead firm, then we may expect to see a reduction in wages for people performing those tasks. This is what has been observed in some research studies [Berlinski 2008, Dube and Kaplan 2010, Kalleberg, et al. 2000]. Research has shown that franchised locations may violate wage and hour laws more often than locations operated by the lead firm [Ji and Weil 2015]. The factors that produce lower wages and wage and hour violations may also result in cutting corners on providing a safe and healthy workplace. In a study of 13 U.S. industries, Filer and Golbe [2003] found that serious violations of OSHA standards were inversely related to firms' operating margin.

However, it is also important to note that if a task is outsourced because an outside individual or organization has superior, highly-valued human capital or enjoys economies of scale, then it would seem much less likely that outsourcing would reduce pay levels or OSH conditions. There is evidence that pay levels are high in some types of outsourced jobs [Houseman, et al. 2003, Kunda, et al. 2002].

In this section, we describe the basic, simple forms of market-mediated, or fissured, employment arrangements, and summarize the research that focuses specifically on OSH effects within these arrangements. In many cases, hybrid or multi-layered arrangements may occur. For example, a franchisee may hire workers from a staffing agency and subcontract janitorial services. Still, we think that a simple taxonomy is useful.

**#1: The staffing agency model**

In the staffing (or "temp") agency model, the lead employer and the host employer are the same. We use "staffing agency" to encompass all types of firms that provide workers to another employer – from janitors to temporary construction workers to essentially permanent placements of both unskilled and skilled workers. The staffing agency hires and pays the worker, but does not have direct control over the worksite. In essence, the agency is supplying workers to the lead/host employer, but the lead/host has control over the conditions at the worksite.

This creates a triangulated relationship, with the employment relationship running between the staffing agency and the worker, while the lead/host firm and the staffing agency have a contractual relationship between themselves. These inter-firm contracts specify a wide range of issues, including issues of liability and insurance (such as workers' compensation). The services provided take place at the lead firm's site under the lead firm's specifications. Specific services are provided by the contracted staffing agency that may not have supervisory personnel at the work site. These services may include, for example, security, janitorial and landscaping services, among others. Not included here are multi-employer sites, discussed below, at which a variety of subcontractors provide services under their own supervision, while operating under the primary umbrella of a general (controlling) contractor.

*Evidence about OSH effects of the staffing agency model*

We have found only a handful of studies that directly address the impacts of new fissured employment arrangements on occupational safety and health in the United States, and even fewer of staffing agency workers. We focus on the U.S. because differences among countries, including in employment laws as well as differences in the employed populations, make it difficult to know the cross-national transferability of findings. There is a substantial international literature on this, for example the work of Quinlan, Mayhew, and their colleagues [Gregson, et al. 2015, Mayhew and Quinlan 1997, Quinlan 1999, Quinlan 2015, Underhill and Quinlan 2011]. The international literature on precarious employment as a social determinant of health has been reviewed recently [Benach, et al. 2014].

Older studies have looked at arrangements that involved these types of triangulated relationships. About twenty years ago, Rebitzer [1995] studied the impact on occupational safety of subcontracting of maintenance and turnaround at petrochemical facilities. He found that managers at the facilities were instructed to maintain an arms-length relationship to the contractor employees. This was believed to be necessary in order to limit the facility owners' liability for contractor actions and for workers' compensation benefits for work injuries. In the course of this study, Rebitzer found a chemical company memo indicating that managers should not instruct contract employees on how to work in compliance with plant safety procedures (p. 44). A statistical analysis found that contract employees, especially those who worked less than one year at the facility, had substantially higher injury rates than did direct employees.

In a related paper [1994], Kochan, and his co-authors provided recommendations to OSHA that are still relevant today. Three of these are: (1) holding plant managers accountable for the safety of all those working at their sites, including employees of contractors, (2) requiring plant managers to collect site-specific safety data for direct-hire and contract workers, and (3) establishing minimum training standards appropriate for the different types of work employees perform in petrochemical plants.

Evidence from high risk industries such as petrochemical, construction and trucking indicate the negative effects associated with contracting out work may result from a desire by companies to avoid liability or regulatory oversight [Azari-Rad, et al. 2003, James, et al. 2007, Rebitzer 1995].

Muzaffar et al. [2013] compared data on contract workers and direct employees in all U.S. mines between 1998 and 2007 to determine if there were notable differences between the two groups in relation to fatal mining accidents. Their data indicated that the univariate odds of a reported fatal incident as opposed to a reported non-fatal incident were 2.8 times higher for contract workers than operators. They also utilized a multivariate model, which associated other factors with fatality. These included being a contract worker, being more than 8 hours into a working day, and having less overall experience in that specific mine. They found that contractors had higher reported fatality rates than direct employees but lower reported non-fatal injury rates. It is not clear whether the non-fatal injury rate finding is an artifact of differential reporting. Also, if limited mine experience is a mediator between being a contract worker and experience at a specific mine, this study may have underestimated the impact of contracting on injury rates.

A 2011 NIOSH study, led by Pappas and Mark [2011] suggested that contractors in underground coal mines had substantially higher injury rates than direct mine employees, but that the disparity in rates had almost disappeared by 2009. However, these comparisons did not control for differences in the

occupations of contractors and direct employees. Contractors are often employed to do specialized tasks like trucking and ventilation work that may not otherwise be done by direct employees.

Several studies of staffing agency workers have found elevated injury risk. An early study at a plastic products manufacturer found that staffing agency workers had well over twice the injury rate as permanent workers [Morris 1999]. The authors stated that the two groups did similar work and received the same job training. Injury rates were not adjusted for age, gender, tenure, or other potential confounders.

Other studies have focused specifically on temporary workers. In a study of needlestick injuries of hospital nurses, Aiken, Sloane, and Klochinski [1997] found that temporary nurses had an elevated injury rate. Using workers' compensation data from Minnesota, Park and Butler [2001] found substantially higher claim rates among temporary agency workers. Two studies using Washington State workers' compensation claim data found qualitatively similar effects [Foley, et al. 2014, Smith, et al. 2010]. Smith et al. [2010] found that temporary workers had estimated claims rate ratios double those of permanent workers in manufacturing and construction.

ProPublica reporters merged Florida 2011 workers' compensation data with occupational employment data from the Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES) program [Pierce, et al. 2013]. They focused on comparing injury rates for occupations in the employment services industry group (5613) with those not in this industry group, controlling for age group, sex, and a measure of whether a job was hazardous. Using logistic regression, they found an odds ratio of close to four for injuries of temporary workers compared with other workers. We reran their analysis using negative binomial regression to model their count data and obtained an incidence rate ratio of 3.53 (95% confidence limits 2.76 to 4.51). Using either method, it is reasonable to conclude that temporary jobs are, on average, more hazardous than other jobs in occupations with similar overall injury rates. Furthermore, in the event of injury or illness from work, there may be inadequate recordkeeping or reporting by either the host or the employing firm, either because of true confusion as to who is responsible for recording and reporting or by intent.

Benavides et al. [2006] conducted a study of Spanish temporary workers, including both staffing agency workers and individual temporary workers. They found rates of fatal and non-fatal occupational injuries were 2.5 to 3.0 times as high among temporary workers. However, when accounting for gender, age, occupation, and company-specific length of employment, the rate ratios became insignificant and close to 1.0. Length of employment appeared to be the most important contributor to the excess risk of temporary workers. Given the differences, as noted above, among countries' underlying systems, it is difficult to know whether this study is applicable to the U.S. environment.

One reason to go outside the firm is to respond to fluctuations in demand, temporarily hiring workers in times of increasing cyclical demand and laying them off during slack periods. Temporary workers hired during times of high demand may have similar pay rates during their employment, but their relatively short tenure at a specific workplace may increase their OSH risks, because of unfamiliarity with the hazards at a worksite, less OSH training relevant for the specific job supplied by either the staffing company or the host company, and more distant relationships with longer-term workers who could help navigate worksite hazards.

Temporary and short-term workers, frequently hired through employment agencies, may be particularly vulnerable to workplace safety risks. As noted in a recent OSHA White Paper [OSHA 2015]:

> New workers often lack adequate safety training and are likely to be unfamiliar with the specific hazards at their new workplace. As a result, new workers are several times more likely to be injured in the first months on the job than workers employed for longer periods. Consistent with these findings, OSHA has investigated numerous incidents in recent months in which temporary workers were killed on their first days on a job. Temporary workers are also likely to be newly assigned to unfamiliar workplaces multiple times in any given year and may carry this increased risk as long as they are in the temporary workforce. For employers, there is less financial incentive to invest training resources on temporary employees because shorter tenure will yield a lower return on investment than similar investments for permanent employees. OSHA has encountered many situations, including some in which temporary workers have been killed, in which employers have chosen to not provide required safety training to temporary workers. And the temporary workers themselves, recognizing the precarious nature of their employment, are less likely to complain to their employers, or to OSHA, about the existence of even serious hazards [Foley, et al. 2014, Grabell 2013].

Workers in non-standard employment relationships, particularly in these triangulated contracted relationships, are often subject to the same occupational hazards faced by others in the same work environments in standard employment relationships. But these workers are likely to have little control over their work schedules or pace, may be hired only during periods of high demand, and have few social supports in the workplace. They may also have limited training in job tasks, associated risks, and the means to prevent injury or adverse health exposures. The availability of personal protective equipment and the knowledge of how and when to use it, may be limited. And, in some cases, they may be assigned to the most dangerous jobs [Mehta and Theodore 2006].

Protections from hazards may be diminished and their vulnerability to a broad range of adverse effects may be exacerbated by the nature of their employment relationship. Workers in these relationships, particularly those who are short-term or seasonal workers, may be more subject to job stress and its adverse health consequences and less likely to benefit from the workplace factors that may mitigate these effects [Cummings and Kreiss 2008]. Job stress can result in both physical and psychological disruption. Prolonged job strain is thought to lead to increased cardiovascular disease, musculoskeletal disorders, sleep disruption, and psychological disorders. According to a recent analysis of General Social Survey data, exposure to harmful workplace practices such as job insecurity, low job control, high job demands, and low social support at work may explain a significant proportion of observed inequality in life spans in different demographic groups in the US [Goh, et al. 2015]. The growth in non-standard employment relationships that result in increased exposure of less educated and ethnic minorities to harmful workplace practices may thus ultimately result in diminished life expectancy. These findings are consistent with a longitudinal mortality study of temporary workers in Finland that found workers moving from temporary employment to permanent employment had lower death rates than those who remained as temporary workers [Kivimäki, et al. 2003].

Finally, these workers may have less access to health insurance and workers' compensation benefits [Asfaw 2014, Mehta and Theodore 2006], causing greater financial strain and interfering with recovery from injury or illness.

**#2: The franchised relationship**

In the franchised relationship, the lead – the power firm in the relationship – is the franchisor. The franchisee is the direct and the host employer, with day-to-day direct control of the worksite, although this control is tempered by the terms of the franchise agreement which will often set out specific requirements for the worksite. This includes many fast-food chains, but also janitorial firms, security firms, and others. In contrast to the staffing agency model, this looks diagrammatically linear, rather than triangulated: the lead firm contracts with the site firm which contracts with the employees; but the lead employer and the site employer are not both at the worksite.

The franchisee is governed by explicit contractual terms and delivers a product or services to an outside buyer based upon the requirements of the franchisor. The franchisee often looks like a small business, but the franchisor exercises significant control. The regulator can easily reach the franchisee, as it is the site employer, but would have more leverage if it can reach the franchisor and either persuade the franchisor to require OSH measures in the franchise contracts or persuade the franchisor to change other contractual terms that may impact OSH. For regulatory purposes, the nature of the franchise agreement and the extent to which the franchisor and the franchisee are sharing in the local enterprise will matter.

Franchising may offer significant opportunities for regulatory and public health agencies to improve worker safety by focusing on the lead employer (the franchisor) and promoting changes that result in improvement in safety in all franchised establishments. This may mean that, in some cases, a business that would have been a "small business" – with all the economic, policy and regulatory challenges this entails – may in fact be sufficiently connected to a lead employer to provide opportunities for effective OSH interventions.

Although we found no published quantitative studies of the impact of franchising on worker health and safety, a recent example successfully employing this strategy is instructive. The Occupational Health Surveillance Program of the Massachusetts Department of Public Health, through its ongoing surveillance of workplace burns, identified poorly designed coffee-makers as the source of a number of serious burns in franchised coffee shops. The burns resulted in the need for emergency medical care and, in some cases, permanent impairment. The franchisor specified the kind of equipment the franchisees needed to use and sold this equipment to the worksites. The franchisor agreed to design an equipment retrofit and then contractually to require franchisees to adopt the retrofit. When ongoing surveillance indicated a continuation of the burn problem, the franchisor ultimately agreed to require the use of newly designed coffee makers that appear to have greatly diminished the burn risk at multiple sites.

**#3: Same site contracting**

This model involves multiple employers operating at a single site. Subcontractors direct the work of their own employees, but the ultimate responsibility for the worksite (and work product) is shared with

the controlling host employer. This model is most common in construction, where the lead employer is sometimes termed the "controlling" contractor. In construction, subcontracting is common, and subcontract workers are faced not only with the hazards of their own jobs but hazards emanating from other activities at the site. An example of this is in a study of electrical subcontractors' exposure to hazardous noise levels emanating from other contractors at the worksite, even though their own activities are relatively quiet [Seixas, et al. 2001]. Notably, while there is an extensive literature regarding construction hazards generally, there is a dearth of studies that specifically focus on the effects of subcontracting on OSH outcomes in multi-employer sites.

**#4: Contracting by a firm with many individuals**

In this model, a central firm develops individual contracts with individual workers. This is an arena of considerable current dispute regarding the classification of these workers as independent contractors. Within the OSH field, the problem is further exacerbated by the fact that these workers work in disseminated sites, often not under the control of the lead firm, but not necessarily under the control of the worker. In the Uber model, for example, the place of work – the vehicle itself – is arguably within the sole control of the worker, with specifications set by the firm. The roads are, of course, not within the control of any of the firm, though this does not differ from the on-the-road hazards of other workers. In the home health aide model, on the other hand, the place of work is under the control of the customer/client, and the aide may confront considerable risks from both the physical workplace and the difficulty in caring for patients who may pose both physical and emotional risks for the caregiver. In all of these models, OSH interventions – beyond requirements for training and communication – would be difficult.

We did not identify any published evidence about the OSH impact of this form of market-mediated employment.

**#5: Supply chain relationships**

When one firm contracts with another to complete portions of the work, a supply chain is formed. While often discussed within the context of globalization, this also occurs within the U.S. In this situation, the lead employer contracts with another employer for the delivery of particular goods that meet specifications. It is up to the contracted employer to figure out how to do this, including making decisions regarding further contracting, either for workers or with another firm that will provide part or all of the product. The lead firm may have potential contractual authority over a range of production issues that could govern conditions at the site of the direct employer, but this authority is exercised infrequently.

Supply chain competition domestically or from abroad can increase economic pressures on domestic firms competing internationally. In principle, subcontracted (outsourced or offshored) work can be done by profitable well-established firms or by marginal firms that are under substantial economic pressure. There is some evidence that OSH risks are greater among marginal subcontractors. McManus and Schaur [McManus and Schaur 2014] estimated that increased Chinese import competition in the period 2001-2007 led to substantially higher injury rates in affected U.S. industries and that small plants were particularly affected. Supply-chain policies and practices have significant

impact on safety conditions worldwide as exemplified by the Rana Plaza disaster [Manik and Najar 2015].

### B. Underlying changes in the nature of work and the health and safety consequences

Underlying changes in the nature of work, including technological changes, and changes in the labor market both independently change OSH risks and also interact with changing contractual arrangements. Detailed discussion of these other trends is not the primary focus of this paper, but it is important to note that these other changes may, in fact, be as significant in the evolution of OSH challenges as those discussed in the prior section.

First, new technologies are disrupting existing patterns of work and are likely to continue to do so in the future. For example, improved accuracy of analytic models of consumer demand has enabled employers to fine-tune work schedules to meet production needs [Greenhouse 2015]. Last-minute schedules make working hours less predictable for the worker and have negative impact on necessary non-work arrangements, including childcare and other family responsibilities. Wireless tracking technologies combined with delivery route adjustment based on real-time traffic conditions, such as those implemented by UPS, improve the efficiency of parcel delivery and reduce fuel costs but also change the balance of worker control of job pace versus demand. Warehouse "fulfillment centers" are adopting voice recognition "picking" technologies with computer generated voices pacing and directing workers that may (at least initially) improve worker efficiency and reduce error, but also result in closer monitoring of worker performance, reductions in worker control over job pace, speed-up and attendant mental and physical risks. An example of this is Dematic Pick-to-Voice, described on their website [Dematic]. It is these technological changes that enable the "gig" economies such as Uber and Taskmaster, but they also dramatically affect work within more standard employment relationships. In fact, these new unforgiving technologies allow a return to an extreme form of Taylorism. They have the potential to increase psychosocial stressors and increase work-family conflicts, particularly for workers with dependent children.

Second, sectoral shifts mean that important job growth is in isolated environments often subject to contracting arrangements. The growing need for in-home health care is a critical example where OSH hazards are high and work is dispersed. Increased dispersion of work is further enabled by technological interventions. On the other hand, employment in some dangerous industries, such as underground coal mining, is declining.

Third, workers have decreasing ability to voice concerns about health and safety, as well as other issues. Union membership has been declining in the U.S. for many years (Figure 2), and unions have played a substantial role not only in protecting their own members but supporting laws and institutions that attempt to protect all workers. Protections for raising concerns exist only on paper for many. We discuss this more fully in the next section.

Fourth, the workforce itself is changing in ways that create new OSH challenges. There is, for example, a higher labor force participation of older workers and of women; the number of immigrants in the workforce is high, with challenges of both language and, for those who are not documented, increased vulnerability to retaliation.

Fifth, there are new exposures – such as nanoparticles – that pose risks that are still being assessed.

These underlying, and in some cases non-cyclical, changes may be at least as important as changes in labor market structures in affecting OSH and therefore in developing a strategic approach to reducing OSH risks.

**Part II: Strategies to improve health and safety in fissured employment**

The overall goal is clear: to protect all workers, to the extent feasible, from illness, injury or death from hazards at work. While regulation of health and safety in single firms is challenging, the regulation of fissured environments is undoubtedly more complex. Nevertheless, all workers need to be fully aware of the hazards they face; effective communication and education is just as critical for employees hired through staffing agencies, as is the need for appropriate personal protective equipment, training, and careful attention to exposure histories irrespective of length of employment with an individual host firm. All workers must be able to raise concerns about safety without fear of retaliation from a direct or an indirect employer. Regulatory interventions should, to the extent possible, cross employers' contracting boundaries in order to reach the entity that has the most potential to control hazards for the largest number of workers – generally the lead firm. Assistance should be provided to employers, particularly small and medium-sized employers, to educate them in how to meet their health and safety obligations. Similarly, irrespective of contracting relationships, it is critical to ensure accurate reporting and effective surveillance. And there should be alignment of liability to hold responsible parties accountable for exposures that lead to illness or injury.

These goals require, in non-standard employment relationships, reaching up through layers of contracting (franchises, supply chains, multi-site employers, single site multi-employer) and out across triangulated contracting relationships (staffing agencies and complex subcontracting).
The 'gig' economy poses different issues, as people generally work alone, often from home or in solo settings. This particular set of issues will require new approaches to worker education, communication, and general (non-workplace-centered) public policy.

Health and safety regulatory policy is only partly a matter of enforcement of the OSH Act's standards and general duty clause. Instead, we must think about all of the available regulatory levers as well as the tools available to workers who seek to improve their health and well-being.

The problem of preventing injury and disease from work differs in some fundamental ways from the problem of wage violations. In wage collection, the goals are to find an entity that will pay wages that are due and to counter misclassifications that remove workers from the protections of the wage and hour laws and social safety net. To accomplish this in fissured workplaces, it may be necessary to identify the lead firm that may be setting wage requirements or establishing policies that misclassify workers. In contrast, responsibilities for health and safety are tied to place – the place where workers work and the policies that govern the work environment.

There are several intersecting areas of policy that must be addressed, and they intersect in various ways with the types of employment arrangements that we have described in the prior section. We

address three of the critical areas below. A fourth – potential legal and policy approaches in the states – is an important part of the puzzle, but is generally not addressed in this paper.

**#1: Worker voice**

The ability of workers to raise concerns about health and safety risks is critical to successful OSH policy. It goes without saying that the regulatory reach of OSHA (and state plans) is limited, given the inflexibility of standards, the difficulty of mounting general duty cases, and the inadequacy of administrative resources. As noted above, union membership has declined overall, so that only about 7% of the private sector workforce is now covered by collective bargaining agreements, most of which guarantee job security to workers through 'just cause' and progressive discipline provisions. With this decline, the strength of health and safety efforts has also diminished within the union movement. In addition, although a few state statutes require joint health and safety committees, these committees function more effectively in unionized than in non-union workplaces [Weil 1999]. Moreover, these state-created committees exist in a gray area of legality as a result of the preemption of state law by the National Labor Relations Act (NLRA) and the reach of §8(a)(2) of that Act, 29 U.S.C. §158(a)(2) which prohibits employer domination of workplace organizations that function as labor organizations within the meaning of Section 2(5), 29 U.S.C. §152(5). See Electromation, Inc., 309 N.L.R.B. No. 163 (Dec. 16, 1992). Joint labor-management safety committees established outside of union-organized workplaces are therefore viewed as suspect by the NLRB, even when established pursuant to a state law that mandates that the committees be created. See NLRB Office of the General Counsel Advice Memo, Goody's Family Clothing, Inc., Case No. 10-CA-26718 (Sept. 21, 1993). Non-union private sector workers are almost universally "at-will," with no job protection other than that offered by specific employment laws that provide very limited rights that are difficult and often expensive to enforce. Thus, there is no easily accessible route for most workers to raise OSH concerns, and workers must take significant risks to come forward.

The existing protective laws do not make up for fear of retaliation and lack of on-the-ground protections. There are two primary sets of relevant, though limited, laws. The whistleblower laws, enforced by OSHA, vary in their level of protection. In particular, the protection offered to workers in general industry for raising health and safety issues (or related activities, such as reporting injuries) under Section 11(c) of OSHA is notoriously weak [Spieler 2014]. Nevertheless, it is important that Section 11(c) says, "No *person* shall discharge or in any manner discriminate against any employee…" On its face, this language does not require a claim be made against the direct employer. To our knowledge the interpretation of these laws has not yet been used to include complaints against host or lead employers. If the non-direct employer is complicit in the discriminatory or retaliatory acts, however, there is no reason why this could not be done. In fact, a similar argument was recently sustained in a case involving a temporary worker under Title VII, where the statutory language is less broad: In the case of Faush v. Tuesday Morning, Inc., 808 F.3d 208 (3d Cir. 2015), the site employer was held responsible for discriminatory conduct involving a worker employed through a staffing agency, where the site employer itself engaged in discriminatory conduct including job assignments.

The second arm of protection, under the NLRA, extends protection to workers who collectively raise concerns about working conditions, irrespective of their union status. The National Labor Relations Board [NLRB] has moved ahead to reach both franchisors – in a case involving McDonald's USA – and

host employers that use workers through staffing agencies. The question is whether the direct employer and the host or lead employer are "joint employers" under the NLRA. In the case involving McDonald's, the NLRB General Counsel issued complaints against both the franchisees and the franchisor, alleging that actions were taken against the workers in the franchises for engaging in protected activities and that the franchisor, McDonald's, was sufficiently involved to constitute a joint employer under the statute. According to the General Counsel, "Our investigation found that McDonald's, USA, LLC, through its franchise relationship and its use of tools, resources and technology, engages in sufficient control over its franchisees' operations, beyond protection of the brand, to make it a putative joint employer with its franchisees, sharing liability for violations of our Act."

In Browning-Ferris Indus. of California, Inc., 362 NLRB No. 186 (Aug. 27, 2015), addressing the issue of staffing agencies, the Board broadened the definition of joint employers – returning to an earlier accepted definition – and determined that a host/lead employer was a joint employer responsible for collective bargaining with the employees of a staffing agency as long as the host employer was able to exert at least indirect control over wages, hours and other terms of employment:

> In this case, for instance, BFI communicated precise directives regarding employee work performance through Leadpoint's supervisors. We see no reason why this obvious control of employees by BFI should be discounted merely because it was exercised via the supplier rather than directly.

The Board concluded:

> The Board may find that two or more entities are joint employers of a single work force if they are both employers within the meaning of the common law, and if they share or codetermine those matters governing the essential terms and conditions of employment.

These cases are notable when considering health and safety issues for three reasons. First, they indicate that workers who collectively raise health and safety concerns may have recourse, under the NLRA, against lead and host employers – taking both negotiations and protection for concerted activity 'up the food chain' to the potentially most influential entity. Second, they will allow workers employed by staffing agencies and franchises to organize unions that reach across the firms' contracting lines – a unionizing effort will involve both the direct and the host, both the franchisee and the franchisor. Third, these legal analyses have relevance to interpretations of the OSH Act, discussed in the next section.

Despite these potential areas of protection for workers in non-standard employment relationships, the laws and the level of job security are weak for all at-will workers. The number of complaints brought under these laws – and related laws where retaliatory or discriminatory conduct involving health and safety or work injuries is alleged – is overall quite small. This may mean that retaliation is infrequent, and that workers bring forward their concerns without facing retaliation. Alternatively, based on persuasive data regarding under-reporting of both hazards and injuries [Azaroff, et al. 2002, Spieler and Wagner 2014], it is likely that the problem is, in fact, that retaliation is often not reported, and that non-union workers are particularly reluctant to voice concerns about safety – or even to report injuries. These rights are further attenuated for workers who work alone as home health aides or in

other similar positions, as they face additional barriers to raising a collective voice. Individuals employed through staffing agencies – particularly if they are made more vulnerable by their immigration status – also face special barriers, particularly if they are assigned to worksites for brief periods of time, or they are immigrants without adequate documentation. This means that the protection of worker voice, a critical foundation for improved health and safety, is extremely weak. Aggressive enforcement of the available laws is critical, but may not be adequate to address the level of vulnerability faced by most workers.

**#2: Legal interventions to address workplace hazards**

The goal for an OSH strategy should be to focus where interventions will have the broadest and most lasting impact. This is particularly true in situations involving complex relationships among employers and resulting confusion for workers. OSHA practice has historically recognized this need, and this recognition predates the current discussion regarding non-standard employment arrangements. Recent developments in enforcement suggest that OSHA is pursuing a more strategic and aggressive approach.

First, OSHA has engaged in various strategies for targeting hazards and hazardous industries for some time. Now, with the OSHA Information System (OIS), OSHA can better evaluate its own enforcement targeting, and continually improve its targeting efforts. As data sources improve, so will the possibility for relying on this feedback loop to improve targeting efforts that can affect behaviors across an industry. The recent revision of the emphasis program on amputations and the development of regional emphasis programs on the poultry industry are examples of newly designed targeting efforts. OSHA has also invited interested parties to advocate for new targeting. Changes in OSHA's programmed inspection policies and practices and development of emphasis programs in the industry sectors with both target populations of particularly vulnerable workers and significant regulated hazards will allow OSHA to be a more efficient and effective enforcement agency in the areas of growing concern that are exacerbated by changes in work structure.

Second, OSHA has engaged more effectively in the use of corporate-wide enforcement and settlement agreements. See https://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=CWSA for a list of the settlement agreements currently in place. The authority to seek corporate-wide enforcement – without a voluntary agreement – was preliminarily upheld by the Occupational Safety and Health Review Commission (OSHRC) in a recent case in which OSHA sought the entry of a corporate-wide abatement order involving non-compliance with safety standards for powered industrial trucks in the employer's 170 shipping terminals and service centers distributed across the U.S. Secretary of Labor v. Central Labor Transport, LLC, OSHRC Docket Nos. 14-1452, 14-1612, 14-1934 (2015). The expansion of the use of similar agreements and enforcement to cover contracting arrangements among employing entities – including franchise agreements – should be explored further. The example given above of effective intervention in franchised coffee shops highlights the possibilities for effective health and safety interventions when reaching up through contracting relationships.

Third, a recent Memorandum of Understanding between OSHA and the Department of Justice (DOJ), announced December 17, 2015, establishes the Worker Endangerment Initiative within DOJ and

expands the possibilities for criminal enforcement, including in areas where contracting among firms exacerbates workplace health and safety challenges. The previous prosecution in United States v. Xcel, Criminal Case No. 09-cr-00389-WYD (D. Col. 2010), despite the fact that it ended with an acquittal, is an example of expanding the prosecutorial net beyond the direct employer-employee relationship. The prosecution of Don Blankenship in a case arising out of the Upper Big Branch mine disaster also suggests that federal prosecutions regarding workplace health and safety can be pursued successfully.

In what other ways can OSHA use its direct regulatory authority to address the problems created by fissured contracting relationships among employers?

Although the OSH Act clearly envisioned what we have called standard employment relationships, in fact OSHA has broader authority to reach non-direct-employers than exists for other federal agencies under the NLRA, FLSA and other laws. Although the specific language and degree of proof required under the other statutes may vary somewhat, they all require proof of a direct employment relationship in order to assert rights on behalf of the workers. OSHA's hortatory language is much broader: Section 2 of the OSH Act includes Congressional findings that urge OSHA to assure "so far as possible every working man and woman in the National safe and healthful working conditions"; Section 4 says, "This Act shall apply with respect to employment performed in a workplace." Here, the focus seems to be more on place and control of the environment, and less on the exact nature of the employment relationship. In fact, OSHA can sometimes impose regulatory duties based on an employer's relationship to the hazards at work without also proving that the cited employer is the direct employer of the workers who are at risk.

This is particularly true in the enforcement of specific standards. Section 5(a)(2) of the Act requires "each employer" to "comply with occupational safety and health standards." Thus, enforcement of the standards does not require proof of a direct employment relationship, though the cited entity must be an "employer."[1] This statutory framework means that OSHA need not focus on the existence of a direct employment relationship when enforcing standards, in contrast to legal interventions under other federal employment and labor statutes.

Note that this not true with regard to enforcement of the "general duty" clause. The language of Section 5(a)(1) suggests that proof of a direct employment relationship is necessary for enforcement of the general duty clause: "Each employer shall furnish to each of *his* employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm *to his employees*." (Emphasis added)

Relying on the statutory language relating to enforcement of standards, the Multi-Employer Citation Policy, first developed in the 1970s and last revised in 1999, recognizes that joint responsibility among multiple employers is critical where coordination affects workplace hazards; the policy notes that "more than one employer may be citable for a hazardous condition that violates an OSHA standard." The test under this policy is whether the cited employer is a "creating, exposing, correcting or

[1] The definition of "employer" is not particularly helpful: OSHAct Section (3) (5) says, "The term "employer" means a person engaged in a business affecting commerce who has employees…"

controlling employer" and whether the employer's actions were sufficient to meet its obligations [OSHA 1999]. The citation policy explicitly applies "in all industry sectors," and most appeals courts have endorsed this approach. Under this directive, the controlling employer is "[a]n employer who has general supervisory authority over the worksite, including the power to correct safety and health violations itself or require others to correct them. Control can be established by the contract, or in the absence of explicit contractual provisions, by the exercise of control in practice."

Rabinowitz [2015] persuasively argues that this policy may be applied to other non-standard employment arrangements where the non-direct employer has significant control over the work environment, though this argument has not yet been tested. As noted above, this argument only has relevance when enforcing specific standards, because the general duty clause requires a direct employment relationship. For example, Rabinowitz suggests that franchisors often have sufficient control – through contracting/ franchise agreements or inspection policies or specific worksite requirements – to be cited under this policy. Similarly, supply chain organizational structures, where the lead employer specifies conditions or work organization, may arguably also be vulnerable to this approach. Rabinowitz appropriately concedes, however, that the hazard must be one that the franchisor or lead employer has the ability to control: any franchise agreement requirements for use of protective equipment or hazardous site equipment or hazardous workplace practices would qualify; site-specific hazards that could not be anticipated, such as exits blocked by boxes, would not.

The Washington State Supreme Court imposed liability, for example, on the lead jobsite employer, SeaTac, after a worker, who was employed by a contractor that provided ground services for the airlines, was injured. The court held that the lead employer retained control over the manner in which the contractors completed their work, and was therefore potentially liable in tort.[2] The court relied in part on Washington's multi-employer site doctrine, noting that OSH liability might hold "irrespective of any employer-employee relationship" as long as the jobsite owners "retain control over the manner in which contractors complete their work." See Afoa v. Port of Seattle, 296 P.3d 800 (WA en banc).

Rabinowitz argues that the use of the multi-employer citation policy in non-standard work relationships would be strengthened by several steps that DOL could take, including revision of the existing policy so that it explicitly and clearly covers both traditional and non-standard work organization and developing a written legal justification for broad application of the policy. OSHA could also strengthen its legal position on these issues by issuing a regulation, as was done in 1997 in California, explicitly referring to multi-employer worksites in "both construction and non-construction." See Title 8 of the California Code of Regulations, Section 336.10 – Determination of Citable Employer (available at https://www.dir.ca.gov/title8/336_10.html).

OSHA can also make use of the more traditional "joint employer" doctrine in multi-employer situations: Use of this doctrine would be necessary for enforcement of the 'general duty' clause and may be necessary in some cases involving the enforcement of standards. This can be done advancing the same type of legal argument as that used by the NLRB in the Browning Ferris and McDonald's cases, discussed above. The specific legal issues that confront the NLRB in re-interpreting the joint

[2] The tort liability issue is one that is very specific to the state.

employer doctrine may also confront OSHA; the outcome of the NLRB cases, as they continue to be litigated, will help to define the boundaries for developing this doctrine under the OSH Act.

Not surprisingly, broadening OSHA enforcement to include contracted and franchised facilities and firms has already attracted attention from employers' representatives who focus on health and safety. For example, Baruch Fellner, an attorney with Gibson Dunn & Crutcher LLP, told Bloomberg BNA in August 2014, "If you've got a blocked exit at a McDonald's down the corner and they get a citation – ho-hum. But if you've got hundreds of McDonald's receiving the same kinds of citations, with ratcheted-up penalties going to the attention of the CEO of McDonald's writ large, then OSHA gets its shaming mechanism and its deterrence mechanism." [Lee 2014].

Notably, state law – particularly the law governing workers' compensation – generally acknowledges the relationship among contracting employers. While direct employers usually provide workers' compensation coverage and, therefore, benefits, host and lead employers are, in many jurisdictions, shielded from tort liability as a result of their contractual relationships with the direct employers. This protection is sometimes extended by statute (Tennessee is one example), but it can also be extended through the contracting arrangements between staffing agencies and host employers (as was recently held by the Massachusetts Appeals Court in Molina v. State Garden, 88 Mass. App. Ct. 173 (Mass. App. Ct. 2014). Obviously, this is not the universal rule, as can be seen by the Washington State case described above.

There are other alternative strategies to allow for regulation of health and safety violations, but none are available under current federal OSH law. The 'hot cargo' provisions of the wage and hour laws – which allow intervention in the supply chain when violations are found – are not now part of the OSH regulatory landscape. Regulation of contracting terms – between franchisor and franchisee, or between lead and supplier – might require inclusion of specific terms regarding OSH issues. Federal contracting requirements might be expanded to include requirements and responsibilities within franchising and staffing arrangements.

Two examples of non-OSH Act regulatory intervention in health and safety involving the mining industry are also instructive. First, the Dodd Frank Wall Street Reform and Consumer Protection Act, Pub. L. 111-103, was enacted shortly after the Upper Big Branch mining disaster. It requires publicly-traded companies that operate mines to report a variety of safety-related information including significant mine safety violations and the dollar value of assessed fines in their quarterly SEC filings that go to shareholders. There is some belief that this heightened visibility of safety conditions to investors will create an effective incentive to correct hazardous conditions and prevent them from occurring. Second, the Mine Safety and Health Administration [MSHA] requirement for pre-shift inspections to identify and mitigate hazardous conditions provides another example of efforts to prevent hazardous conditions for all workers at a worksite no matter what their employment status. OSHA has encouraged employers to develop and implement Injury and Illness Prevention Programs in an effort to achieve similar goals.

Private rights to bring actions against employers that create or tolerate safety and health hazards – including employers in contracting relationships – are generally viewed as state law issues, and may sometimes be barred under the web of state laws governing the workplace. This is not, however,

universally true, as is also illustrated by the Washington State case discussed above. Notably, the Washington State statute has an arguably broader definition of employers than the OSH Act, making the reach of the statute in non-standard employment situations more likely. [3]

State litigation that does not overlap with standards is likely to be going on 'below the radar' of much of the national debate on these issues. A full discussion of the potential of state legal action in the health and safety area is beyond the scope of this paper, although there is certainly additional state-based litigation that is worthy of note. For example, in a case involving severe burns in a Hardee's restaurant, where the plaintiff alleged a variety of state causes of action, a federal district court in West Virginia denied the franchisor-defendant's motion to dismiss. The franchisor argued that it was not the injured worker's employer; the judge concluded "that the Franchisor Defendants had actual knowledge of alleged unsafe working conditions which were of long standing and much complained about at the Hardee's franchise in question," where the plaintiff had alleged that the franchisor provided training, supervision, inspections, equipment, cooking supplies, and procedures in furtherance of the operation of that restaurant. "It is reasonable to infer from these allegations that the Franchisor Defendants had control over the equipment and procedures which contributed to Hamrick's injury and that their conduct created a risk of physical harm to Hamrick. Defendants owed Hamrick a common-law duty to exercise reasonable care, and his alleged injury as a result of using equipment and safety procedures in place at that restaurant makes him a foreseeable plaintiff." See Hamrick v. Restaurant Management Group LLC, Memorandum Opinion and Order, Civil Action No. 2:14-cv-02762 (S.D. W.Va., Sept. 19, 2014). The liability of franchisors and contracting firms will undoubtedly be pressed by plaintiffs' lawyers in state claims like this one, where state law varies regarding the extent to which employers have civil liability for workplace injuries; this is a worthy area for additional exploration in thinking about the full set of potential legal actions that may help to improve health and safety in fissured workplaces around the country.

**#3: Education, training, communication, medical surveillance, and personal protective equipment**

Who is responsible for ensuring that individual workers receive the necessary information and training to perform jobs in a safe manner? This is an easy question to answer in the standard employment relationship. But in non-standard arrangements, where authority may be retained by a lead employer that exerts indirect control of day-to-day work (e.g. franchising, supply chains) or in triangulated contracting situations (e.g. staffing agencies or off-site subcontractors), the apparent diffusion of responsibility may threaten the ability of workers to obtain critical information, be fitted with essential personal protective equipment, or be assured that exposure time-limits are met when they move from job to job. These problems may be exacerbated by language barriers and the legally vulnerable status of undocumented immigrant workers. Workers may be understandably confused in triangulated work relationships where employers are choosing to meet their responsibilities by contracting among themselves, using contracts that are not available or transparent to workers or regulatory agencies.

[3] The WISHA defines employer as follows: "any person, firm, corporation, partnership, business trust, legal representative, or other business entity which engages in any business, industry, profession, or activity in this state and employs one or more employees or who contracts with one or more persons, the essence of which is the personal labor of such person or persons…." RCW 49.17.020(4) [emphasis added]; the OSH Act defines employers as follows: "The term 'employer' means a person engaged in a business affecting commerce who has employees…" 29 U.S.C. § 652(5).

The problems posed are clearly more challenging, both from a practical and regulatory point of view, in triangulated work relationships than in hierarchical contracting relationships.

To date, OSHA has addressed this problem in several ways.

First, although not directly analogous, some standards extend responsibility for protections to non-direct employers: manufacturers and distributors must create and transmit information under the hazard communication standard regarding toxic chemical hazards; property owners must inform contractors regarding asbestos hazards; multi-employer sites require employer to employer communication. The confined space standard for general industry specifically requires host employers to work with contractors, 29 C.F.R. § 1910.146(c)(8); failure to do so has resulted in at least one criminal prosecution in which the trial judge allowed the case to go to trial after five workers died. United States v. Xcel Energy, Inc., Criminal Case No. 09-cr-00389-WYD, Order denying defendant's motion to dismiss (D. Col. March 29, 2010). Thus, in situations involving standards, in which the non-direct-employer holds critical information, OSHA has the ability to require transmittal of information from one employer to another. This is in keeping with the broad language of the statute regarding application of standards, discussed above. The breadth of this regulatory authority needs further exploration.

Second, OSHA has launched the Temporary Worker Initiative (TWI), based upon data showing that temporary workers are at increased risk of work-related injury and illness, and has also issued guidance regarding treatment of workers employed through third party staffing agencies. The guidance states explicitly that host and staffing agencies may be joint employers for purposes of OSHA enforcement:

> While the extent of responsibility under the law of staffing agencies and host employers is dependent on the specific facts of each case, staffing agencies and host employers are jointly responsible for maintaining a safe work environment for temporary workers - including, for example, ensuring that OSHA's training, hazard communication, and recordkeeping requirements are fulfilled.

This is reiterated in instructions from Deputy Assistant Secretary Dougherty to Regional Administrators, issued July 15, 2014. The guidance also recommends – but, because it is not a standard, does not *require* – that temporary staffing agencies and host employers "set out their respective responsibilities for compliance with applicable OSHA standards in their contract," and that "[h]ost *employers must treat temporary workers like any other workers* in terms of training and safety and health protections." (emphasis in original) [OSHA 2014c]. The Dougherty memo specifically notes as well:

> If the staffing agency has a long-term, continuing relationship with the temporary worker, it may be best positioned to comply with requirements such as audiometric testing or medical surveillance. The host employer, in turn, would be the primary party responsible for complying with work-place-specific standards relating to machine guarding, exposure to noise or toxic substances, and other workplace-specific safety and health requirements.

The OSHA TWI also specifically addresses responsibilities in these situations for providing personal protective equipment, concluding:

> As joint employers of temporary workers, both the host employer and the staffing agency are responsible for ensuring that adequate PPE and associated training is provided. The host employer will usually have the primary responsibility for selecting, providing and ensuring the use of adequate PPE…The staffing agency shares responsibility for its workers' safety and must take reasonable steps to ensure that the host employer conducts the appropriate hazard assessment and provides adequate PPP…" [OSHA 2014b]

Similar problems arise regarding injury record-keeping and medical surveillance. The staffing agency may be most familiar with the consecutive work placements of its employees, and therefore must be legally responsible for adherence to medical surveillance requirements – although, of course, temporary workers in non-staffing agency relationships do not have this potential tracking mechanism. OSHA, in its TWI Bulletin No. 1 [OSHA 2014a],addresses this problem by again noting the joint employer status of the staffing and host employer. Here, OSHA concludes that the record-keeping responsibility follows the path of direct supervision: if the host employer maintains day-to-day supervision over the worker, the host employer is responsible for recording injuries and illnesses, but the staffing agency "shares responsibility" and therefore "should maintain frequent communication with its workers and the host employer to ensure that any injuries and illnesses are properly reported and recorded." It would also be helpful to require that all workers be given portable exposure and medical surveillance information, given the mobility of the workforce in general. This would be particularly useful for workers who are employed by staffing agencies at multiple worksites with the same hazards.

Third, in November 2015, OSHA issued a draft of proposed Safety and Health Program Management Guidelines (https://www.osha.gov/shpmguidelines/). These guidelines include a section on communication and collaboration at sites where employees of more than one employer are present. They also provide guidance to employers in triangulated work settings, although they do not create new legal obligations. Needless to say, despite OSHA's recent and innovative efforts to give clear guidance, all of this entails regular communication between and among employers, and clear and comprehensible communication with workers – and a genuine commitment to the health and safety of the contracted workers. In situations in which employers do not demonstrate this level of commitment, OSHA is called upon to use its full enforcement powers. And, indeed, citations for violations involving temporary workers' injuries have been issued by OSHA. In one current example, OSHA issued citations against both the host employer, Moore Co Inc., and the staffing agency, Manpower Group US Inc., after temporary workers were injured when inadequately guarded machines pulled them in [U.S. Department of Labor Nov. 13, 2015]; citations in these situations have also been sustained by the Review Commission, as in the case of Perez v. Matsu Alabama, Inc., d/b/a/ A Division of Matcor Automotive Inc., OSHRC Docket No. 13-1713 (Sept. 29, 2015). The legality of this approach may ultimately not be in question – though it will certainly be litigated. The real problem is that the vulnerability of workers, combined with the complexity of the relationships among the employing firms, makes both worker voice and regulatory intervention difficult.

Moreover, none of these approaches acknowledges the problem that some workers are off-site entirely, creating a separate challenge in the area of communication and monitoring. Nor does OSHA

address the problem of workers who come onto dangerous sites in order to make deliveries or who are otherwise only transiently present.

## Part III: Data, Surveillance, and Research Needs

RESEARCH

The diversity and frequency of changes in employment relationships have outpaced our understanding of their consequences for the health, safety, and well-being of workers in non-standard employment and of the best strategies for controlling or mitigating the risks. While some of these changes undoubtedly benefit workers, providing new opportunities and, for some, increased flexibility and autonomy, others confer additional risk.

In 1996 the National Occupational Research Agenda, developed through a NIOSH-led stakeholder engaged process, identified changing employment relationships and organization of work as a high priority for new research and surveillance. The recommendations for future research and improved prevention are still relevant. These recommendations included: (1) improved surveillance to better track how the organization of work is changing, (2) accelerated research on safety and health implications of the changing organization of work, (3) increased research focus on organizational interventions to protect safety and health, and (4) steps to formalize and nurture organization of work as a distinctive field in occupational safety and health [CDC/NIOSH 2002].

Two types of investigations would be helpful in better understanding the health consequences of non-standard employment and the effectiveness of policies intended to address them. A population-based prospective investigation of the health consequences of non-standard employment could be designed to account for a range of issues found in the current literature, most notably selection bias. This would be useful in both understanding how workers in standard and non-standard employment differ, if at all, and the impact of non-standard work on health and wellbeing. The study population would need to be large in order to explore a wide range of these diverse employment arrangements and to be able to evaluate whether any health effects observed vary with the intensity and duration of worker exposure to non-standard work. But these investigations would need to be based on good information concerning the basic demographics of workers in non-standard employment.

It would also be particularly useful to investigate the effectiveness of a range of policy approaches, including both voluntary programs such as guidance and consultations as well as direct regulatory interventions, that are intended to protect workers in non-standard employment. This kind of intervention effectiveness research, while challenging to conduct, could be instrumental in providing flexible, effective approaches to dealing with the diversity of employment arrangements faced by the current workforce. Interventions that are narrowly workplace-focused are unlikely to be sufficient to address the range of health consequences of non-standard employment. Policy interventions and their evaluation must also look more broadly at the overall context of work beyond the traditional arena of enforcement of health and safety regulations.

Notably, there continues to be a dearth of available information relevant to understanding the extent to which workers are employed in fissured work arrangements, with estimates varying widely [Dey, et

al. 2012]. Definitions of the range of non-standard employment lack standardization. Health and safety surveillance—the ongoing collection, analysis, and reporting of data for purposes of prevention—has been unable to provide insight into the extent of non-standard employment, the degree to which these relationships confer added risk, and the effectiveness of interventions intended to address this risk.

To determine the risks faced by workers in fissured employment arrangements, we need two types of data: (1) on injuries and illnesses categorized by relevant characteristics, including employment category (e.g. staffing agency, franchisee, etc.) industry, occupation, age, gender, and race) and (2) on employment and hours categorized by the same characteristics.

There are several national sources of information on employment and hours by industry. These sources can most directly provide estimates of the employment in the employment services sector and in its subsectors temporary help services and professional employer organizations (PEOs). They are less helpful in providing estimates of non-standard work involving franchising, on-site contracting, and supply-chain relationships. Bernhardt [2014] has recently written a good description of some of the data challenges in identifying and measuring the extent of non-standard employment arrangements in the U.S. economy.

The national data sources include Occupational Employment Statistics (OES) data and Quarterly Census of Employment and Wages (QCEW) data, and Current Employment Statistics (CES) data, all collected by the U.S. Department of Labor's Bureau of Labor Statistics (BLS). They also include the Current Population Survey (CPS) and the Contingent Worker Survey (CWS) Supplement to the CPS. These sources have been used to estimate fissured employment numbers, but numbers derived from them differ substantially. A major reason is differences in how the data are collected. For example, the QCEW is designed as a complete census of employers, while the OES and CES are based on a sample of employers. The CES and CWS Supplement are population-based surveys and rely on workers' responses. Surveys may not use the same classifications, causing comparability problems. These issues are well-described by Dey, Housman, and Polivka [2010], and we will not dwell on them here.

A yet more difficult problem is matching current national injury data to fissured employment data. There are two national occupational injury and illness datasets collected annually by the BLS: the Census of Fatal Occupational Injuries (CFOI) and the Survey of Occupational Injuries and Illnesses (SOII). Since 2011, the CFOI has been collecting information on both the firm employing the fatally injured worker and the host employer [Pegula 2014]. However, contractor definitions are not identical in the CFOI and the Census datasets, so linking the CFOI with employment and hours data may be problematic. The SOII does not collect information identifying either contractors or staffing/PEO workers, so it cannot be used to compare injury rates between fissured and standard employment. Workers' compensation data has been used to compare the experience of staffing agency workers with direct employees [Fan, et al. 2006, Foley, et al. 2014, Park and Butler 2001, Pierce, et al. 2013, Smith, et al. 2010]. However, only a few states collect injury data that can be linked to occupation. This, combined with the substantial differences in workers' compensation laws among states, limits the usefulness of this data source.

A potential solution to this data problem for the staffing agency arrangements in the administrative and support services sector would be to add to the current required OSHA Form 301 the name, Federal Employer Identification Number (EIN), and address of both the host and the employing firm for injured workers, as well as the workers' occupation (perhaps the checklist now in the SOII)[4] and to fill out a separate OSHA Form 300A for the lead firm and for each staffing or PEO firm paying wages or salaries to people working at the host firm. Franchisees could be required to provide a single form (unless they used staffing agency or PEO workers), but that form would also include the name, EIN, and address of the franchisor firm. Requiring both EINs should mitigate the potential for double-counting injuries.

We understand that such a change would require OMB approval and would need to go through rulemaking. In addition, we recognize that there is substantial underreporting on OSHA forms and to the SOII. Still, the proposed changes would potentially provide valuable surveillance data on the risks of two important categories of fissured employment. It would also provide data that could be used in the SOII to compare the risks of standard and fissured jobs nationally.

Gathering similar data for surveillance and research for same-site construction subcontractors, franchises, and supply chains would involve more substantial changes in data collection. We can imagine an OSHA initiative focusing on franchises that would require franchisor companies to obtain OSHA Forms 300A and 301 from its franchisees. This information, together with equivalent information from non-franchised locations, could then be made available to BLS or OSHA for statistical or surveillance purposes. A parallel data collection could, in principle, be done where construction contractors would collate this information for subcontractors working on their projects.

## Conclusion

We reach several conclusions based upon this review of the occupational safety and health implications of changes in work, the regulatory and policy environment, and the current state of data collection and research.

First, the context in which these employment relationships appear is critical. Vulnerable workers can be found in standard and fissured arrangements; not all workers in fissured arrangements are necessarily more vulnerable; highly vulnerable workers are likely to be more vulnerable as a result of some fissured work arrangements.

Second, one area is quite clear: There is ample evidence that temporary workers, and particularly temporary workers employed through triangulated contracting arrangements, are particularly vulnerable to OSH hazards when compared to workers with more stable work arrangements. OSHA's current focus on temporary workers is therefore warranted.

[4] The SOII occupational categories are: office, professional, business; healthcare or management staff; delivery or driving; sales; food service; product assembly, product manufacture; cleaning, maintenance of building, grounds; repair, installation or service of machines, equipment; material handling (stocking, loading/unloading, moving, etc.); construction; and farming.

Third, non-standard employment includes a broad range of specific arrangements and exposures. There is a need for further research and data in a number of areas in order to assess fully the effects of these heterogeneous contracting arrangements on occupational health and safety risk. There is much that we do not know. Moreover, we cannot assume that the current nature of contracting arrangements among firms will remain static. It will be important to understand the level of penetration and the persistence of these contracting forms in different industries over time to assess fully their effect on occupational safety and health. It would be useful to know when arrangements are embraced because workers prefer them and which are accepted because of limitations in the labor market that limit worker power or choice. Although the downward pressure on wages may be clear when looking at staffing agency hiring and supply chain economics, we nevertheless need to better understand the nature of contracting among firms, and the extent to which these contracts create additional pressures that result in changes in occupational safety and health risk. We do not know, for example, whether franchising – with clear directives from central firms – increases or decreases the level of risk when compared with equivalent independent small businesses – and whether the answer to this question would be industry-specific.

Finally, there are risks that are growing irrespective of these contracting arrangements that should not be ignored. In this area, as in many others, the multiplicity of risks makes OSH a more difficult area to assess than wage and hour violations. Disruptive technological changes, for example, may increase psycho-social risk, irrespective of the specific nature of the employment contracting arrangement. Other changes, including changes in labor market participation, particularly of aging workers, and new hazards, such as those created by nanotechnology, may be as significant to OSH as changes in the work relationships that are created by inter-firm contracting.

In sum, occupational safety and health – and the control of risks to workers – is a multidimensional and highly contextual challenge. The changes in work relationships through fissuring are a piece of the puzzle – but a piece that creates specific prevention challenges for employers and enforcement challenges (and opportunities) for OSHA and its sister enforcement agencies.

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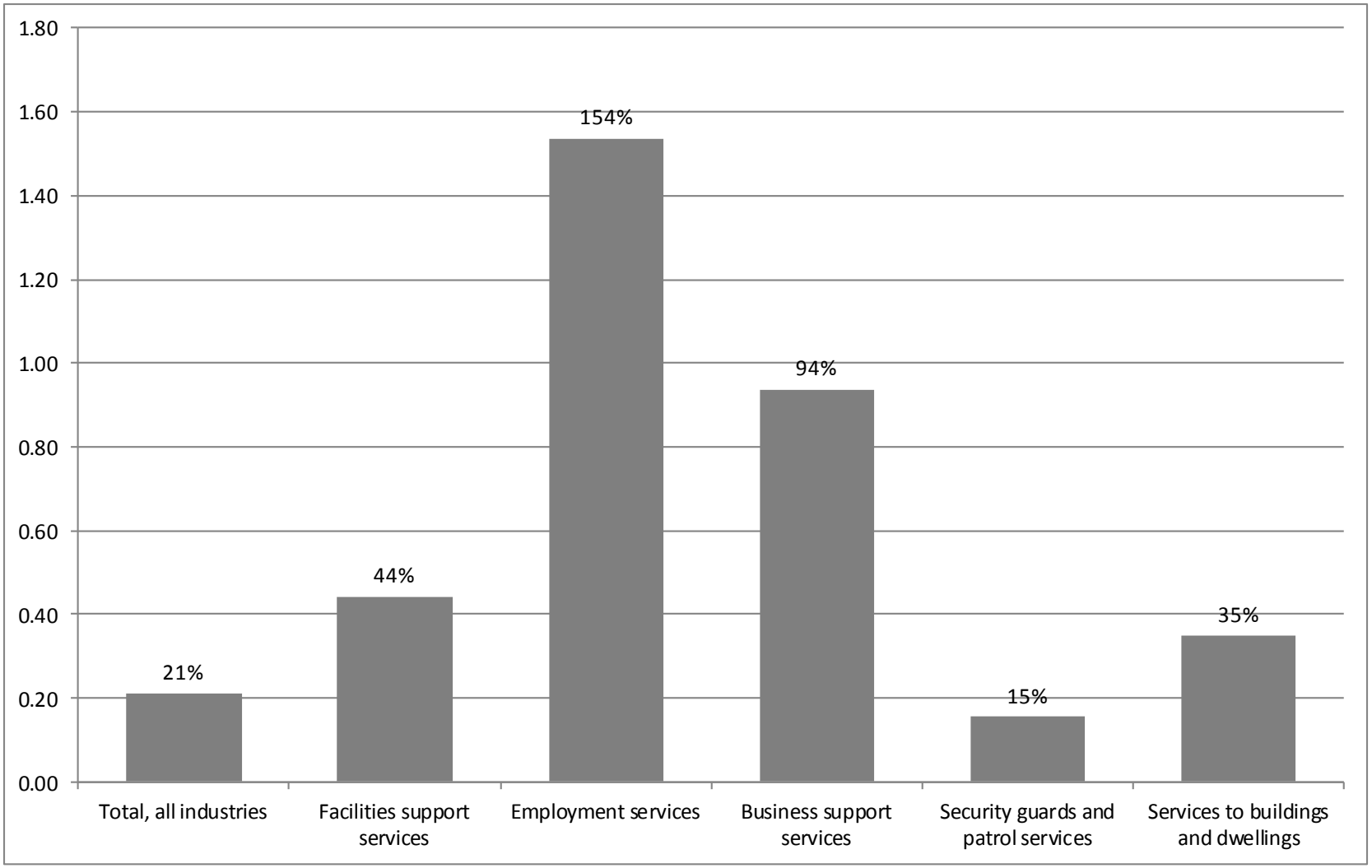
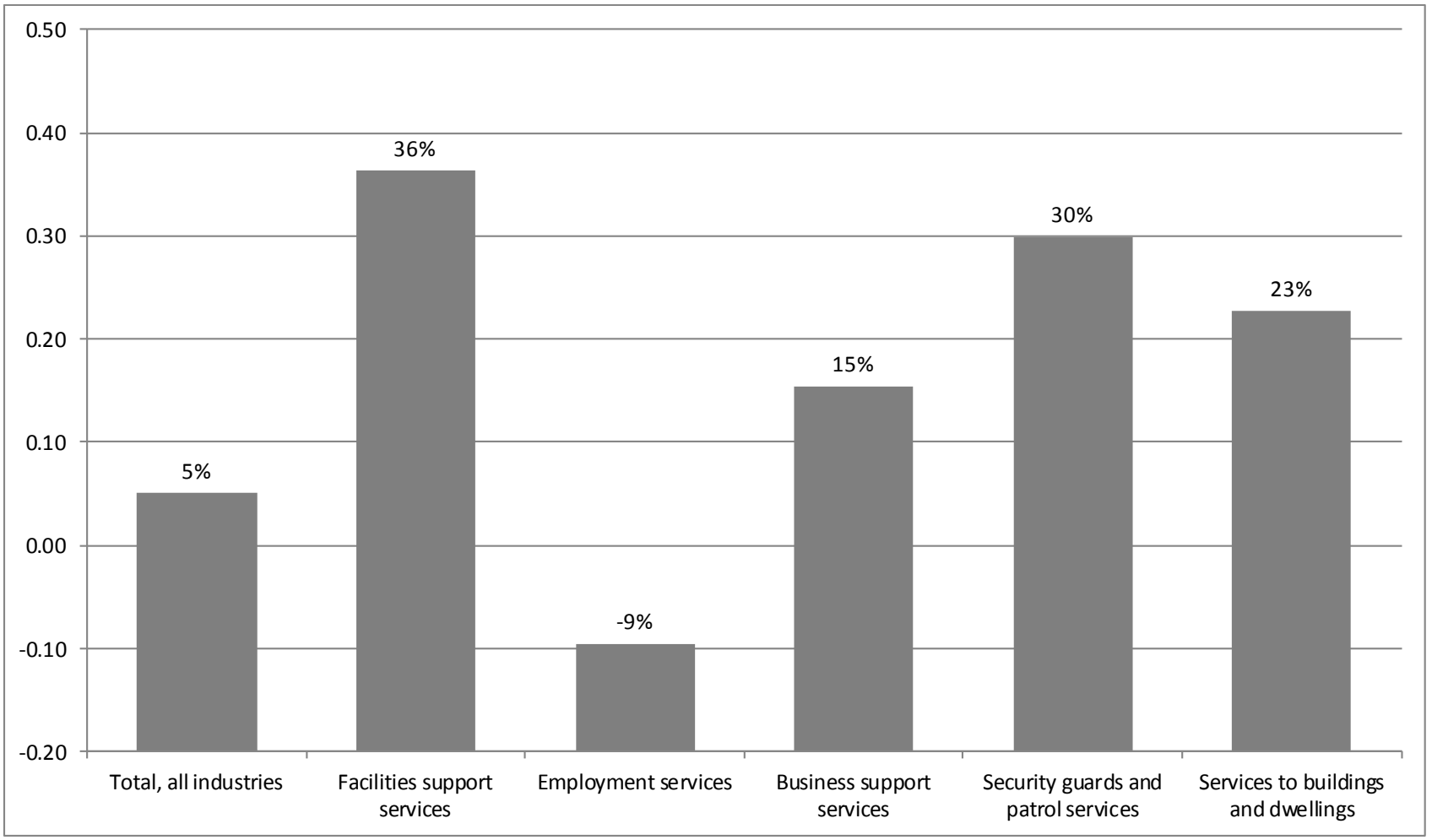
**Figure 1a. Employment Growth, U.S. 1990-2000**

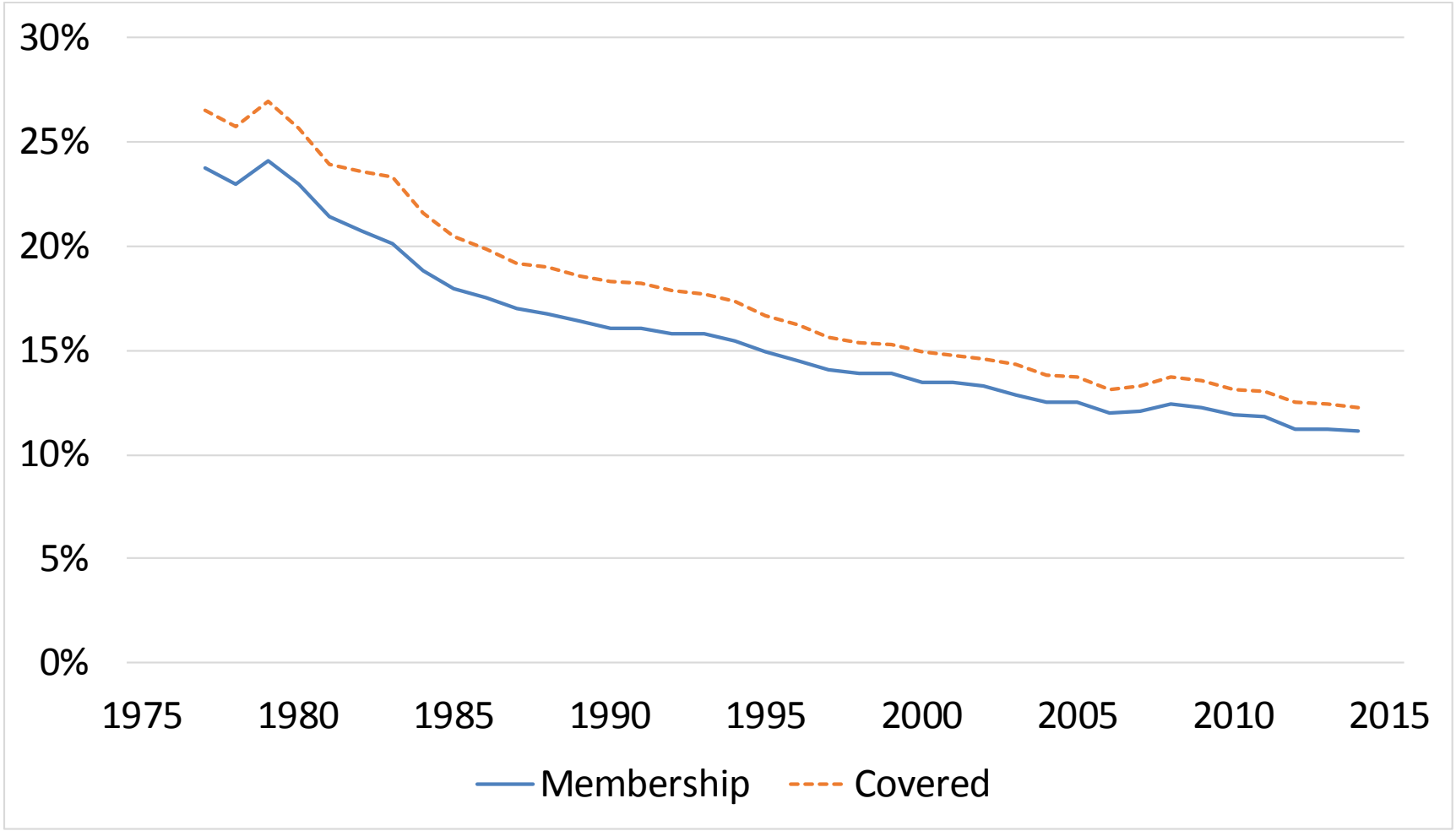


## Figure 1b. Employment Growth, U.S. 2000-2014




Source: Bureau of Labor Statistics, Quarterly Census of Employers and Workers.

## Figure 2. Union Membership, United States, 1977-2014




Source: Barry T. Hirsch and David A. Macpherson. http://www.unionstats.com/