

Reform or Employer Capture? The Role of Employers in the Development of Industrial Safety Regulation through the Progressive Era

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Views of the rise of regulation between the 1870s and 1930 have evolved over time. Contemporary reformers and muckrakers described how they fought the good fight and overcame the intransigence of businessmen and employers to establish reforms that benefited workers and reduced corruption in the system. By the 1960s the historians of the Progressive Era were offering a more complex picture. Richard Hofstadter (1963), for example, described how the political coalitions for progressive legislation changed from issue to issue, such that many businessmen and employers could be described as Progressive on at least some issues. His view is best illustrated by the hotly contested Presidential election of 1912, when even Republican President Taft could point to his support for a series of Progressive policies. By the 1970s economists and business historians had shifted the emphasis on the role of businessmen still more, developing theoretical models and empirical studies that emphasized the roles of interest group struggles in determining legislation. Some scholars argued that the legislatures and regulatory bodies were captured by the very interests they were trying to regulate.¹ Most recently, there has been a renewed emphasis on reformers seeking regulatory changes as a means of reducing corruption in the system. Glaeser and Shleifer (2003) for example, argue that the new regulations were designed in part to limit subversion of the process by large employers.

A leading area for reform during this period was workplace safety. Throughout the period after the Civil War until the Great Depression, millions of native-born and immigrant workers accepted jobs in mining and manufacturing. Advances in technology and new organizational forms led to increasingly impersonal relationships between the ultimate employer and the worker. Many new technologies often sped the pace of work and increased the risk of accidents, although other technologies enhanced safety. Between 1869 and the early 1900s a number of state governments began to respond to these changes by establishing safety regulations for mines and factories. The early regulations tended to be informational and rudimentary but

eventually the regulations were expanded through amendment and resources were allocated for enforcement. In the 1910s nearly all of the state governments adopted workers' compensation laws that changed the employers' liability for workplace accidents from common law negligence liability to a form of strict liability.

This paper examines the employers' role in the development of workplace safety regulation. The reformers' stated aims were to reduce the risk faced by workers and ensure that the families of workers injured or killed in accidents received reasonable medical care and compensation for lost earnings. Employers also claimed similar goals but their solutions often differed as they balanced the benefits against their own costs from the new regulations. Further, employers had incentives to design the regulations to their own benefit. My goal is to develop a better sense of how employers influenced the introduction of safety legislation, its breadth and the resources devoted to enforcement of the laws. Is there evidence of employer capture or employer subversion? After describing the development of safety regulation, I describe the interest groups involved in the process and outline the potential ways in which employers might influence the process. Qualitative evidence is then presented that is consistent with views that employers had captured the legislative and regulatory process in some states during some time periods. Most scholarly discussions of the roles of employers focus on the power wielded by large employers. A quantitative analyses is therefore performed on the impact of large firms on the adoption of the safety reforms, the breadth of coal mining regulations, and the size of coal mining inspection budgets. The results suggest that large firms contributed to earlier adoption of safety legislation, but they generally worked to limit the breadth of the regulations and the resources devoted to enforcement.

I. The Development of Workplace Safety Regulation and Liability, 1865-1930

Just after the Civil War the government's role in workplace safety was largely confined to adjudicating disputes over injury claims in the common law courts. The structure of common

law workplace accident compensation had evolved through a series of court decisions.² Under the full-blown liability system in the late 19th century, workplace accident compensation was based on common law rules of negligence combined with the defenses of assumption of risk, fellow-servant, and contributory negligence. If a worker was injured on the job, he bore the burden of proving that his employer had failed to exercise due care in preventing the accident and that the employer's negligence was the proximate cause of the injury.³ Judge Learned Hand once described due care as requiring that the employer to prevent accidents when his costs of accident prevention were lower than the expected costs of the accident. If an injured worker was able to show his employer's negligence, then he was theoretically entitled to compensation up to the amount of his financial losses from the accident (lost wages and medical expenses) plus remuneration for "pain and suffering." Even if the employer was found negligent he might not be liable if he could invoke any of three defenses: that the employee had assumed the risks associated with the employment (assumption of risk); that a co-worker (fellow servant) had caused the accident; or that the worker himself was negligent or had not exercised due care (contributory negligence).⁴

The first state industrial regulations were adopted for the Pennsylvania anthracite coal industry well after the initial development of its mines. When the regulations were established in 1870, the anthracite mines had been producing for nearly 70 years and were producing over 17 million tons per year with over 30,000 workers.⁵ In bituminous coal, several states had begun sustained production 1840, but the first regulations of bituminous mines were not introduced before 1872 (see Table 1). The early regulations were rudimentary and were focused on mapping the mines, providing appropriate ventilation, and efforts to prevent explosions. Often they were targeted at smaller operations where the operators' knowledge of customary safety practices was likely to be more limited. As the technology of mining improved with the introduction of cutting machines, electricity, and mechanical motors, the regulations expanded. Federal involvement

began with the formation of the Bureau of Mines in 1911, but the agency was informational and did not obtain coercive powers until 1941 (Graebner 1976).

The states' interest in regulating safety in factories also developed soon after the Civil War. Massachusetts led the way in 1869 in establishing a bureau to collect information on wages and working conditions for factory workers and roughly half of the states had followed suit by 1890 (see Table 2). Elizabeth Brandeis (1935) suggests that these early bureaus were often created in response to pressures from the National Labor Union and the Knights of Labor. Information was often collected from workers as opposed to employers. Massachusetts was the first state to add teeth to enforcement efforts by establishing factory inspectors in 1879. As in Massachusetts, roughly 40 percent of the states added a factory inspector within five to fifteen years of creating a labor bureau or department (see Table 2). However, some states like West Virginia and Tennessee provided for an inspector without actually appointing one. The factory safety laws were amended during the Progressive Era in response to new technologies as well as to some grisly lessons learned from horrible accidents like the Triangle Shirtwaist Factory fire in New York in 1910 (see below).

Regulation was strongly intertwined with the court system. The typical factory inspector was “merely a special policeman assigned to discover violations of these special laws and to see that prosecutions were initiated. The court remained the fundamental agency for securing compliance (Brandeis 1935, 632-3).” Mine inspectors faced the same restrictions. In most cases factory and mine inspectors disclosed their findings to a state or local government prosecutor who would then choose whether or not to prosecute the case. The courts ultimately decided whether there was a violation and the size of the fine. In a handful of states the coal mine inspector had the power to close a mine considered unsafe, but even here the inspector had to secure an injunction through the proper court (Graebner 1976, 97-100).

State regulations also became a focal point in negligence cases for issues related to “due care” and “assumption of risk.” Their presence cut both ways. Employer violation of regulations eased the burden for workers in showing employer negligence, while the absence of a violation could prevent recovery. When workers violated regulations targeted at their activities, employers were better able to invoke the contributory negligence defense.

The increasing use of factory and mine inspectors coincided with the states’ experimentation with employer liability laws that limited one or more of the three defenses in the 1890s and 1910s.⁶ Unions and workers quickly became dissatisfied that the employer liability laws were inadequate to the task of helping large numbers of injured workers, employers sought relief from increasing uncertainties about the three defenses and a seeming increase in “jackpot” awards, and insurers were seeking ways to resolve problems with moral hazard and adverse selection in insuring workers. The solution they hit upon was worker’s compensation.

The move to workers’ compensation in most states in the 1910s altered the liability rules in mining and manufacturing from negligence liability to strict liability. The laws established that all workers injured in the course of employment or in activities arising out of employment were expected to receive compensation from employers. Unlike negligence liability, which was supposed to fully compensate workers for their loss, workers’ compensation imposed limits so that injured workers were to be paid a maximum of two-thirds or less of their income loss. Maximums on weekly payments meant that many workers received substantially less than two-thirds of their income while injured.

Most states developed some form of administrative body to replace the courts in administering workers’ compensation. A handful of states, led by Wisconsin in 1911, carried the process a step further and created Industrial Safety Commissions that not only administered Workers’ Compensation but expanded into a rule-making body that wrote an extensive safety code for Wisconsin industry. As seen in Table 2, 18 states had established Industrial

Commissions by 1930. However, only California, Massachusetts, New York, Ohio, Pennsylvania, and Utah had made substantial use of their rule making ability (Brandeis 1935 citing work by John Andrews of the AALL).

II. The Key Interest Groups and Methods of Subversion.

The name “The Progressive Era” implies that the changes in rules during the period were improvements over the status quo, and thus the legislation was passed in the public interest and was beneficial to society as a whole. Pareto optimal changes where all persons gain might come about from reductions in information, transactions, and administrative costs that reduce the deadweight loss to society. There are other scenarios, however, where there are winners and losers, and the gains to the winners might outweigh the losses. However, these assessments often depend on the relative weights assigned to the welfare of the winners of losers, and it is rare to find universal agreement on the appropriate weights.⁷

In examining the introduction of Progressive Era labor legislation, it is most useful to think of the driving forces as being a complex interaction of interest groups and coalitions that pressed for specific legislation. In the area of workplace safety legislation, the major interest groups were workers, employers, insurers, and social reformers. These groups could be further divided into subgroups. For example, workers might be divided along union and nonunion lines, while employer attitudes often varied by size and union recognition status.⁸

Often the initial proposal for new legislation came from social reformers. Progressive Era social reformers, workers, and unions consistently claimed that employers profited by skimping on safety equipment, labor markets provided inadequate wages to compensate workers for the risks they took, and that insurance and the legal system were designed to limit payments to injured workers. They anticipated that the reforms they proposed would increase benefit payments and lower accident risk. These changes would leave workers better off because wages would not adjust downward fully.⁹

Because employers wielded significant influence in state government, the success of reform legislation often relied on support from various groups of businessmen. Robert Wiebe (1962), James Weinstein (1967), Roy Lubove (1967), David Moss (1996), William Graebner (1976), Mark Aldrich (1997), Price Fishback and Shawn Kantor (2000) offer evidence that employers and businessmen played important roles in the passage of Progressive Era safety legislation. Descriptions of the employers' motives have ranged from an altruistic interest in their workers' welfare to purely defensive motives that led them to offer proposals or amendments to reform bills that left the titles intact but took the teeth out of the legislation. Improving worker welfare could be good business, as safer workers were more productive and less likely to quit. Meanwhile, safer workplaces led to lower accident payouts and wage bills.

Others argue that large and unionized employers pressed for regulations that would raise their rivals' costs more than their own. Ann Bartel and Lacy Glenn Thomas (1985) make this claim in the modern literature on the impact of the Occupational Safety and Health Administration (OSHA). This anti-competitive explanation might have less force for state legislation in the early 1900s because in many situations the producers' prime competitors were located in other states where the regulations would have no influence.

Discussions of interest group politics bleed easily into public choice discussions of rent-seeking and capture and to Ed Glaeser and Andre Shleifer's (2003) discussions of corruption and subversion. Although any interest group might capture the legislative or administrative process, most capture studies seem to emphasize the irony of "reform" regulations that actually benefit those being regulated. Capture can occur at any phase of the political process. Union leaders at times in the early 1900s claimed distrust of legislative reforms because they argued business interests largely controlled the legislatures through their political contributions (Weinstein, 1967, 159; Skocpol 1992, 205-47; Asher 1969, 457). Reform bills were bottled up in committee, replaced with employers' alternatives, or amended beyond all recognition. Enforcement of regulations were said to be weakened by the legislation of low fines or inadequate funds for

inspection. Some complained that the inspectors were strongly influenced by the employers they were inspecting.

Glaeser and Shleifer (2003) suggest that the use of corruption was determined by the stakes in the decisions.¹⁰ As firms grew larger and had the resources to corrupt the process, they would be more likely to practice subversion in situations where the stakes were large. The official stakes per compensated injury were lower under workers' compensation than under negligence liability. Further, the regulatory fines were generally lower still. Yet, if employers had enough political clout, the location of subversion might have been in the legislature, where the stakes were being set. Were they seeking to optimally promote accident prevention given the presence of corruption, or were they just setting the stakes and enforcement in ways that benefited them? Employers with clout might have imposed regulations on others that forced them to make new expenditures to comply. But with the stakes low enough, smaller firms may have had the resources to practice corruption and the amoral ones were likely to do so when the cost of complying with regulations exceeded the cost of subversion.

III. Qualitative Evidence on Employer Capture

In studying the development of workplace safety legislation from 1870 to 1930, I have found very few documented cases of bribery or similar forms of corruption.¹¹ On the other hand, employers, particularly large ones, were an active lobby and many of the legislative outcomes and the administration that followed are suggestive that employers wielded considerable influence over the decision process.

Employer Influence of the Liability Regimes

Legal scholars disagree about the extent of employer capture of the negligence system with the three defenses in the late 1800s. Legal historian Lawrence Friedman (1985, 300-1) argues that the system developed to encourage the industrial enterprise. He suggests that the courts knew implicitly or even explicitly that to impose strict liability on industrial enterprises

would have stunted the growth of industry. Yet, Gary Schwartz (1981) challenges this “industry subsidy” view with an ample number of exceptions from his analysis of cases in California and New Hampshire. Numerous economic analyses have suggested that negligence liability combined with the three defenses can be an optimal accident prevention system (see Posner and Landes, Landes, Glaeser and Shleifer 2003, Shavell 1987).

Did corruption and subversion drive the switch to strict liability under workers’ compensation? Consider the most venal form of corruption, bribery, in the ten years prior to the introduction of workers’ compensation. The shift to workers’ compensation in all but 10 states involved a move from judicial decisions about fault and compensation to commission decisions about compensation. Although the vast majority of negligence workplace accident claims had been settled out of court through the early 1900s, the decisions in the cases that reached the courts ultimately influenced the settlements received. Had judges and juries been considered corrupt, the impact would have trickled into accident settlement negotiations and forced workers to accept lower payments. If workers and reformers perceived judges and juries to be more corrupt than the commissions that followed, charges of judicial corruption might have contributed to the adoption of workers’ compensation.

As one coarse test of the public’s perception of the judiciary, I examined the extent of publicity that judicial corruption received in the New York Times in the decade just prior to the adoption of workers’ compensation. Ed Glaeser has found ample evidence of judicial corruption during the Gilded Age, but I wanted to focus on the key period associated with the introduction of workers’ compensation. I created a sample of corrupt events using the ProQuest search engine on the New York Times index for the period 1900 to 1910 using the word combination “judge” and “bribe.” New York is a particularly good location for the study because it was the first state to adopt a broad-based workers’ compensation law in 1910, although it was declared unconstitutional in 1911 and the permanent version of the law was not passed until 1913. The

search led to over 500 articles, which discussed 138 different episodes of bribery, summarized in the cross-tabulation in Table 3. Fifty-seven episodes took place in New York, the remainder in other states. The search unearthed five episodes where judges had reported to the press on attempts to bribe them but there was no evidence that they had accepted the bribe. In seven cases the judges were charged with and sometimes convicted of bribery or corruption. Only two of those potentially could be related to workplaces.

The exercise also offers information about newspaper reporting on the relative amounts of corruption of the courts versus other branches of government. Since bribery was an offense that led to trials with judges, the search unearthed quite a few bribery cases that were unrelated to judges. Some were still related to trials, including 12 attempts of bribery reported by the jurors and 9 where jurors were charged with accepting bribes. There were also a handful of attempts to bribe district attorneys and attorney generals. A substantial majority of the episodes related to the bribing of elected administrative officials, bureaucrats, legislators, and the police. Given the words on which we searched, it is likely that the numbers understate the extent of corruption among these other categories much more than they would for judges. The results are suggestive that the public's perception formed by reading the New York Times during the decade prior to the adoption of workers' compensation would have been that corruption was more common in the legislature, among elected officials and among bureaucrats than among the judiciary.¹²

While this extreme form of judicial corruption may have been relatively unusual, employers still might have wielded substantial influence over the negligence system. Under the formal system, to receive compensation the injured worker had to show the employer was at fault and get past the three defenses. Success meant that the worker would receive the full value of medical care and lost wages and might receive payments for pain and suffering. Fishback and Kantor (2000) suggest that the de facto system was one in which the legal rules provided a baseline guide as to what to expect when people went to court. Going to court was costly;

therefore, the vast majority of injury claims were settled out of court. They find evidence that the compensation in settlements was loosely correlated with the de jure rules, but there was a great deal of noise in the system. The fear of delay, of gamesmanship by the employer or the insurer, and the workers' own high costs of going to court (25 to 40 percent of the compensation in contingency fears plus emotional costs) might have prevented some workers with legitimate claims from receiving compensation. In the samples of settlements collected by various state employer liability commissions, very few families of workers killed in accidents received amounts that would match the present value of the workers' lifetime stream of earnings. On the other hand, some workers with more generous employers, with employers seeking to avoid the nuisance of a suit, or better access to legal advice might well have fared better than they would have been expected to under the highly restrictive de jure rules.

It is important to note that the studies of accident causes in the late 1890s and early 1900s often suggested that worker fault was the cause of a very large percentage of the accidents. Thus, no compensation at all might have been the legal ruling in a large percentage of cases where workers actually received payment. At any rate workers injured on the job typically received sums that were less than a full years' income with an occasional worker receiving a large amount. About half the families of fatally injured workers received payments, which averaged about a full years' income. Perhaps the system might best be described in the following way. Very few of the workers injured by employer negligence received full compensation for their losses, but a significant number who could not show employer negligence received positive payments. The views of accident causation evolved away from blaming the worker in the early 1900s with the publication of Crystal Eastman's Work Accidents and the Law. Had workers' compensation not been adopted, it is probable that more workers would have received compensation after Eastman's findings had become widespread.

If there was gamesmanship and subversion of the negligence liability system, it might well have been practiced more by the middlemen than by the employer. In nearly every state liability commission report, employers and workers complained of the large transactions costs in the system. Lawrence Friedman (1985, 484) summarizes claims found in many employer liability reports the system “siphoned millions of dollars into the hands of lawyers, court systems, administrators, insurers, claims adjusters. Companies spent and spent, yet not enough of the dollars flowed to injured workmen.” We have no way of knowing how much of the transactions costs were devoted to gamesmanship, but the primary beneficiaries of the negligence system may well have been the trial attorneys, who were the one major interest group that actively opposed workers’ compensation.

If there had been subversion by middlemen under the negligence system, its extent might not have been changed much by the workers’ compensation regime. The load factors for employer liability insurance under the negligence system appear to have been similar to those for private workers’ compensation insurance. There were claims in U.S. Bureau of Labor Statistics reports that the administrative costs under workers’ compensation insurance were lower for state funds than for private insurers, but the state funds did not have to hold the same levels of reserves. Rough comparisons of the timing of payments under settlements under the negligence regime and under workers’ compensation schemes look quite similar in most cases. This is largely because so few cases went to trial under the old negligence system. Total administrative costs might not have changed much as the costs saved by not having to deal with fault were offset by the large increase in cases (Fishback and Kantor 2000).

Ultimately, employers had strong influence over the adoption of workers’ compensation legislation. Fishback and Kantor (2000) find that the majority of people in each of the major interest groups--employers, workers, and insurers--gained from the passage of workers’ compensation legislation. Employers saw a reduction in uncertainty about large jury awards and

managed to pass much of their increased insurance premiums back to their workers in the form of higher wages. Workers on average received higher accident payments than under negligence liability and were better insured even if their wages adjusted downward. Insurers saw an expansion in their business, despite the introduction of state insurance in a number of states.

The shift to workers' compensation may have led to more subversion by workers. Under the negligence system the various defenses gave workers few options for false claims. With all job-related injuries compensated under workers' compensation, there were more opportunities for false claims by workers. Employers succeeded in pressing for laws that sought to reduce such moral hazard by limiting wage replacement to two-thirds or less of the weekly wage, imposing 3 to 6 year limits on payment streams, establishing waiting periods, and imposing caps on medical costs. Meanwhile, employers still had latitude to practice subversion by challenging the location of the workers' injury or its extent. The switch to commissions certainly did not end disputes over compensation. In Wisconsin between 1914 and 1931, roughly 6 percent of the compensation claims were disputed and the Industrial Commission held formal hearing where witnesses might be called and a decision by the commissioners made. The yearly average number of disputed cases was 1197 in Wisconsin (Brandeis, 1935, 647).

Employer Influence of Regulatory Legislation and the Administration of Regulation

Employers actively lobbied legislatures although it would be extreme to say that they had fully captured the legislatures because unions and reformers won a reasonable share of victories in various states.¹³ In general, employers had enough clout to obtain compromises that significantly altered the bills proposed by workers and reformers before they became law. One way that they could weaken legislation was by limiting the resources devoted to enforcing the laws or by seeking relatively small fines. Once the legislation was in place, there was also the potential for capture of the administering agencies. Employers could influence the administration of the legislation by influencing the choice of inspectors, following "revolving

door” hiring practices, and even by illegal means. Administrative capture was certainly not universal, as the agencies in some states developed reputations for zealotry or weak enforcement.

The introduction of factory safety legislation in Washington State in 1903 offers an example of how employers influenced the writing of safety legislation and the interaction between safety legislation and negligence liability. One aspect of the assumption of risk defense had always been a major irritant to workers and reformers. In a number of cases workers reported malfunctions or lack of safeguards that increased their risk of injury, were told to return to work, and then were injured. Compensation had been denied on the basis that the workers had known the risk in the now more dangerous setting and assumed it when they returned to work. In Green v. Western American Company (1902) the Washington Supreme Court eliminated the assumption of risk defense in these situations. Fearing the complete elimination of the assumption of risk defense, employers played a significant role in the passage of Washington’s Factory Inspection Act in 1903. Under the new act employers were to be considered negligent for accidents in settings where they violated the inspection acts. However, the law also provided for certifications that the employers’ workplace was “safe.” A number of lower courts then invoked the assumption of risk defense to prevent recovery by injured workers in several cases involving mines so certified.” The Washington State Supreme Court disagreed and reaffirmed that lack of safeguards on machines was negligence whether the mine was certified or not. In 1905 the employers went back to the legislature and succeeded in altering the language of the Inspection Act so that employers had only to provide a “reasonable” safeguard (as opposed to a “proper” one). This change in language may have worked for a while but ultimately proved to be of little help to the employers, because the Supreme Court finally eliminated the assumption of risk defense by arguing that a machine lacked necessary safeguards by virtue of being the cause an accident (Fishback and Kantor 2000, 97; Tripp 1976, 535).

The leading studies of coal mining legislation all suggest that employers significantly influenced the writing of coal regulations (Fishback, 1992; Aldrich, 1997, Graebner 1976). Mark Aldrich (1997, 69-71) finds that most of the early laws were “incomplete, poorly written, and hard to enforce” and often bore “the strong imprint of operator influence.” In Colorado mine inspectors considered the original 1883 law to be “very incomplete” and “wholly inadequate.” When the law was revised in 1913, “the product of a committee dominated by large operators...and it largely codified their practices.”

William Graebner’s (1976, 72-87) description of the evolution of West Virginia mining law suggests that through 1907 the law basically had little or no bite. Mine operators and even the mine inspectors were opposed to new legislation. In cases where proposed laws limited their mining methods, the workers themselves actively opposed change. In response to a series of large mine explosions, the legislature passed a revision in 1907 in which mine operators played a major role. Two additional explosions led the chief mine inspector to become more activist in proposing legislation, yet an investigative committee studied many of the explosions and then published a report that concluded that changes in the law would do no good. The legislature in response to the demands of mine operators rejected all of the chief mine inspector’s recommendations for new regulations.

The mine laws were designed to influence not only the actions of the mine management but also those of the miners’ themselves. Coal operators pressed for restrictions on the behavior of miners that they had had trouble enforcing within their mines. These restrictions often promoted safety but required extra effort for no obvious gain in pay on the part of the miners. For example, both Illinois and West Virginia banned the practice of “shooting off the solid” in which miners blasted without making an undercut at the base of the seam. The practice required more explosives, produced smaller, less valuable chunks of coal, and generally was considered more dangerous. It was popular with miners because it was much less strenuous than laying on one’s

side and hacking away at a wall of coal and rock for several hours before blasting the coal. The miners' response was to routinely disregard these and other restrictions that they found onerous (Aldrich 1997, 58-73; Graebner 1976, 94-5).¹⁴

Lobbyists who are trying to take the teeth out of legislation often seek to limit the funds available for enforcement. There is ample evidence that the inspection budgets appropriated by state legislatures were inadequate to the task outlined in the mining law. Most states had less than half an inspector per thousand miners, which meant that the inspectors rarely visited mines the minimum number of times required in the mining statutes (Fishback 1992, 113; Graebner 1976). The problems were compounded by low salaries, which led to high turnover of inspectors and limited the department's ability to attract talented inspectors. Inspectors earned only about 50 percent more than the average salaried worker in manufacturing in 1910 and less than 10 percent more in 1920.¹⁵ During the World War I boom, the inspectors might have fared as well or better if they had quit and gone back to mining. West Virginia Governor John Cornwell in 1919 described their rate of pay as "less than that of men who drive mules (quoted in Graebner, 90)," and resignations were common. With larger budgets, the mine departments likely would have had an impact on accident rates, as econometric studies by Fishback (1986, 1992) and Aldrich (1997, 337-8) find that expansions in resources for inspection were associated with lower accident rates.

Inadequacy of inspection resources was an even more severe problem for the factory inspectors. There were far more factories than mines and Brandeis (1935, 632-3) states that inspectors typically investigated only upon complaint. Rarely were the factory inspectors in a position to routinely and randomly inspect most factories. Information on appropriations for all forms of state labor administration suggest that the leading states were spending typically about 67 cents per worker at the time, about \$12 per worker in year 2000 dollars.

Although much of William Graebner's work on mine safety implies that many mine inspectors were honest advocates for safer mines, there were still worries about a revolving door between mine management and the inspection service. There were few opportunities to move up within the inspection bureaucracies, so some state mine inspectors accepted positions with coal companies at 50 to 100 percent pay increases. Many state inspectors were already sympathetic to the problems of mine owners faced in running mines because they had moved to the job from posts as mining managers or superintendents. Union leaders were livid when the coal mine operators in 1908 "engineered" the appointment to West Virginia Chief Mine Inspector of John Laing, himself the owner of several mining properties. After leaving office, Laing became the head of the Kanawha County Coal Operators' Association (Graebner 1976, 90-91; Corbin 1981, 17).

Miners, owners, and inspectors all considered the inspector positions to be political and the owners were not shy about pressuring the inspectors. In 1908 a West Virginia inspector stated "there are coal operators who will endeavor to have a district inspector removed from office rather than obey the mining laws, or carry out the recommendations made by an inspector." As a general rule, the mine owners appear to have had the advantage in the interest group struggle over inspector appointments, even in highly unionized states. Even in Illinois where the UMWA was strong, and the inspection staff had a reputation for being somewhat radical, a frustrated miner claimed. "There is not an inspector in the state who is not holding his job through the influences of some coal operator." (Quotes and sentiments from Graebner 1976, 91).

Most mining laws contained fines and potential jail sentences for offenders but successful prosecutions in the courts were not that common. There was little evidence of prosecutions of employers for mining violations in Pennsylvania, Ohio, and West Virginia. There were very few prosecutions in the three-state area prior to 1904. The number then rose to a peak at 395 in 1910 and 312 in 1911 (compared with approximately 3200 mines and 250,000 employees) before

trailing off to zero after 1912. Nearly all of these prosecutions were targeted at miners and not supervisors or mine owners. Miners accounted for 159 of the 163 prosecutions in West Virginia in 1910. Of 489 prosecutions between 1908 and 1911 in Pennsylvania, 392 were directed at mine workers, only 27 at superintendents and 70 at foreman and fire bosses (Graebner 1976, 97-100.) Further, the probability of paying penalties was even lower. In Ohio in 1911 the total amount collected in fines under a new mining law came to \$400, and this was a law described as having strong penalty provisions.

One reason for the lack of prosecutions may have been the intransigence of the courts, which set the fines. According to Graebner (1976, 99), when coal inspectors closed mines, which they did infrequently, they “received as much opposition as aid from local courts.” “West Virginia inspectors, moreover, evidently ceased prosecuting operators and managers when it became clear that they could not be convicted....A district inspector reported that workers had ‘completely lost all confidence in the local courts...[and were] thoroughly convinced that justice could not be obtained towards the enforcement of the mining laws.’”

A Case Study of Enforcement and Reform: The Triangle Shirtwaist Fire

Even after the states adopted safety regulations, the laws often went through changes. One of the most famous reforms was New York’s revision of its safety regulations in the aftermath of the Triangle Shirtwaist Fire of 1911. A recent popular book argues that the fire dramatically changed America (Von Drehle, 2003). Upon closer inspection, however, the events leading up to the fire and the reform that followed illustrate again many of the factors that contributed to the weakness of safety reforms at the time: carefully worded regulations, inadequate and “friendly” enforcement, and interest group pressures.

In March 1911 the fire at the Triangle Shirtwaist Company in New York City’s garment district led to the deaths of 146 workers, as they either died in the fire or plummeted to their deaths from the eighth floor of the Asch Building.¹⁶ Just prior to the fire the State Labor

Department had inspected the factory in response to a complaint and had found the company in compliance with their rules. However, on the day of the fire, many workers reported that a key door to a stairway was locked, a violation of the factory regulations. There was intense debate during the manslaughter trial over whether the door was locked and the presence of a key in the lock (Stein 1962, 181-9).

The inspector had reported an inadequate fire escape, but jurisdictions over fire escapes were not well established. The factory inspection laws gave the inspector the power to demand a proper fire escape but the factory inspectors claimed that the courts had ruled that fire escapes were outside the labor department's jurisdiction.¹⁷ Building safety came under the jurisdiction of the New York City Superintendent of Buildings, to whom a report had been forwarded by the labor inspector. New York City law did not require fire escapes, but did require buildings the size of the Asch building to have three staircases. When the Asch Building was being planned in 1900, the building inspector, who was the Superintendent of Buildings when the fire occurred, had told the architects that they needed an additional staircase, and that the fire escape should reach the ground. State labor department rules required that the stairwell doors should open outward *where practicable*. The architects sought exceptions, arguing that the fire escape acted as a third staircase, that they would build the fire escape to reach the yard, the building was fireproof, and that there was not room in the staircases for it to be *practicable* for the doors to open outward. After the plans were approved, the fire escape that was built ended at the second floor, violating the agreement (Stein 1962, 23-4). The Asch building should not be singled out. Even though the block contained several other garment factories, none of the neighboring buildings included fire escapes.

With the fingers pointing their way, Building Department officials defended themselves by saying that the department had no power to police. "We must enforce all our rulings through the civil courts. When we bring an action, there is invariably a long fight. The record will show

the owner is usually the victor.” The department had only 47 inspectors to inspect 50,000 buildings. In that year the Fire Department had designated over 13,000 buildings as dangerous, but the department could only inspect 2,051. “The Asch building conformed to the law when it was built,” although, as noted above, not to the plans that had been approved by the building inspector. The department conceded that it did have the power to order changes to update the buildings. But, they were also sensitive to the costs to building owners and employers. “We do not hear of violations of the law in the old buildings unless they are particularly called to our attention.” “It would work a great hardship on the owners of buildings to require changes. This is especially true of fire escapes.” (Stein 1962, 116).

Interest group pressures on regulators in the insurance industry also may have contributed to the dangers in the garment district. The Asch building at the time relied upon a system of fire buckets filled with water that was legal but proved inadequate. Experts claimed that an automatic sprinkler system would have put out the fire before it threatened lives. Sprinklers led to lower insurance rates but there were high up-front costs. Arthur McFarlane, an insurance expert writing in Collier's magazine, claims that a group of 10 insurers had developed an innovative way to finance the introduction of sprinklers into garment factories. They would install the sprinkler systems and then continue to charge the higher rates as if sprinklers were absent until the systems were paid for. When the plan proved popular, McFarlane claims that brokers and agents who were losing business forced the withdrawal of the New York Fire Insurance Exchange license to sell insurance from the ten insurers, and nine gave up the plans (Stein 1962, 169-171).

The sometimes harsh nature of the negligence liability rules also is apparent in the Fire. We do not have a complete accounting of the disposition of lawsuits and settlements between Triangle's insurers and the families of the victims, in part because many settlements are not public record and often require silence. The settlements that were publicly reported were meager.

Up to \$500,000 in claims in civil suits had been filed by October 1911. Only one civil suit came to a publicly noted verdict and it was dismissed when the jury could not agree on a ruling (McEvoy 1995, 638). On March 11, 1914 the New York Times reported that 23 individual suits against the owners of the building had been settled for \$75 per life lost because they anticipated little chance of winning the suit. There was still some question about the suits against the owners of the company who were renting the building (“Settle Triangle Fire Suits,” New York Times 3/12/14, p. 1). The Red Cross had disbursed \$81,126 for relief to 166 cases (94 with one or more deaths and 72 without). (Stein 1962, 128-131, 207). Had the first New York workers’ compensation law of 1910 for extrahazardous employment that was declared unconstitutional been applied to these cases, the system might have paid the families of the workers who died roughly four year’s of income up to a maximum of \$3,000 each. The companies’ owners received compensation from their insurers for damages to the factories and lost inventory. Any bills they faced for liability claims by workers were also footed by the insurance companies.¹⁸

In response to the public clamor over the fire, the New York legislature in June 1911 established a Factory Investigating Commission. Despite appropriations that “would only cover the cost of one good lawyer (Stein 1962, 209),” the findings of the commission’s exhaustive investigation led to an overhaul of the State Labor Department and a series of new regulations. The regulations expanded the discussion of fire escapes and fire exits, and called for fire drills and fire alarms, and added new regulations in response to what they had found. Appropriations for labor issues in New York quadrupled between 1911 and 1915 to over a million dollars with the expansion of duties and the development of a workers’ compensation commission. Although this is described as the golden era of labor regulations in New York, the amount of funds available for enforcement were still quite limited. The new million dollar budget still came to only about 69 cents per manufacturing worker. Probably no more than half of the budget was devoted to inspections. Thus, 35 cents per worker put New York factory inspection budgets

below the bituminous coal mining inspection budgets for Pennsylvania (52.6 cents) and about on par with West Virginia mining inspection (35 to 40 cents). The increase in budgets might have put a dent in accidents, but problems with lack of enforcement continued. A February 1916 editorial in the *New York Times* claimed that of 3,711 violations by factories of the new stairway regulations, “only 246 owners complied with the law, and two prosecutions were begun!” (The Industrial Commission,” *New York Times* 2/23/16, 12).

Problems with inadequate inspections remain today, but the sanctions when caught are much greater. Arthur McEvoy (1995, 648-650) contrasted a North Carolina fire in 1991 with the Triangle Fire. The North Carolina factory had not been inspected by the fire inspector in the eleven years that it had been open, and there were only a dozen inspectors in North Carolina to inspect 150,000 plants. However, after the fire, the owners paid \$800,000 in fines for safety violations and the owner was sentenced to 20 years in prison for manslaughter. The company’s insurers settled 101 civil claims for \$16 million.

IV. Quantitative Examination of Employer Influence

The descriptions of employer influence above provide examples where employers in at least some states influenced the writing of the safety regulations and the enforcement of the legislation. However, this evidence is anecdotal, often indirect, and by its nature cannot measure the full extent of employer influence. Nearly all studies that document employer influence during the Progressive Era focus on the roles played by larger employers. To get a quantitative sense of the relationship between large employers and safety legislation, I have developed state-level panel data sets to examine the relationship between firm size and the timing of adoption of safety legislation, the breadth of coverage of regulations, and the resources devoted to enforcing the rules.

Different views of the role played by large employers lead to different predictions about their impact on the adoption process, the breadth of regulation, and resources devoted to

enforcement. The progressive view of large firms suggests that they pressed for legislation to enhance their workers' welfare and the welfare of workers in other firms. Large employers were more likely to pay higher wages, offer better benefits, provide model housing and towns, and provide safer workplaces (Jacoby 1997, chapter 1, Fishback 1992, chapter 9; Brandes 1970). Progressive employers would have both moral and economic incentives to codify their practices. They could legitimately claim that they were pressing for better conditions for all workers. If there were economies of scale in the provision of these services, the regulations would contribute to raising the costs for other less progressive firms and thus limiting competition in the product market. If progressive employers were pressing for the safety legislation, whether designed to enhance workers' welfare or raise rival's costs, we would anticipate that their presence would be associated with earlier adoption of the legislation, broader coverage of the law, and larger enforcement budgets that would insure that laggard firms remained in compliance.

Reformers sometimes described large firms as particularly intransigent, grudgingly passing legislation and erecting defensive barriers against reform. If this view were true, we might expect large firms to be associated with later adoption of the legislation, less coverage of the law, and smaller enforcement budgets.

Glaeser and Shleifer's (2003) subversion reform model of optimal regulation suggests that expanded regulation may become optimal when firm size increases.¹⁹ Expanded regulations can contribute to optimal safety prevention in part because employers who now face smaller penalties will be less likely to subvert the regulatory and liability process. If this model were true, we might anticipate that larger firms might be associated with earlier adoption of the regulation and expanded coverage of the laws. The model does not appear to make a prediction about the influence of firm size on enforcement activity, although enhanced enforcement that increases the probability of detecting violations increases the size range over which regulation is preferred to no regulation at all.

In estimating the impact of large employers, the analyses control for interest group pressure from unions, who wielded influence in the states where they had a strong presence, as well as the number of workers involved in the activity to be regulated. Mulligan and Shleifer (2004) suggest that there may be substantial fixed costs to regulation; efficiency concerns imply that regulations will not be established until the population to be regulated is large enough so that the benefits of regulation overcome these fixed costs. In several empirical tests they find regulatory populations to be associated with expanded regulations in a series of settings.

In earlier work on the timing of adoption of workers' compensation, Fishback and Kantor (2000, 106-11, 256-7) find that all three factors--larger firms, more unionized industry, and larger affected populations—were associated with earlier adoption of workers' compensation. The mean percentage of the manufacturing workforce in establishments with more than 500 workers was 29.5 for states adopting prior to 1913, 7 percentage points larger than for states adopting between 1913 and 1916, and nearly double the percentage for states adopting after 1916 (17.9 percent). They measured the scale of industry as the percentage of the labor force in manufacturing. The percents in manufacturing declined from 35.6 to 24.1 to 16.4 percent for early, middle, and late adopters, respectively. States that adopted in the early and middle period had union indices that were 20 percent larger than in late adopting states. Multivariate analysis confirmed the comparisons of the simple means.

Large Firms and the Introduction of Labor Administrations.

The introduction of state labor administrations and factory regulations came in two stages spread over more than sixty years from 1869 through the 1930s (see Table 2). In most states the initial foray into labor regulation was the development of a Bureau of Labor Statistics or Commissioner of Labor to collect information and make factory owners aware of rudimentary safety guidelines. The next stage called for factory inspectors to monitor and enforce the legislation. Table 4 shows the results from a proportional hazard estimation of the timing of

adoption for the two types of administration. Since most states had their own mine inspection departments, most of the Bureaus and Factory Inspectors specialized in manufacturing; therefore, the correlates in for the adoption analysis are focused on measures of manufacturing activity. In the underlying panel of data, states who have not yet adopted are observed at the end of each decade and matched with information on firm size and number of manufacturing workers from the beginning of the decade. The state's final year in the panel is its year of adoption, which is matched with information from the prior census. See the notes to Table 4 for a more detailed description.

Large firms were associated with earlier adoption of both factory administrations and factory inspectors. Hazard ratios greater than one imply increased probability of adoption in any year given no prior adoption and ratios less than one imply decreased probability of adoption. At the margin an increase of one worker per establishment was associated with a 6.3 percent higher probability of adoption of some form of labor administration, and 4.9 percent higher probability of adopting a factory inspector law, although the latter estimate is statistically significant at only the 17 percent level. One standard deviation (OSD) increases in average firm size of 5.3 workers per establishment were associated with roughly a one-third increase in the probability of adopting some form of labor administration and a one-fourth increase in the probability of introducing a factor inspector. The results are inconsistent with the large employer intransigence hypothesis, while remaining consistent with the employers acting as progressives, employers raising rivals costs, and with the subversion reform hypotheses.

The results are quite different when we examine the adoption of coal mining regulations between 1869 and the mid 1890s. I estimated a similar proportional hazards model for a panel of data for the 24 leading bituminous coal states with more than a trace of coal mining production. An twenty-fifth cross-sectional observation was added for Pennsylvania anthracite coal because Pennsylvania adopted separate regulations and inspection departments at different times for the two types of coal. More details on this panel are found in the notes of Table 5. Large coal mines

were not associated with earlier adoption of the coal safety legislation, whether large mines are measured in terms of workers per mine or output per mine. The hazard ratios in Table 5 are less than one, although the OSD effects on the probability of adoption are smaller than for the other variables and the ratios are not statistically significantly different from one. Thus, at least in the area of coal safety, the results are most consistent with the hypothesis that large employers were at best indifferent to the regulations and could potentially be considered intransigent.

Large Firms and the Enforcement and Breadth of Safety Regulations

The initial adoption of the legislation was just the beginning of the regulatory process. As in the aftermath of the Triangle Shirtwaist Fire, the regulatory codes often went through substantial revisions. Most legislation expanded the coverage of the code, although in some cases regulations were removed from the code. Nearly every legislature was directly involved in determining the size of the inspection force. In many states the inspection resources were explicitly stated in the law and resources could be expanded through amendments. In other states legislatures controlled the budgets through their appropriations legislation.

I created a panel data set for the years 1902, 1910, 1920, and 1930 for the 23 leading bituminous coal mining states with evidence on the breadth of coal mining regulations and the appropriations for coal mining inspection per coal worker in the state measured in 1967 dollars.²⁰ The early coal mining regulations established the basics of ventilation and required the filing of mine maps and basic information about the mines. Most of the coal mining regulatory codes were expanded by adding the key clauses listed in the notes to Table 6. I developed a regulatory index that reflects the number of those laws in place in each year in the panel. The panel is then matched with evidence on the average number of employees per mine in the state, the UMWA membership as a percentage of the coal workforce in the state, and the number of miners in the state. Estimations are also performed with firm size and industry scale measured as production per mine and total production.

The model is estimated both without and with fixed effects. The fixed effects estimation is used to as controls for unmeasured heterogeneity that is not captured by the measures already included in the analysis. The year effects are incorporated to control for shocks to the national economy and technological shocks to mining technology common to the entire mining industry that would have influenced the choice of safety regulations and the level of inspection at particular points in time. The state effects are included to capture geological differences in mining deposits that influenced mining practices as well as long term attitudes toward political reform that were invariant across time within the states.

The general results for the regressions are consistent with the view that large coal employers worked to limit the extent of coal regulation and the amount of resources available for enforcement. In estimations with and without fixed effects, larger mines were associated with lower inspection budgets. The impact of larger firms is generally larger and passes statistical significance tests at higher confidence levels when the fixed effects are included. In Panel A in Table 6, an OSD increase of 35.7 workers per mine is associated with a reduction in the inspection budget of 67 cents per worker in 1967 dollars. An OSD increase in tons produced per mine similarly was associated with 55 cents per worker less in the inspection budget.²¹

The large employer intransigence hypothesis gains a limited degree of support when we examine the impact of larger firms on the breadth of coal safety legislation. Estimations with and without fixed effects suggest that large firms were not associated with a higher regulation index, and might have worked to limit the extent of the regulations. The fixed effects coefficients for average mine size are negative in both panels of Table 6. The coefficients are imprecisely estimated and would only be considered statistically significant at confidence levels of roughly 15 percent. OSD increases in average mine size led to reductions in the law index of close to half of a law.

The Effects of Unions and the Size of Regulatory Populations

The results for the control variables offer information about other hypotheses about regulation. The estimation results for the coal variables generally support the Mulligan/Shleifer findings that increases in the size of the populations to be regulated are associated with expanded regulation. The hazard ratios for the number of manufacturing workers in Table 4 and coal miners in Table 5 are both statistically significantly greater than one. OSD increases in these variables increased the probability of adopting in a specific year by from 25 to 36 percent. In Table 7 the breadth of coal mining regulations tended to be greater in areas with more miners and more tonnage produced, although the coefficients were smaller in size and statistically significant at lower levels of significance in the fixed effects estimations. The one potential area for inconsistency was the results for inspection budgets per coal worker. Larger scale for the industry as a whole was not related to larger inspection budgets in Table 6 and in estimations without fixed effects the effect of scale was negative and statistically significant.

The results for the labor measures suggest that employers were not able to act unilaterally. Unions appear to have acted as a countervailing interest group in areas where they had larger memberships. The results in Tables 4 through 6 suggest that unions were associated with earlier adoption of safety regulations, although the effects are not always statistically significant. The presence of more coal unions has a hazard ratio statistically significantly greater than one in Table 5, implying that unions were associated with earlier adoption. The hazard ratios also suggest earlier adoption of manufacturing labor administrations for both union measures in Table 4 but the ratios are not statistically significantly different from one. Some of the weakness of these results may be driven by the crudeness of the measures. The sparseness of quantitative measures on union activity at the state meant that I had to assume the same values for the state over long spans of time. More detail on this issue is in the notes to Tables 4 and 5.

The strength of the United Mine Workers of America in Table 6 was associated with expanded coal regulations, although the coefficient is smaller and statistically insignificant in the fixed effects estimation. On the other hand, the UMWA had no positive relationship with the size of mine inspection budgets. It might well be that the problems with inadequate inspections and the emphasis on prosecutions of miners in some of the states documented earlier in the paper led the UMWA to shift their efforts away from pressing for stronger government enforcement of the laws. Instead, they would rely on their own negotiations with employers to press for compliance with the aspects of the code that the union was interested in enforcing.²²

VI. Summary

Both qualitative and quantitative evidence points to employers playing a significant role in determining the form of regulation and the extent to which the regulations were enforced in at least some states at various points in time. Was it employer capture or subversion? It is hard to say because the reformers' description of subversion might be considered just politics as usual by other observers. I had little success in finding many documented cases of outright bribery of legislators and safety inspectors in relation to workplace safety legislation and enforcement. There are plenty of claims of employer influence but the evidence I have found is largely circumstantial and based on comparing actual outcomes to estimates of the desired outcomes proposed by employers, workers, and reformers.

Large firms were the employers who wielded the most political clout, and they have been the subject of most discussions of employer influence. I performed several quantitative analyses to examine the relationships between large employers and the regulatory regimes chosen by the states. The results suggest a complex relationship between large firms and safety legislation that varied across industries.

In the coal industry, which was one of the most dangerous industries and certainly one marred by significant labor strife, it appears that large employers were not active supporters of

safety regulations. The quantitative results suggest that larger average mine sizes were not associated with early adoption of the coal safety regulations and were associated with lower inspection budgets per miner and reduced scope in coal regulations. These results, particularly when combined with the qualitative information presented by Aldrich, Fishback, and Graebner, appear to be most consistent with the employer intransigence hypothesis. Large employers tended to be either indifferent to or opposed the early regulations and then worked to limit the scope of the regulations and the resources available to enforce them.

The situation appears quite different in the manufacturing arena. States with larger manufacturing firms tended to introduce basic labor administrations, factory inspectors, and workers' compensation earlier. The positive relationships are consistent with three different hypotheses about the role played by large firms: large employers acting as progressives, large employers acting to raise rivals costs, and reformers choosing regulations to limit subversion by large employers. To choose between the three hypotheses in manufacturing requires more work examining the impact of large firms on the scope of the regulations introduced and the size of enforcement budgets. Fishback and Kantor's (2000) findings for the specifics of workers' compensation may offer some preliminary insight. They found that states with large employers were less likely to develop monopoly state funds and that large firms were not associated with higher benefit payments. Support for adoption but opposition to specific features need not be considered schizophrenic. Large employers may well have supported reforms where they anticipated benefits while working to shape the details of the reforms.

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Table 1
Year of Adoption of State Coal Mining Law, Early Coal Production and Inspection Budgets
per Coal Worker in Early 1900s

	Year State Mining Law Adopted	First year listed for sustained coal production	First Year over 1 million tons	Inspection Budgets per Coal Worker in \$1967			
				1902	1910	1920	1930
Pennsylvania							
Anthracite	1869	pre 1820	1837				
Illinois	1872	1833	1864	\$1.02	\$0.88	\$0.41	\$0.81
Iowa	1873	1840	1875	\$1.39	\$1.16	\$1.13	\$2.28
Ohio	1874	1838	1858	\$1.03	\$1.39	\$0.92	\$3.07
Maryland	1876	pre 1820	1865	\$0.99	\$0.92	\$0.45	\$6.06
Pennsylvania							
Bituminous	1877	1840	1850	\$1.39	\$1.43	\$1.23	\$2.27
Indiana	1879	1840	1873	\$1.05	\$1.13	\$0.43	\$2.23
Missouri	1881	1840	1876	\$0.59	\$1.33	\$0.81	\$2.04
Tennessee	1881	1840	1883	\$0.63	\$1.80	\$1.06	\$2.17
Colorado	1883	1864	1882	\$1.50	\$1.60	\$2.72	\$4.04
Kansas	1883	1869	1884	\$1.95	\$1.75	\$1.97	\$4.08
Washington	1883	1860	1888	\$1.31	\$1.36	\$2.00	\$8.14
West Virginia	1883	1863	1873	\$0.85	\$1.26	\$1.00	\$1.93
Kentucky	1884	1828	1879	\$0.67	\$1.50	\$0.53	\$0.55
Wyoming	1886	1865	1882	\$1.47	\$1.84	\$1.11	\$4.37
Michigan	1887	1860	1901	\$1.80	\$1.46	\$1.39	\$2.78
Arkansas	1889	1880	1898	\$1.60	\$1.28	\$0.84	\$1.30
Montana	1889	1880	1895	\$3.97	\$2.33	\$0.99	\$2.40
Alabama	1891	1840	1883	\$0.91	\$0.75	\$0.98	\$2.54
New Mexico	1891	1881	1899	\$0.00	\$16.72	\$3.75	\$3.97
Oklahoma	1891	1880	1891	\$1.38	\$1.86	\$1.02	\$3.10
Utah	1896	1877	1900	\$4.21	\$2.34	\$0.00	\$0.00
North Dakota	1905	1884	1922	\$4.16	\$1.99	\$1.07	\$1.65
Texas	1907	1884	1901	\$0.00	\$1.70	\$1.13	\$3.07
Virginia	1912	1822	1888	\$0.00	\$0.00	\$0.59	\$1.32

Sources: Year of law adoption is from Aldrich (1997, 70). Coal tonnage estimates are from U.S. Bureau of Mines (1925, 528-33). Inspection information is compiled from mining laws reported in U.S. Commissioner of Labor (1892, 1908), U.S. Bureau of Labor Statistics (1914, 1925) and state statutes and from state appropriations. See Fishback (1992, 238-41) for more detail.

Table 2
Year of Introduction of Labor Commission, Factory Inspectors, Department of Labors, and Industrial Commissions

State	Year Labor Commission or Bureau of Labor Statistics, or Factory Safety Inspector	Year of Factory Safety Law with inspector, blank means no law by 1924	Industrial Commissions with quasi-legislative powers for safety as of 1930	Extent of Code-Writing by IC
Alabama	1907	1907		
Arkansas	1913	*h		
Alabama	1925 *d	*d	1925	few
California	1883	1885	1913	extensive
Colorado	1887	1911	1915	no codes
Connecticut	1887	1887		
Delaware	1893	1893		
Florida	1893*p			
Georgia	1911	1916		
Iowa	1884	1897		
Idaho	1890*s	*g	1917	no codes
Illinois	1879	1893		
Indiana	1879	1899		
Kansas	1885	1901		
Kentucky	1892*j	1903		
Louisiana	1900	1908		
Massachusetts	1869	1879	1913	extensive
Maryland	1888*k	1898	1928	no codes
Maine	1887	1887		
Michigan	1883	1893		
Minnesota	1887*l	1891		
Missouri	1879	1891*r		

Mississippi	1914	1914		
Montana	1893*m	*i,*m	1915	no codes
North Carolina	1887		1931	
North Dakota	1899	1905	1919	no codes
Nebraska	1887*n	1895*n	1929	no codes
New Hampshire	1893	1917	1917	no codes
New Jersey	1877	1878		
New Mexico	*e	*e		
Nevada	1915	1915	1919	few
New York	1882	1883	1913	extensive
Ohio	1877	1884	1913	extensive
Oklahoma	1907	1910		
Oregon	1903	1907	1920	few
Pennsylvania	1872	1889	1913 for mines only	extensive
Rhode Island	1887	1894		
South Carolina	1912	1912		
South Dakota	1890	*f		
Tennessee	1881-1884	1897	1923	few
Texas	1911	1911		
Utah	1892*a	1917	1917	extensive
Virginia	1897	1919		
Vermont	1912	1912		
Washington	1903	1910	1919	few
Wisconsin	1883	1883	1911	extensive
West Virginia	1890*o	1899		
Wyoming	1917	1917		

Sources: For dates of adoption of inspectors and departments of labor I started with evidence from Brandeis (1935, 628-645) and the U.S. Commissioner of Labor (1896). When the precise date of introduction was unknown, the microfiche for the State Session Laws of American States and Territories was searched until the original act was found. The earliest commissioner of labor was in Massachusetts in 1869 and the earliest factory inspector was in Massachusetts in 1879. Information on Industrial Commissions is from Brandeis (1935, 654), who was citing work of John Andrews of the American Association of Labor Legislation. Manufacturing

Some states with relatively few manufacturing workers had mine inspectors.

*a The Utah legislature had authorized a bureau of labor statistics or labor department earlier.

*b In Tennessee and West Virginia there were no regular inspectors. Commissioner merely had the power to inspect.

*c Alabama had a mine inspector and later a board of arbitration but no official department of labor.

*d Arizona had a mine inspector as of 1908.

*e New Mexico had a mine inspector as of 1908.

*f South Dakota had a mine inspector as of 1903.

*g Idaho had an inspector of mines in 1893 or earlier.

*h Arkansas had an inspector of mines in 1894 or earlier.

*i Montana had a mine inspector in 1895 or earlier.

*j The Kentucky commissioner was to devote efforts to collect statistics on agriculture, manufacturing and mining.

*k. The initial Maryland law in 1868 was for agriculture and industry with most of the focus on agriculture. The code of 1888 with amendments in 1892 is more specific to industry.

*l The Minnesota law included language about enforcing laws and prosecuting violations by the commissioner but only funds for the commissioner were provided.

*m The Montana act established a bureau of agriculture, labor, and industry.

*n Nebraska gave the commissioner the power to inspect workplaces.

*o West Virginia gave the commissioner the power to inspect workplaces but only to report on findings there.

*p The Florida Agriculture department was given the responsibility to collect statistics on manufactures.

*qThe Tennessee Law called for the Bureau of Agriculture, Mining, and Statistics to collect information on labor. The original Bureau of Agriculture was established in 1871, became the Bureau of Agriculture, Mining, and Statistics in 1875, but appears to have obtained the role of collecting labor statistics sometime between 1881 and 1884. We have had trouble pinning down the date.

*r Missouri statute for inspector in 1891. Not found in earlier years.

*s Idaho established commission in Constitution. No record of laws passed between 1879 and 1890.

Table 3
Incidents of Bribery in New York Times Articles,
January 1, 1900 and December 31, 1910

	Charged	Attempted
JUDGE	7	5
OTHER COURT OFFICIALS		
court witness	0	1
juror	9	12
prosecutor	1	3
OTHER OFFICIALS		
bureaucrat	17	8
elected official	22	3
legislator	20	2
police	11	4
voters	2	1
	89	39

Source: Using the ProQuest search engine for the Historic New York Times, I searched on the word combination “bribe” and “judge” for the period January 1, 1900 through December 31, 1910. An assistant and I read through the articles and treated multiple articles about the same episode as one episode. We also categorized the type of person who was alleged to have been bribed, solicited bribes, or someone had attempted to bribe them. The bribe attempts refer to incidents where someone reported an attempt of a bribe that appears to have been unsuccessful. Many of the charges were situations where someone was charged with bribery but the ultimate result is unknown.

Table 4

**Estimates for Factors Influencing the Introduction of State Labor Administrations
and Factory Inspectors, 1860-1930**

(Weibull Hazard Model with Fixed Covariants)

Panel A: Introduction of Some Form of Labor Administration						
Variable	Mean	Std. Dev.	(1).		(2).	
			Hazard Ratio	OSD Effect	Hazard Ratio	OSD Effect
Man. Workers per Establishment	7.57	5.34	1.0630	0.34	1.0616	0.33
			(3.73).		(3.53).	
Manufacturing Workers (000)	33.82	63.92	1.0049	0.31	1.0060	0.38
			(2.51).		(4.13).	
Manufacturing Union Chapters, 1880	30.91	68.86	1.0033	0.23		
			(1.03).			
Union Index	6.11	3.05			1.0369	0.11
					(0.95).	
p			2.8019		2.6818	
Wald Chisquare (3)			44.61		38.93	
Panel B: Introduction of Factory Inspector						
Variable	Mean	Std. Dev.	(3).		(4).	
			Hazard Ratio	OSD Effect	Hazard Ratio	OSD Effect
Man. Workers per Establishment	7.90	5.26	1.0488	0.26	1.0537	0.28
			(1.36).		(1.39).	
Manufacturing Workers (000)	41.66	68.32	1.0084	0.58	1.0077	0.53
			(4.99).		(6.63).	
Manufacturing Union Chapters, 1880	32.36	73.18	0.9990	-0.07		
			(-0.63)			
Union Index	6.67	3.35			1.0068	0.02
					(0.16).	
p			2.9888		3.0213	
Wald Chisquare (3)			86.2300		78.7200	

Notes and Sources: The z-scores in parentheses below the hazard ratios are based on robust standard errors and the null hypothesis that the hazard ratios are equal to one. The OSD effect is the change in the probability of adoption in a specific year given that the state had not yet adopted associated with an one standard deviation increase in the variable. If $h(t) = h_0(t) e^{X\beta}$, then each hazard ratio reported above equals e^b , where b is an element of β . Time zero ($t=0$) is 1860 in the model. The Weibull model assumes that the hazard takes the form $h(t)=p t^{p-1}e^{X\beta}$. Estimates for p in all of the models are statistically different from one, implying that the probability of adoption rose substantially over time.

Information on the timing of adoption is in Table 2. Observations in the data set were constructed the following way. States were observed in the last year of the decade with information on workers and workers per establishment from the beginning of the decade. In the year the state adopted the year for that observation is the year of adoption. For example, Maine adopted its first labor administrative law in 1887. The first Maine observation is for the end of the 1860s, the year is recorded as 1869, the adoption indicator is zero, and values for average workers per establishment and total workers are from 1860. The second Maine observation records the year as 1879, the adoption indicator is zero, and the census values are from the 1870 census. Since Maine adopted in 1887, the final Maine observation shows the year as 1887, the adoption indicator as one, and the values for workers per establishment and total workers are from the 1880 census. For Massachusetts, which adopted in 1869, I included a value for 1865 with census information from 1860 attached; the 1869 observation uses 1870 census information. There were 179 observations for the analysis of the introduction of any labor administration, with 3 of the 48 states not adopting by 1930. In the factory inspector analysis there were 229 observations with 8 of the 48 states not adopting by 1930. Information on workers and establishments from the Censuses for 1860, 1870, 1880, and 1890 is from the Report on Manufacturing for the Eleventh Census (U.S. Census Bureau, 1895, 67-69). Data on workers and establishments from the 1900, 1910, and 1920 censuses are from the Fifteenth Census (U.S. Census Bureau, Manufactures: 1929, Volume 3, 1933, pp. 43-600) and the Twelfth Census (U.S. Census Bureau, Manufactures, Volume 7, 1902, pp. 58-61). In the 1904 Manufacturing Census, the Census Bureau focused the survey on factories and eliminated the hand trades. I spliced the data for total workers and workers per establishment after 1900 with the earlier series by multiplying by the ratio in 1900 of workers in factories and hand trades to workers in factories. The same procedure was followed for workers per establishment. Information on unionization at the state level is sparse, and two measures of unionization were tried. Neither fully covers the period. The union index is described by Kantor and Fishback (2000, 263), who developed it for 1899, 1909, 1919 and 1929 for their workers' compensation study based on information from Wolman (1936) and the distributions of industries in the manufacturing censuses. High values of the index imply that the state has a higher share of workers in industries that at the national level were more unionized. For observations prior to 1899, the 1899 values of the index were used to approximate the union index for observations. In the other version of the estimation, the number of manufacturing union chapters is the number of local unions and chapters of national unions associated with manufacturing in the state as of 1880 from the Weeks Report (Weeks, 1886, 14-19). States were given the same value in each year observed.

Table 5
Estimates for Factors Influencing the Introduction of Coal Mine Safety Laws, 1860-1912

(Weibull Hazard Model with Fixed Covariants)

	Mean	Std. Dev.	(1).		(2).	
			Hazard Ratio	OSD Effect	Hazard Ratio	OSD Effect
Coal workers per mine	42.41	51.34	0.9985	-0.08		
			(-0.32)			
Coal workers in state (000)	2.28	6.85	1.0537	0.37		
			(2.17).			
Tons per mine (000)	18.67	27.41			0.9948	-0.10
					(-0.52)	
Total tons in state (millions)	0.89	2.29			1.1614	0.14
					(1.79).	
Coal union chapters	3.38	8.99	1.0583	0.52	1.0552	
			(3.01).		(2.32).	
p			3.2113		3.1515	
Wald			102.2000		48.9800	
Chisquare (3)						

Notes and Sources: The z-scores in parentheses below the hazard ratios are based on robust standard errors and are based on the null hypothesis that the hazard ratios are equal to one. The OSD effect is the change in the probability of adoption in a specific year given that the state had not adopted yet associated with an one standard deviation increase in the variable. For notes on the Weibull hazard model see Table 4. Time zero is 1860. Estimates for p in all of the models are statistically different from one, implying that the probability of adoption rose substantially over time. Observations in the data set were constructed the following way. States were observed in the last year of the decade and were matched with information on miners, miners per mine, tons produced, and tons per mine from the beginning of the decade. In the decade where the state adopted, the year of the observation was the year of adoption. For example, West Virginia adopted its mine safety law in 1883. The first West Virginia observation is for the end of the 1860s, the year is recorded as 1869, the adoption indicator is zero, and values for miners et. al are from 1860. The second West Virginia observation records the year as 1879, the adoption indicator is zero, and the census values are from the 1870 census. Since West Virginia adopted in 1883, the final West Virginia observation shows the year as 1883, the adoption indicator as one, and the values for workers per establishment and total workers are from the 1880 census. For Pennsylvania anthracite, which adopted in 1869, I included a value for 1865 with census information from 1860 attached; the 1869 observation uses 1870 census information. States were

not included in the sample unless they consistently produced more than 100,000 tons of coal by the 1920s. Anthracite and bituminous coal in Pennsylvania are treated as two separate state observations because Pennsylvania had separate regulatory codes and inspection staffs for the different types of coal. The 25 states led to 79 observations and all states adopted the law during the period under study. Information on the year of adoption is in Table 1. Information on production, number of mines, and employees is from the following U.S. mining censuses: U.S. Census Bureau 1865, clxxiii-clxxiv for 1860; 1872, 760-767 for 1870; 1886, 681-7 for 1880; 1892, 347-8 for 1890; 1905, 709-717 for 1902. Information for 1910 came from U.S. Geological Survey, various years. The coal union chapters is the number of local unions and chapters of national unions associated with coal mining from the Weeks Report (Weeks, 1886, pp. 14-19). The number of chapters in Pennsylvania were split evenly between the anthracite and bituminous observation. The number of chapters was the same for each state for all years that they were observed.

Table 6
OLS and Fixed Effects Regressions for Inspection Budgets per Coal Worker (1967\$) and Coal Regulation Index, 1902, 1910, 1920, 1930
Panel A:

Dependent Variable	Inspection Budget per Coal Worker									
	in 1967\$						Coal Mining Law Index			
	Mean	Std. Dev.	(1).		(2).		(1).		(2).	
Coef.			OSD Effect	Coef.	OSD Effect	Coef.	OSD Effect	Coef.	OSD Effect	
Variable Name										
Constant			2.408 (4.62).	-0.18	2.574 (4.46).	-0.64	3.938 (4.96).	-0.17	3.984 (4.18).	-0.37
Workers per mine	70.9	35.7	-0.005 (-1.49)	-0.18	-0.018 (-2.98)	-0.64	-0.005 (-0.69)	-0.17	-0.010 (-1.42).	-0.37
Number of Workers (000s)	20.5	33.96	-0.006 (-2.12)	-0.20	0.005 (0.73).	0.16	0.036 (7.05).	1.23	0.013 (0.99).	0.45
Percent UMWA	49.5	32.3	-0.004 (-0.95)	-0.14	-0.003 (-0.48)	-0.11	0.016 (2.11).	0.53	0.004 (0.41).	0.14
Year 1910					0.518 (1.56).				1.373 (2.62).	
Year 1920					-0.383 (-1.30).				3.373 (7.40).	
Year 1930					1.594				3.938	

State Effects		(4.26).		(8.60).
R-squared	0.134	0.658	0.239	0.796
Observations	90	90	92	92

Panel B:

Dependent Variable	Inspection Budget per Coal Worker in 1967\$						Coal Mining Law Index				
	Mean	Std. Dev.	(1). Coef.	(2). OSD Effect	(2). Coef.	(2). OSD Effect	(1). Coef.	(1). OSD Effect	(2). Coef.	(2). OSD Effect	
Variable Name											
Constant			2.243 (4.77).	-0.15	2.030 (4.90).	-0.015	-0.55	3.505 (4.86).	0.06	3.839 (4.79).	-0.42
Tons per Mine (000)	56.6	36.1	-0.004 (-1.09).	-0.15	-0.015 (-2.66)	-0.015	-0.55	0.002 (0.23).	0.06	-0.012 (-1.50)	-0.42
Tons produced (millions)	17.8	32.5	-0.005 (-1.80)	-0.16	0.003 (0.47).	0.003	0.11	0.037 (7.63).	1.21	0.014 (1.03).	0.44
Percent UMWA	49.5	32.3	-0.005 (-1.05)	-0.15	-0.004 (-0.52)	-0.004	-0.13	0.018 (2.25).	0.58	0.005 (0.41).	0.15
Year 1910					0.178					1.244	
Year 1920					-0.690					(2.70).	
					-0.353					3.404	

		(-1.25)		(7.70).
Year 1930		1.553		4.007
		(3.96).		(8.59).
State Effects		Included		Included
R-squared	0.043	0.635	0.243	0.800
Observations	89	89	91	91

Notes and Sources for Table 6: The t-statistics in parentheses below the coefficients are based on robust standard errors and on the null hypothesis that the coefficients are equal to zero. The OSD effect is the change in the dependent variable associated with an one standard deviation increase in the variable. The dataset is a panel for the 23 leading bituminous coal mining states for the years 1902, 1910, 1920, 1930. North Dakota appeared in the adoption regressions in Table 5, but is absent here due to missing data. The regulation index is the number of coal safety regulations enacted in the state by that date from the following list: the mine must be sprinkled or rock dusted, a fireboss must examine the mine for gas daily in gaseous mines, mine management must provide adequate timbers to prop the roof, underground electric wires must be insulated, miners cannot ride on coal cars underground, permissible explosives must be used, state inspectors must pass a qualifying exam, inspectors can close the mine immediately for some violations, inspectors have the power to make arrests for safety violations, mine foremen must be licensed by a state board, all miners must be licensed by a state board, foremen must ensure that all men have training, and the foreman must make a minimum number of visits to the workplace each day. A table showing the dates of enactment of each regulation for each state can be found in Fishback (1986, 284-5 and 1992, 114-5). The inspection budget per miner divides the appropriations for coal mining inspection by the number of miners in the state and adjusts for inflation using the Consumer Price Index (1967=1) from U.S. Bureau of Census (1975, series E-135, p. 211). Information on the laws and inspection budgets came from various issues produced by the Department of Labor with titles similar to “Labor Laws in the United States” and the legislative statute volumes for each state. See Fishback (1992, 238-40) for a lengthy description of the sources and methods used. The number of mines in 1902 is from U.S. Bureau of the Census (1905, 709-717). Information on total employment and tons produced for all years and on the number of mines for 1910, 1920, and 1930 come from various issues of the annual report Mineral Resources of the United States, Nonmetals, issued by the U.S. Geological Survey through 1922 and by the U.S. Bureau of Mines after 1922. Specific page numbers for each year are reported in Fishback (1992, 234-6). Information on membership in the United Mine Workers of America is from the U.S. Coal Commission (1925, 1052). The source did not provide information for 1930, so the 1923 values, the latest available, were assumed for that year.

ENDNOTES

¹ For example, see Stigler (1971), Kolko (1963), Becker (1983), Peltzman (1976), Buchanan, Tollison, and Tullock (1980). The formation of the Interstate Commerce Commission has been the center of extensive debate about capture. For example, see Gilligan, Marshall, and Weingast (1989), Kolko (1965), and Poole and Rosenthal (1993).

²For discussions of the early evolution of the common law of workplace accident compensation cases, see Tomlins (1988 and 1993 chapter 10). The basic principles for liability would continue to evolve into the early 1900s (see Friedman 1985, Ladinsky and Friedman 1967, Fishback and Kantor 2000, chapter 2).

³ Due care meant hiring "suitable and sufficient" co-workers, establishing and enforcing proper rules of conduct within the work environment, providing a safe workplace and equipment, and providing suitable warnings and instructions.

⁴See Posner (1972, 32), Landes and Posner (1985). Under assumption of risk the employer could be freed from liability if the accident was caused by factors that were ordinary for that type of work, or, if extraordinary, that the risks were known and acceptable to the worker when he took the job. A steeplejack, for example, who tripped and fell off of a steeple might not have received compensation from his employer because the steeplejack knew and accepted the risks associated with his line of work. Under the contributory negligence defense, workers could not collect damages if they might have avoided the accident by exercising due care themselves by preventing accidents when their prevention costs were lower than the expected damage. For instance, an employer would probably not have been liable for injuries a motorman sustained if he slammed into a wall while driving too fast to make a turn. Finally, the fellow-servant doctrine meant that an injured worker was not compensated if the actions of another worker caused the accident. A miner was not likely to be compensated by an employer under the negligence system if the miner's partner's failure to correctly prop a roof caused injury in a roof fall (see Fishback

and Kantor 2000, 30-33).

⁵Although this paper focuses on industry, railroad regulation and liability also went through a series of transformations. The safety laws for railroads were targeted specifically at railroading and the later changes in liability were quite distinct for railroads and industry. The dangers in the railroad industry were a driving force in the development of the common law liability regime that had developed by the end of the Civil War, as the lion's share of state Supreme Court cases that established the basic doctrines were related to railroad accidents (Tomlins, 1993, chapter 10). Prior to the Civil War several New England states had established commissions to secure "the safety of the general public by providing a board of officials whose duty it would be to see that all railroads in the states and rolling stock are kept in suitable repair and safe for travelers (quoted in Clark 1891, 24)." The heyday of commissions came after Commissioner Charles Francis Adams in Massachusetts led the way to expanded regulation following 1869. By 1891 34 states had some form of commission. Safety was just one of several issues with which the commissions were concerned, although Mark Aldrich (1997, 25-26) argues that the safety regulations were probably designed more to protect passengers and people and animals who might be hit than to protect railroad workers. Most investigated and reported accidents and sought to use a voluntary approach combined with publicity and negligence suits to guiding the railroads to improve their safety. A number of states required inspection of railroad beds, although Frederick C. Clark (1891) described such inspections as haphazard and largely ineffective. By the late 1880s and early 1890s several states required the use of some form of safety appliance. The Interstate Commerce Commission introduced federal safety regulations for the railroads with the Safety Appliance Act of 1893. In the late 1800s states passed a series of employer liability laws that limited the three defenses in some way. In 1908 the Federal Employers' Liability Act put the railroads on a different path from industry with respect to liability reform. Indemnity for railroad interstate workers and maritime workers continued under

the common law negligence standards. The Federal Employers' Liability Acts of 1906 (declared unconstitutional) and 1908 sharply limited the fellow-servant defense and switched from contributory negligence to comparative negligence. Later amendments in the 1930s eliminated the assumption of risk defense. The FELA of 1908 eliminated the fellow servant defense and established comparative negligence. In the late 1930s the assumption of risk defense was weakened. See Aldrich (1997), Clark (1891), Kim 1988, Kim and Fishback 1993.

⁶ See Fishback and Kantor (2000, Appendix G) for categorizations of the state laws.

⁷ For discussions optimal design of regulation and liability, see Landes and Posner (1987), Shavell (1987), Polinsky and Shavell (2000), and Glaeser and Shleifer (2003). In the optimal setting workers and employers prevent all accidents where the costs of prevention are below the expected loss from the accident, (where the expected loss is the accident probability multiplied by the damage). In settings with heterogeneous firms, the optimal system should not force firms to prevent accidents for which prevention costs exceed the expected damage. Further, the system should insure that the lower-cost preventer, employer or worker, prevents the accident.

⁸Becker (1983), Stigler (1971), Pelzman (1976), and Buchanan, Tollison, and Tullock (1980) discuss how interest groups might capture the legislative process. Once the rules are in place we might also see both capture and corruption of the regulatory process (Kolko 1965).

⁹Fishback and Kantor (1995, 2000) find that when workers' compensation was introduced union members actually did not experience wage cuts that offset improvements in post-accident payments, while nonunion workers experienced reductions to varying degrees. Even nonunion workers who experienced reductions saw improvements in their welfare because they were better insured against accidents.

¹⁰The stakes involved in many decisions were lower under workers' compensation than under negligence liability. Under negligence liability the stakes in each decision were high because each involved an all-or-nothing decision about fault. In contrast, most workers' compensation disputes arose over the extent of the injury and measures of the workers' wage in

determining the appropriate values to plug into the state's formula for compensation. The remaining decisions, however, were all-or-nothing decisions with far-reaching consequences for workers' compensation policy. Decisions on what constituted a work-related injury and opinions on whether the employer was willfully negligent (which removed the restrictions on compensation) established the boundaries of workers' compensation and were similar in scope to the stakes in a major negligence case. Given the large number of settlements under negligence liability, the annual number of these boundary decisions may have been similar to the number of negligence cases that were actually decided by the courts.

¹¹When studying safety legislation, I found scandals related to other issues. In Ohio at the time workers' compensation was introduced a scandal revealed that some state legislators had conspired to propose "milker" bills to draw more contributions from employers. The legislators were said to know that such bills, like a women's hours law, would draw opposition from major groups who would spend actively to defeat them. The extensive labor history literature on struggles for unionization in the coal industry makes extensive claims that coal employers had extensive control over state legislatures, local officials, and even Governors. For examples, see Corbin (1981) and numerous sources cited in Fishback (1992, 1995).

¹²Some of the judges that presided over some of these bribery trials were later charged with corruption in the 1930s in a series of scandals related to patent trials. See Borkin (1962).

¹³For example, in the struggles over the specifics of workers' compensation benefit levels, states with more industries where unions were important tended to offer higher benefit levels. Unions and progressive reformers succeeded in obtaining state insurance of workers' compensation benefits in nearly half of the states despite the active opposition of insurance companies (Fishback and Kantor, 2000).

¹⁴Mark Aldrich (1997, p. 211-258) suggests that the safety legislation often had complex effects on mine safety. Requirements for new technology or practices that seemed reasonable on

the surface were often resisted by miners. In some settings the new technology created new safety hazards. In other settings miners worried that employers might claim that use of the technology allowed them to eliminate other safety precautions.

¹⁵Comparisons are based on mine inspector salaries in state mining laws and average annual earnings of coal miners (Fishback 1992, 80-81) and average annual earnings for salaried workers in manufacturing from the manufacturing census (U.S. Bureau of Census, Manufacturing, volume 3, 1933, 43-600).

¹⁶ These accounts are largely based on Stein (1962) and McEvoy (1995).

¹⁷For the text of the law, see U.S. Commissioner of Labor 1907, 912-3. The quotes from factory inspectors are in Stein (1962, 23-4). The U.S. Commissioner of Labor (1907, 913) does not report such a court ruling as of 1907.

¹⁸It is likely that the Triangle Fire had a relatively small impact on New York's adoption of workers' compensation. New York had already adopted one version of a workers' compensation law in 1910 for extrahazardous employment, but it was declared unconstitutional early in 1911. Meanwhile, large numbers of other states were adopting the law. New York passed the permanent version of the law in 1913 before most newspaper reports documenting the small settlements for the accident victims.

¹⁹ The relationship is complicated because the Glaeser/Shleifer (2003) model shows that scale can increase to a level where no regulation at all is preferred to regulation, negligence liability or strict liability. Their empirical discussion of the rise of regulation suggests that they don't believe that the U.S. was in the range where no regulation was optimal.

²⁰ North Dakota was in the adoption sample but missing data forced its elimination from the study of inspection budgets and coverage of the laws.

²¹ There may be other explanations for the negative relationship between average mine size and inspection budgets. If there were substantial economies of scale in inspecting each mine,

a smaller inspection budget per mine worker might have achieved the same results as the average mine increases in size. This argument appears to be contradicted if the goal was to reduce accident rates. Both Fishback (1986, 1992) and Aldrich (1997, 337-8) find that increases in resources for inspection per worker (or per ton) were associated with lower accident rates.

²² I have experimented with other control variables but none were found to be statistically significant in the analysis. Fishback and Kantor (2000) found that reform groups contributed to the adoption of workers compensation. I tried several measures of political activity in all of the adoption and coal regulation equations, including shares of votes for populist presidential candidates in the 1890s, voting for Republicans and Socialists for president in the 1900s, and Poole and Rosenthal's (1993) spatial coordinates for the location of U.S. Senators along conservative/liberal spectrums and rural/urban spectrums at various times. The measures generally had small and statistically insignificant effects. Since Mark Aldrich (1997) and William Graebner (1977) suggest that large explosions contributed to expanded regulations, I developed a measure of large-scale accidents for the study in Table 7, but its impact was always small and statistically insignificant.

Holmes (2003) and Holmes and Fishback (2003) have been exploring the determinants of total labor spending in the states in the early 1900s. Some results may be available by the time of the conference.