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THE ADOPTION OF WORKERS' COMPENSATION
IN THE UNITED STATES, 1900-1930

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ABSTRACT

The adoption of workers' compensation in the 1910s, from a variety of perspectives, was a significant event in the economic, legal, and political history of the United States. The legislation represented the first instance of a widespread social insurance program in the United States, setting the stage for the later adoption of federal government programs for unemployment insurance, old-age pensions, and health insurance. In this paper, we show that the adoption of workers' compensation was not the result of employers' or workers' "capturing" the legislation to secure benefits at the expense of the other group. Nor was the success of compensation legislation simply the outcome of Progressive Era social reformers' demands for protective legislation. Workers' compensation was enacted rapidly across the United States in the 1910s because the key economic interest groups with a stake in the legislation -- employers, workers, and insurance companies -- anticipated benefits from resolving an apparent "crisis" in the negligence liability system. During the first decade of the twentieth century, workplace accident risk rose, state legislatures adopted a series of employers' liability laws, and court decisions limited employers' defenses in liability suits, which all combined to substantially increase the uncertainty of the negligence liability system.

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The Adoption of Workers' Compensation in the United States, 1900-1930

The adoption of workers' compensation in the 1910s, from a variety of perspectives, was a significant event in the economic, legal, and political history of the United States. Workers' compensation represents one of the major tort reforms of this century, shifting liability for workplace accidents from negligence liability to a form of shared strict liability. The legislation marked a radical shift in the way that employees were compensated for the medical expenses and wage losses that resulted from industrial accidents. Workers' compensation was the first widespread social insurance program in the United States, paving the way for the later adoption of government programs for unemployment insurance, old-age pensions, and health insurance. Economic theories of the development of regulation suggest alternative reasons for government intervention. Interest groups might compete for legislation that enables them to redistribute income in their favor at the expense of others (e.g., the "capture" or "rent-seeking" models); or, faced with some set of market problems, interest groups might develop a cooperative solution whereby they all gain; or alternatively, regulations might be enacted as part of the broad-based agenda of a political-economic coalition.¹ In this paper we show that the adoption of workers' compensation was not the result of employers' or workers' "capturing" the legislation to secure benefits at the expense of the other. Nor was the success of workers' compensation simply the outcome of Progressive Era social reformers' demands for protective legislation. Workers' compensation was enacted so rapidly across the United States in the 1910s because the key economic interest groups with a stake in the legislation anticipated benefits from resolving an apparent "crisis" in the legal framework that governed workplace accident compensation.

The paper discusses the origins of workers' compensation in three steps. First, we examine what different interest groups expected to gain from the adoption of workers' compensation. On the surface it might appear that workers, with the help of Progressive Era social reformers, scored a major victory over their employers when state governments enacted compensation legislation because

workers' expected post-accident benefits rose dramatically. Our research shows that while workers certainly benefitted from the legislation, but for different reasons than social reformers presumed, employers and insurance companies also anticipated gains from the introduction of workers' compensation. Employers were able to pass the costs of the higher post-accident compensation enacted by workers' compensation on to most workers through wage offsets. Risk-averse workers, despite "buying" the higher benefits, benefitted because they faced problems in purchasing their desired levels of private accident insurance early in the twentieth century. The switch to workers' compensation left them better insured against workplace accident risk, and the laws enabled the insurance industry to expand their coverage of this risk. Thus, workers' compensation succeeded, while many other relatively radical proposals of the Progressive Era failed, because it received the support of a broad range of economic interest groups. Although the details of the legislation were sometimes contentious political issues, employers, workers, and insurers all anticipated net gains from the introduction of the workers' compensation concept.

Second, we address the issue of why, if so many parties anticipated benefits from the legislation, state legislatures waited until the 1910s to adopt the legislation. Workers' compensation in many ways was a national movement; most states enacted the law within a very short period in the 1910s. One of the important contributions of this paper, therefore, is to document empirically the factors that led to the widescale national movement to enact workers' compensation. Several changes in the workplace accident environment in the early 1900s combined to pique workers' and employers' interests in establishing workers' compensation. Workplace accident risk rose, state legislatures adopted a series of employers' liability laws, and court decisions limited employers' defenses in liability suits, which all combined to substantially increase the uncertainty of the negligence liability system. Employers, facing an increasingly worsening workplace accident liability crisis, were widely in favor of workers' compensation by 1910.² Also at this time, growing labor unions shifted their focus from

reforming the negligence liability system, with which they were becoming increasingly dissatisfied, to full support for workers' compensation.

Third, we provide additional evidence that changes in the liability environment that were occurring across the United States contributed to the adoption of workers' compensation just after 1910 by examining the variation in the timing of adoption across the states. Despite the fact that the national movement for workers' compensation might mute the measurable impact that the liability crisis or interest group strength had on the adoption of the legislation in any one state, analysis of the timing of adoption across the United States supports our contention that a liability crisis in the early years of the twentieth century played an important role in the introduction of workers' compensation. We also find some evidence that the strength of particular interest group helped to determine the speed with which a state joined the workers' compensation movement. Finally, the cross-state analysis allows us also to assess the role that political reformers during the Progressive Era played in the adoption of the legislation. Generally, we find that social reformers played a much smaller role in the overall adoption of workers' compensation laws than they did in determining the particular features -- such as benefit levels or state insurance of workers' compensation risk -- of the legislation in a particular state.

The Negligence Liability System and Calls for Reform

Prior to workers' compensation an employer's legal obligation to compensate an injured worker was determined by the common law rules of negligence. To collect accident compensation the injured worker bore the burden of proving that his employer had failed to exercise "due care" in protecting the injured worker from the accident and that the employer's negligence was the proximate cause of the injury.³ Even if an employer were found to be negligent, he could escape liability through three common law 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

Workers' compensation altered employers' workplace accident liability such that they were required to pay workers up to two-thirds of their lost compensation for all accidents arising out of or in the course of employment. Contemporary reformers and social and labor historians have considered workers' compensation to be more than just an example of tort reform; they have hailed the legislation as the first instance of social insurance in the United States (Ely 1908; Eastman 1910; Conyngton 1917; Lubove 1967; Weinstein 1967; Goldin 1995). The adoption of workers' compensation in the 1910s set the stage for the more widespread social insurance programs of the New Deal and Great Society eras. Further, compensation laws in many states expanded the role of legislators and administrative agencies in determining the levels of compensation for injured workers.

Contemporary reformers and historians have suggested a variety of reasons for the introduction of workers' compensation.⁵ First, because the levels of post-accident compensation were uncertain and relatively low under the negligence system, many families of accident victims had to rely on charity to weather their financial losses. In studies of fatal-accident compensation under the negligence system, the percentages of families receiving nothing ranged from 20.4 percent in a New York Department of Labor sample to as high as 60.9 percent among men killed in Illinois before 1911. Among families receiving a positive amount, the average award ranged from 61 to 154 percent of the deceased worker's annual earnings, depending on the sample. When families receiving no compensation are included in the averages, the level of post-accident compensation for fatalities ranged from 38.3 percent of annual earnings for married men in Pennsylvania to 119.5 percent in Minnesota.⁶ The introduction of workers' compensation had two important effects on post-accident payments to injured workers: the percentage of families of seriously or fatally injured workers who received compensation rose to nearly 100 percent and the present value of the stream of accident benefits rose to 180 to 400 percent of annual earnings (Fishback and Kantor 1995).

A second explanation for the shift away from the negligence system was that it created unnecessarily large transaction and administrative costs. Attorney's fees, court costs, and the administrative costs of insurance left large gaps between what employers paid out in terms of post-accident compensation and what workers ultimately received. The largest cost to injured workers probably was the cost of court delays, which could last up to 5 years. Reformers sought to reduce administrative costs, court delays, and insurance overhead costs by creating a no-fault compensation system that eliminated disputes over negligence or the applicability of the three defenses.

Third, social reformers decried the common law system of assigning negligence as an anachronism because modern industrial processes created accidents that were neither the fault of the worker nor the employer, they were simply the outcome of dangerous working conditions (see Kantor and Fishback 1995, p. 411). Thus, restricting compensation to cases where the employer was at fault left large numbers of injured workers uncompensated, even though their accidents may not have been their fault. Finally, because workers bore the disproportionate share of accident costs under the negligence system, reformers argued that the negligence system gave employers little incentive to reduce accident risk. By shifting the financial burden of industrial accidents onto employers, reformers claimed, accident rates would fall.

In hindsight, it is not clear that workers' compensation settled many of the problems that reformers hoped to solve. Total administrative costs for workplace accidents did not necessarily fall with the introduction of workers' compensation. While the administrative costs per case may have fallen with the introduction of no-fault liability, the number of cases administered rose dramatically after the law was introduced. Further, since most cases under negligence liability were settled outside the courts, it is an empirical question whether administrative costs per case even fell.⁷

Further, the evidence on improved accident prevention is mixed. Reformers held the naive view that employers faced little incentive to prevent accidents under the negligence system. Yet

insurers used experience rating and inspections to reward safer workplaces with lower premiums, while employers potentially could reduce risk premiums in wages by making their workplaces safer (see Fishback and Kantor 1992). Reformers also failed to consider moral hazard problems. With workers potentially taking less care and employers taking more to avoid accidents, how overall accident rates would change is theoretically uncertain. Empirical estimates vary, as the adoption of workers' compensation in manufacturing reduced accident rates (Chelius 1976), but raised them in the coal mining industry (Fishback 1992, pp. 112-25).

The Formation of a Coalition in Favor of Reform

An important question that has been inadequately addressed in previous studies of the origins of workers' compensation is why employers were willing to concede such a substantial increase in post-accident benefits to workers. Social reformers believed that the rise in accident benefits associated with workers' compensation was a great victory for workers, but why would employers support such a major de jure redistribution of income?

Lubove (1967) and Weinstein (1967) claim that employers supported the legislation as a means of buying labor peace, as a way to stem the tide of court rulings that increasingly favored injured workers, and as a way to reduce the costs of settling accident claims. As will be shown later, the negligence system was becoming increasingly burdensome to employers, but none of these explanations seems completely satisfying because none seems to offer large enough benefits to offset the overwhelming increase in post-accident compensation that employers accepted. What contemporary social reformers and historians failed to recognize, however, is that increases in employer-mandated benefits often lead to wage declines that are large enough to fully offset the increases in expected benefits.⁸ Fishback and Kantor (1995) analyzed wages from the coal mining, lumber, and construction industries in the early twentieth century and found that nonunion workers essentially "bought" the more

generous and more certain benefits mandated by workers' compensation laws through lower real wages. Union workers, on the other hand, experienced much smaller wage reductions.

That such a large fraction of the workforce experienced wage offsets helps to explain employers' widespread willingness to embrace the idea of workers' compensation. What appeared to be a large-scale transfer of income from employer to worker was, in fact, largely illusory. If employers could anticipate that workers would pay for the increase in post-accident benefits, then they were more likely to favor a no-fault compensation system that was less acrimonious and more certain than negligence liability. Similarly, organized labor's diligent lobbying on behalf of workers' compensation is understandable given that union members experienced relatively small wage declines.

What is less clear is why nonunion workers, who constituted the majority of the labor force, also supported workers' compensation. After all, many could expect to fully pay for their new benefits in the form of wage reductions. Workers would have had little desire to "buy" the higher accident benefits under workers' compensation if they could just as easily have used the risk premia in their old wages to purchase their own workplace accident insurance. A central question concerning the economic motivation for the adoption of workers' compensation, therefore, is the extent to which workers had access to their desired levels of private accident insurance around the turn of the century.

In Kantor and Fishback (1996) we argue that workers were largely unable to purchase the full amount of accident insurance that they desired. Although accident insurance represented the most direct way for workers to insure against occupational accident risk, the personal accident insurance business was very limited in the early twentieth century. Only \$18.8 million in accident premiums were collected by commercial insurance companies in 1911, compared with \$564.7 million in whole-life insurance premiums and \$750.9 million in industrial life premiums (Cyclopedia of Insurance 1913, pp. 4, 154-55, 180-81).

The accident insurance market might have been limited by the informational problems of

insuring an individual worker's accident risk. With little information on the accident proneness of the individual, the insurance industry had to base insurance premiums on occupational averages. Such pricing would have led to adverse selection problems, as accident-prone workers would have purchased the insurance and more careful workers would not. Insurance companies could expect no help from employers in identifying accident-prone workers because negligence liability rules allowed employers to invoke the contributory negligence defense to avoid compensating careless workers. Thus, employers had less incentive to fire irresponsible workers or to impose restrictions on their behavior.

The standard means of reducing problems of adverse selection is to limit the amount of insurance the worker could buy or to establish pricing policies designed to discourage more accident-prone individuals. Accident insurers followed both practices. The Aetna Life Insurance Company (1919, pp. 96) imposed limits on the risks they would insure, setting death benefit maximums as low as \$250 for coal miners, who faced the most dangerous working conditions in the early twentieth century. Physicians, on the other hand, could insure their lives for up to \$10,000 for accidental death. Further, accident insurance was noted for its high load factors. Even with the high loads, a number of companies writing accident insurance failed over the period 1917 to 1926, while the surviving stock companies suffered a slight underwriting loss (Kulp 1928, p. 576). The end result was that many workers were unable to purchase complete coverage, and possibly some were shut out of the market altogether.

Workers also tried to obtain insurance through union funds and establishment funds, which were nearly entirely funded by workers' contributions. The funds expanded the range of insurance that workers could obtain, but typically the amount of coverage in the funds was small.⁹ In 1908, the average death benefit was \$109 in establishment funds and \$89 in union funds, enough to cover burial expenses. Many funds offered no temporary disability benefits. In the funds where temporary disability benefits were available, the average maximum benefit was about \$5 in both establishment and

union funds, and the payments only lasted for an average of 15 weeks (U.S. Commissioner of Labor 1909, pp. 234-67, 448-87). In contrast, \$5 was typically the minimum payment under workers' compensation and benefits for long-term disabilities lasted up to three to five years.

Absent full insurance coverage, families had to rely on household mechanisms, such as saving, to insure against accident risk. Saving was a relatively costly means of insurance, however. In an empirical analysis of saving behavior among households surveyed for the 1917-1919 U.S. Bureau of Labor Statistics Cost-of-Living study, we found that for every \$1 increase in expected post-accident benefits, workers reduced their annual saving by \$1.50, thus suggesting the costly nature of using saving to insure against risk (Kantor and Fishback 1996). Thus, even though their wages might have fallen, risk-averse workers might have benefited from workers' compensation because the laws provided them with a level of expanded insurance coverage against workplace accident risk that was difficult to obtain privately under negligence liability.

Insurance companies also stood to gain from the passage of workers' compensation, as long as states did not try to displace private insurers through the establishment of state insurance funds.¹⁰ Because of the adverse selection problems associated with selling individual accident insurance, insurers stood to gain if the law compelled employers to insure their entire payrolls. The rise in post-accident payments from employers to workers under workers' compensation meant that employers would purchase substantially larger amounts of insurance than they did under negligence liability. In fact, premiums collected by commercial insurance companies for workers' compensation insurance rose from zero in 1911 to \$114 million in 1920, despite the presence of compulsory state funds in 7 states and competing state funds in 10 more. The \$114 million rise more than offset a \$41.5 million shortfall in employers' liability premiums between the actual level of \$86 million in 1920 and a predicted level of \$129.5 million based on the annual growth rate from 1905 to 1911, the years prior to the introduction of workers' compensation laws.¹¹ Workers' compensation legislation clearly expanded

the effective opportunities for writing insurance, which explains the insurance industry's general support for the legislation.

If, as we have argued, employers, workers, and insurers stood to gain from workers' compensation, then why was a governmental solution necessary? If the widespread benefits of the legislation were anticipated, we might have expected a more significant private movement to establish workers' compensation-like funds at the firm level. Such funds would have allowed workers to sign contracts with employers in which a worker, before an accident occurred, waived his right to a negligence suit in return for a guaranteed set of accident benefits, regardless of whose fault the accident was. The simple answer to this apparent paradox is that the courts did not recognize an *ex ante* contract in which a worker waived his right to a negligence suit in return for a set of disability benefits like those under workers' compensation.¹² Legally, therefore, employers could not mimic the workers' compensation system privately.

In essence, workers' compensation laws allowed a form of contract between worker and employer that had been disallowed by common law decisions and statutes. The pre-accident nature of the workers' compensation contract was extremely important in expanding the amount of insurance that employers could offer to workers. Prior to workers' compensation, the courts allowed firms to offer relief contracts in which an injured worker's acceptance of post-accident benefits implied his waiver of future negligence claims. This type of *ex post* contract was acceptable only if the employer had contributed significantly to the firm's relief fund (U.S. Commissioner of Labor 1908, p. 755). Because the injured workers could always refuse the post-injury payment and file a negligence suit, relatively few employers established funds where they were the primary contributor. In only 140 of 461 establishment funds examined by the U.S. Commissioner of Labor (1909, pp. 339, 538-53) in 1908 did employers make contributions to the funds, and in most cases their contributions were less than one-third the levels contributed by workers. The employer gained little from contributing to the relief funds

because he expanded the number of workers to whom he was paying benefits, while not removing the uncertainty of the negligence system. That is, injured workers who would have received nothing under the common law could now claim the guaranteed benefits from the employer's fund, while the workers with strong cases could choose to seek large court awards or settlements.

The ex-ante nature of workers' compensation contracts allowed the employer to eliminate the uncertainties of large court awards in return for providing his workers with a set of benefits that on average were higher than those under negligence liability. Workers, in turn, were able to obtain a relatively better set of insurance benefits than before. Meanwhile, insurers found it easier to sell workers' compensation insurance than the combination of employers' liability and accident insurance. In essence, the major players involved in workplace accident compensation all saw potential gains from the establishment of workers' compensation.

National Changes in the Workplace Accident Liability Climate

The first decade of the twentieth century saw dramatic changes in the economic and legal environment surrounding workplace accident compensation, and these changes facilitated the formation of a political coalition in favor of workers' compensation. Understanding the timing of the adoption of workers' compensation requires examination of both national and state-level trends. The workers' compensation movement was national in scope and after 1910 the legislation was adopted rapidly across the United States; therefore, in this section we examine national changes that brought the major interest groups with a stake in workers' compensation together in favor of reform. The legislation, however, was adopted, and is administered today, at the state level. We further illuminate the factors influencing the passage of workers' compensation in the next section with a quantitative analysis of state legislatures' decisions to adopt.

The American movement for compensation legislation essentially began in 1898, when the New

York Social Reform Club presented the New York legislature with a compensation bill emulating the 1897 British law.¹³ The bill was killed in committee and deemed “too radical to pass” by the bill’s legislative sponsor (Weiss 1935, p. 571; Asher 1983, pp. 207-08). As the economic and political environment in which any legislation is considered changes, public policy that seems “radical” at one time, is totally appropriate for another.

In the first decade of the century, the danger associated with manufacturing work appears to have increased. Shifts in employment within manufacturing towards more dangerous industries between 1899 and 1909 raised accident risk by approximately 13 percent.¹⁴ Within industries there may also have been an increase in accident risk. Table 1 shows that fatal accident risk in coal mining rose roughly 20 percent from 1890 to 1910, from a decennial average of 1.43 workers per 100,000 man days in the 1890s to 1.71 in the 1900s. Meanwhile, the percentage of workers in mining increased from 2.6 percent in 1900 to 2.8 percent in 1910, increasing the number of miners by 300,000 and thus the annual death total by about 600 workers. In railroading, the fatal accident rate in Table 1 appears to have fallen, coincident with the introduction of many safety appliance laws. However, the reported railroad nonfatal accident rate took a substantial turn upward. Even if the upward trends in accident risk were the outcome of more rigorous data collection, social reformers brandished the statistics as evidence of the growing workplace accident crisis. The publicity effect alone was enough to stir concern that industrial accidents, along with the related financial hardship that they caused, were becoming a serious problem in the United States.

The rising trend in industrial accidents added to the consternation of employers because it occurred within an increasingly unfavorable legal climate. As shown in Table 2, the number of states with employers’ liability laws that restricted one or more of an employer’s three common law defenses for nonrailroad accidents rose dramatically from 8 in 1900 to 26 in 1913.¹⁵ The laws acted as precursors to workers’ compensation-style legislation because in the political compromises through

which the laws were passed, employers traded an expansion of the scope of their liability for limits on the amounts a worker or his heirs could collect in damages.

The courts in a number of states also actively modified the common law defenses. For example, the Washington Supreme Court limited the assumption of risk defense in Green v. Western American Company in September 1902. Despite efforts by employers to change the language in the factory inspection acts to limit their liability, the Washington Supreme Court consistently ignored the new factory acts and limited assumption of risk in a series of cases throughout the rest of the decade (Tripp 1976, pp. 532-37).

One sign of the increased legal uncertainty engendered by shifts in the courts' attitude and the new employers' liability laws is the substantial rise in the number of state supreme court cases related to nonrailroad workplace accident litigation. If court interpretations had remained certain, injured workers and employers typically would have settled out of court, avoiding the high costs of litigating. As the courts' interpretations shifted, the increased uncertainty about the common law would have led the parties to test the bounds of the law in court more often, as well as to increase appeals to the state supreme court. A substantial rise in uncertainty seems to have occurred, as the number of nontrain cases in state supreme courts increased steadily from 154 in 1900 to 490 in 1911 (see Table 2), an almost fourfold jump in workplace accident litigation at the highest judicial level alone.¹⁶

The expansion of employers' liability and the greater uncertainty of the legal system caused a large increase in the liability insurance premiums that employers paid. In Washington, for example, the series of court decisions limiting assumption of risk caused insurance rates to triple on a new model plant with all of its safety devices installed. Total premiums for employers' liability insurance in Washington rose 11-fold from 1900 to 1910.¹⁷ These same trends occurred nationally. As shown in Table 2, the premiums that all commercial insurance companies collected for personal accident and employers' liability insurance rose from \$63.7 million in 1900 to \$225.3 million in 1911 (constant 1967

dollars), a 354 percent increase. Moreover, this increase in insurers' coverage of employers' liability was not simply an artifact of an ever-increasing insurance industry because liability insurance outpaced other forms of insurance. The ratio of accident and employers' liability premiums to life insurance premiums increased from 0.062 in 1900 to 0.115 in 1911 (see Table 2).¹⁸ We should note that the increase in aggregate liability premiums conflates increases in insurance rates with the expanded coverage that employers may have sought. Even if the increase in liability premiums was not completely driven by increases in insurance rates, the figures suggest that the weakening of employers' common law defenses encouraged employers to pay more attention to accident compensation issues than before.

The worsening workplace accident liability problem in the early 1900s encouraged employer-supported lobbying groups to explore the possibility of a switch to a no-fault compensation system. In 1907 the American Association of Labor Legislation (AALL) formed with funding from Gary, Rockefeller and Macy (Weinstein 1967, p. 162). The AALL became one of the leading advocates for workers' compensation, along with many other socioeconomic reforms (see Skocpol 1992, pp. 160-204). The federal government, which often played a leading role in offering relatively generous workplace benefits, established workers' compensation for federal workers in 1908 as a result of Theodore Roosevelt's strong support (Lubove 1967, pp. 263-64; Johnson and Libecap 1994). Between 1908 and 1910 the National Civic Federation, which was composed of leaders from major corporations and conservative unions, devoted substantial time in their meetings to developing and promoting a workers' compensation bill. Meanwhile, the National Association of Manufacturers (NAM) in 1910 called on its members to provide voluntary accident insurance, but then in 1911 the NAM fully endorsed workers' compensation as a solution to the accident compensation problem (Weinstein 1967; Lubove 1967).

Employers' shift in interest toward workers' compensation coincided with changing sentiments

among organized labor, whose ranks were rapidly expanding during this time period. Membership in labor unions increased sharply from 868,000 in 1900 to 2.14 million in 1910, growing nearly three times faster than the labor force (Wolman 1936, p. 16). The attitudes of major labor organizations went through a substantial change as they gained more experience with the results of employers' liability laws. Around the turn of the century, the American Federation of Labor believed that better accident compensation could be achieved by stripping employers of their three defenses (Somers and Somers 1954, p. 31; Weinstein 1967, p. 159). Organized labor's reluctance to embrace workers' compensation was part of a more general opposition to government regulation of the workplace on the theory that business interests controlled politics and, thus, better benefits for workers could be achieved only through the voluntary organization of workers (Weinstein 1967, p. 159; Skocpol 1992, pp. 205-247). As seen in Table 2, the lobbying pressure from organized labor caused numerous state legislatures to pass employers' liability laws. After achieving this goal they seem to have become dissatisfied with the results. Large numbers of injured workers were still left uncompensated and a substantial percentage of the insurance premiums paid by employers never reached injured workers. Organized labor harshly criticized insurance companies and lawyers as "parasites pure and simple, absolutely unnecessary in industry, yet demanding a part of its created wealth which they have no part in creating, thereby raising the cost to both producer and consumer."¹⁹ In 1909 the AFL switched its position and passed four resolutions supporting workers' compensation legislation and the organization, at the federal level and through its state affiliates, became vocal proponents of the legislation.

Employers' and workers' increased interest in workplace accidents coincided with, and may have contributed to, the expansion of states' increasing regulation of the work environment. Table 2 shows that state spending (in constant 1967 dollars) on factory inspections, boiler inspections, arbitration and mediation, and publishing labor statistics doubled from \$0.09 per employed worker in 1900 to \$0.19 by 1910.²⁰ The increase in spending was often associated with an expansion of state

labor department bureaucracies and in many states the state labor department itself became an advocate for the introduction of workers' compensation and further regulation of labor markets.²¹ In fact, workers' compensation represented the leading-edge of labor legislation during the period. The labor law index (which excludes workers' compensation) in Table 2 illustrates this point. The index stays roughly constant between 1.5 and 2 until 1911 and only rises coincident with or following the first wave of enactments of workers' compensation laws.

The aggregate-level data presented in this section suggest that a workplace accident liability crisis in the first decade of the twentieth century helped spark a national movement in which employers and workers enthusiastically supported workers' compensation. The first decade of the twentieth century witnessed increasing accident rates rose, state legislatures and courts more broadly interpreting employers' liability than before, and social reformers, organized labor, and state labor bureaucracies becoming more vocal supporters of reforming the legal framework that determined workplace accident compensation. These trends were occurring across the United States and help to explain why workers' compensation was enacted so swiftly and uniformly across the United States in the 1910s. In the next section we use a discrete-time hazard model to provide an additional test of our main hypothesis that a liability crises made workers' compensation nationally prominent by 1910. Since different states adopted workers' compensation in different years, we use this cross-sectional variation as the basis for our empirical test. We should emphasize that since the legislation swept across the United States relatively quickly, the measured importance of any particular variable on the adoption of workers' compensation is dampened. Thus, the results we report in the next section should be seen as lower-bound estimates of the determinants of the legislation. Our empirical test not only includes the measures of the liability crisis we explored in this section, but it also attempts to estimate the importance of particular interest groups and the role of political reformers who gained political influence during the Progressive Era.

The Timing of Adoption Across States

The adoption of workers' compensation occurred relatively quickly across the United States, after a couple of experiments in Maryland in 1902 and Montana in 1909 were declared unconstitutional.²² In the second decade of the century, as Table 3 shows, 43 states adopted workers' compensation. By 1930 only Arkansas, Florida, Mississippi, and South Carolina had not yet enacted the legislation. As Harry Weiss (1935, p. 575) noted, "No other kind of labor legislation gained such general acceptance in so brief a period in this country."

The aggregate and qualitative analysis thus far suggests that the perceived or actual rise in accident risk and the expansion of employers' liability gave employers, workers, and insurance companies incentives to support the adoption of workers' compensation. In this section we examine this description more fully by analyzing empirically the factors that contributed to the adoption of workers' compensation at the state level across the United States.²³ The model underlying the empirical work assumes that the legislatures' adoption choice was determined by pressures from various interest groups.²⁴ We expect that interest groups intensified their pressure on state legislatures in response to the worsening liability crisis, as measured by increases in manufacturing accident rates, the presence of an employers' liability law, higher employers' liability insurance premiums, and an increase in workplace-accident litigation. The earlier discussion that employers, workers, and insurers anticipated gains from workers' compensation implies that measures of the strength of these interest groups should be associated with a higher probability of adopting the legislation. In addition, we control for the political climate in which workers' compensation was adopted. We test the extent to which the liability "crisis," interest group strength, and the political environment affected each state's probability of adopting workers' compensation in each year that its legislature met between 1909 and the year the legislature adopted the legislation, using 1930 as the terminal year of our study.

We estimate an equation summarizing the adoption decisions by legislatures between 1909 and

1930 using a discrete-time hazard model with time-varying covariates (Allison 1984, pp. 16-22; Yamaguchi 1991, pp. 16-24):

$$\ln (p(t; \mathbf{X})/[1-p(t; \mathbf{X})]) = a + b \mathbf{X} + e,$$

where $p(t; \mathbf{X})$ is the conditional probability of adoption at a discrete point of time year t given that the event did not occur prior to time t and given the covariate vector \mathbf{X} (the liability, interest-group, and political variables); b is a $1 \times k$ vector of coefficients for the $k \times 1$ covariate vector \mathbf{X} ; a is the log-odds of a baseline group where the vector \mathbf{X} is all zeroes; e is an error term.²⁵ We chose the discrete-time hazard model because there were significant discontinuities in the opportunities for legislatures to adopt workers' compensation. The legislatures could only adopt workers' compensation when they met, and most legislatures met every other year.

Table 4 presents the economic impact of the variables based on the coefficients of the discrete-time hazard model. For continuous variables the economic impact shows the change in the probability of adopting workers' compensation caused by a one-standard-deviation (OSD) increase in each independent variable, holding all others constant at their sample means. The economic impact of the dummy variables shows the change in the probability when the dummy variables switch from zero to one. Note that a positive effect implies that an increase in the variable leads to a higher probability of enacting the legislation. The absolute value of t-statistics of the coefficients from the hazard model are reported in parentheses to allow the reader to assess the statistical significance of the hypotheses tests. In the discussion below we focus on the results in Column (1).

Changes in the Legal Environment Governing Accident Compensation

Lubove (1967) and Weinstein (1967) argue that a key reason why employers supported workers' compensation was the increasingly antagonistic legal climate in which accident claims were settled. Certainly, the passage of employers' liability laws, the rise in accident risk, the rise in the number of court cases, and the increase in liability insurance premiums at the national level are

consistent with this claim.

The results in Table 4 provide corroborating evidence that workers' compensation was enacted more quickly in states where employers' accident liability was expanding. When states enacted liability laws that limited an employer's common law defenses, an injured worker's chances of successfully suing his employer for damages increased. The presence of an employers' liability law altering one of the three common law defenses raised the probability of adopting workers' compensation by a statistically significant 6.0 percentage points. By contrast, an employers' liability law that simply restated the common law, with no expansion in employers' liability, exerted virtually no impact on the probability of adoption.

We measured employers' greater uncertainty about the accident liability situation in their respective states using an index of the number of state supreme court cases dealing with workplace accidents.²⁶ We expect that an increase in litigation at the supreme court level reflects a rise in uncertainty about the legal system because when the law is clearly established, both parties are likely to settle the case out of court to avoid costly litigation. As uncertainty about judicial decisions rises, we expect that at least one of the sides has greater incentive to seek a court decision. A rise in the supreme court case index was associated with a statistically significant increase in the probability of adopting workers' compensation. An OSD increase in the index would have increased a state's probability of enacting the legislation by 2.4 percentage points.

Changes in both accident risk and the legal environment would have been compounded by a rise in the employers' liability insurance rates paid by employers. To capture the expansion in employers' liability insurance premiums and greater interest in insurance purchases, we included the ratio of employers' liability insurance premiums to life insurance premiums that were collected by commercial insurance companies in each state. Consistent with the view that a "liability crisis" led to the adoption of workers' compensation, an OSD increase in the insurance ratio raised the adoption

probability by a statistically significant 5.1 percentage points. Recall that total employers' liability premiums may have increased either because rates increased or because more employers chose to insure their accident liability risks. Since the empirical analysis controls for changes in manufacturing accident risk and for the change in employers' liability laws, the measured impact of the insurance ratio might be suggesting that employers saw workers' compensation as a means to control their insurance costs.

To examine the impact of the shift in manufacturing employment toward more dangerous jobs, we created an accident risk index based on the manufacturing industrial mix in each state (see the Data Appendix). Shifts toward employment in more dangerous industries had a small and statistically insignificant impact on the probability of adopting workers' compensation.

In general, the results are consistent with the aggregate picture drawn in the prior section. The probability of enacting workers' compensation was substantially greater in states and years where employers faced problems with expanding workplace accident liability. These pressures developed as states enacted new employers' liability laws, the legal climate in which accident compensation was adjudicated became more uncertain, and as employers' liability insurance rates increased.

Interest Group Influence

In the discussion of interest groups earlier in the paper, we argue that both manufacturing workers and employers anticipated gains from workers' compensation. We should therefore see a greater likelihood of adoption of workers' compensation in states with a greater share of manufacturing employment, even after holding constant the extent of the liability crisis, as manufacturers and workers actively pressed the legislature to enact the legislation. The primary focus of workers' compensation legislation was to provide compensation for workers in manufacturing and in mining. Farm interests in nearly every state succeeded in eliminating farm workers from coverage. Once farm workers were excluded, the farm interests appear to have been largely indifferent to workers' compensation. To

measure the strength of manufacturing interests relative to farm interests, the percentage of workers employed in manufacturing was included in the analysis. The results in Table 4 show that greater strength of the manufacturing lobby led to earlier adoption of workers' compensation. In states where the manufacturing share of employment was OSD higher than the mean, the probability of adoption was raised by a statistically significant 9.5 percentage points.²⁷

Although manufacturing interests were strong proponents of workers' compensation, the intensity of their support may have varied according to the size and/or productivity of their operations. For example, in their study of the economic effects of modern OSHA regulations, Bartel and Thomas (1985) argue that OSHA regulations are still enforced, despite their minimal effect on accident rates, because they are politically supported by larger, unionized firms that benefit from the increased costs imposed on their smaller competitors. We might expect to find a similar political constituency that supported compensation legislation. Forcing employers to pay higher insurance premiums, because of the greater post-accident benefits paid out per injury, encouraged them to reduce accident rates. If some firms had a cost advantage in reducing accident risks, then they may have supported workers' compensation legislation as a way to impose higher insurance costs on their competitors. Tripp (1976) cites evidence that businessmen of small, urban firms in Washington in 1911 initially opposed workers' compensation because it would have imposed a cost burden on them. Our results bear out a similar conclusion for the nation at large. An OSD increase in the percentage of manufacturing firms employing more than 500 workers raised the probability of adoption by a statistically significant 16.0 percentage points. Meanwhile, the coefficient for the percentage of smaller firms employing less than 20 workers is small and statistically insignificantly different from zero.

Similarly, firms with higher productivity, measured as real value added per worker, may have been earning high enough rents to withstand the potential costs of safety improvements more effectively than less productive firms. Hal Sider (1983) has found that safety improvements often are paid for

through reductions in productivity. The results in Table 4 confirm that in states where manufacturing value added per worker was higher by one standard deviation, the probability of adoption rose by a statistically significant 5.1 percentage points.²⁸

Organized labor joined manufacturing interests in strongly supporting the passage of workers' compensation. Not only did the AFL actively pursue the legislation after 1909, but Fishback and Kantor (1995) show that unionized workers experienced much smaller wage offsets than nonunion workers when workers' compensation laws raised post-accident compensation. In some states, however, there was substantial disagreement among unions' ranks whether to lobby for their ideal workers' compensation law immediately or to support a weaker law in the beginning, with the hope of amending the law later (see Castrovinci 1976; Kantor and Fishback 1994). Such disagreement potentially could have slowed the adoption process. The empirical results suggest that on balance a greater union presence in a state substantially raised the likelihood of adoption. An OSD increase in the union percentage increased the probability of adopting the law by 17.3 percentage points, and the effect is statistically significant.

The analysis suggests that the insurance lobby offered less support for workers' compensation than we had anticipated. While the ratio of employers' liability to life insurance measured the changing legal climate surrounding accident compensation, a separate variable, the total life insurance premiums collected in each state per member of the labor force, measures the general strength of the insurance lobby. The insurance variable had virtually no impact on the probability of adoption. The absence of a strong positive effect might have been caused by the intertwining of the issue of state insurance with workers' compensation in many states. Insurers stood to gain from workers' compensation laws as long as states did not establish their own insurance funds to compete with or replace private insurance of workers' compensation risk. Seven states created monopoly state insurance funds to fully replace private insurance, ten more set up funds that competed with private insurance carriers, and state

insurance was an issue in many of the remaining states that never adopted a state insurance scheme. Even if insurers favored workers' compensation in principle, their opposition to workers' compensation bills that included state insurance would diminish the measured impact in the adoption equation to the extent that state insurance was often an issue in the debates over adoption.

The final interest group that we assess is the state labor bureaucracy, which may have had an incentive to support workers' compensation, either as a lobbyist for workers' demands or because bureaucrats anticipated an expansion of their duties as states created industrial commissions to supervise the operation of their workers' compensation systems. Surprisingly, greater state spending on labor issues had a negative, but statistically insignificant impact on the adoption of workers' compensation. One potential explanation for the negative effect may be that employers saw greater spending on factory and safety inspections as an adequate means of reducing workplace accidents, thus making the accident prevention component of workers' compensation largely redundant. For example, George Gillette (1911, p. 187), president of the Minnesota Employers' Association and avid supporter of workers' compensation, argued that his state's factory inspection system was inadequate. "Prevention is better than compensation, and if anything can be done to better the factory inspection in the state of Minnesota, it should be done, and that at once." Perhaps employers in states with active factory inspections were relatively satisfied with the status quo, holding all else constant.

Political Climate

Poole and Rosenthal (1993) find that broad-based political-economic coalitions may be as important to the adoption of legislation as narrow economic interests; therefore, we include measures to try to capture the influence of such coalitions. The leading political movement around the time of workers' compensation's adoption was the Progressive movement, which took different forms in different states. The Progressive Era altered the nature of the political environment in which workers' compensation was debated in many states. Reform-minded legislators became influential in many state

legislatures in the early twentieth century and introduced, along with workers' compensation, such measures as the referendum, initiative, and recall process, mothers' pensions, hours-restriction laws for women, and minimum wage laws. In addition, reformers unsuccessfully sought unemployment insurance, old-pensions, and public health insurance. Potentially, workers' compensation might have been swept along as part of the Progressives' broader political-economic agenda. We test the impact of the Progressive movement in two ways: first, by examining how the electorate's support for socialist presidential candidates throughout the period and for Theodore Roosevelt's progressive candidacy in 1912 affected the timing of adoption; and second, by examining shifts in party control of state legislatures.

The percentage of the vote won by Theodore Roosevelt's progressive presidential campaign offers a rough measure of the extent to which voters in each state supported the nationwide Progressive platform in 1912. All three parties expressed their support for workers' compensation in 1912, so the votes for Roosevelt might reflect acceptance of a broader agenda for socioeconomic and political reform. Similarly, the votes garnered by socialist candidates may reflect the intensity of interest in more radical reform. The results in Table 4 suggest that the electorate's relatively strong support for Roosevelt in 1912 was associated with greater interest in adopting workers' compensation. An OSD increase in the percent voting for Roosevelt raised the probability of adopting workers' compensation in any one year by 11.5 percentage points. The voting for socialists had a very small effect, and the hazard-model coefficient was not statistically significant.²⁹

The voting at the presidential level says very little about the impact of reform movements within state legislatures, however. There is no simple way to measure the impact of progressives and other reform movements at the state level. The Democratic and Republican party labels took on different meanings in the various states. Certainly, progressive legislators could be found in the Republican and/or Democratic parties across the United States in the early twentieth century. One way

to capture the effect of reform movements is to create dummy variables that track the major political party shifts occurring within each state's legislature. The first legislative power shift variable takes a value of one if in at least one branch of state i 's legislature, the majority party of the previous session lost its majority coming into year t 's session.³⁰ When only one branch changed parties, that typically produced a situation in which the state's two legislative chambers were controlled by different parties.³¹ The second dummy variable has a value of one if both branches of the legislature experienced a political power shift. For every double-chamber power shift in the sample, both chambers always shifted to the same party. We would expect that the probability of enacting workers' compensation would have increased if both branches of a state's legislature experienced a power shift, because otherwise each branch would have had veto power over the decisions of the other.³² The results of the empirical analysis show a small positive, but statistically insignificant, impact of both the single and double-chamber power shift variables.

Perhaps the reason that the political-power-shift variables had little impact on the adoption of workers' compensation is that the legislation was widely supported by all political parties and by workers, employers, and insurers. While our measures of political reform movements are admittedly imperfect, the results here contrast sharply with the results using the same variables in Fishback and Kantor's (1996) study of the battle over whether state governments would replace private insurers by setting up state monopoly insurance funds to underwrite workers' compensation risks. Insurers and unions fought bitterly over the state insurance issue, and quantitative analysis shows that political power shifts were important factors in determining the adoption of monopoly state insurance in a handful of states. In general, it appears that workers' compensation was so widely accepted, while many other progressive era reforms were not, because a broad array of interest groups supported the legislation. Other, more controversial features of workers' compensation, like state insurance, did not necessarily have broad support, but reformers accomplished their objectives when a political power shift within a

state brought into power a group of progressive legislators who championed a wide range of socioeconomic reforms.

The analysis also includes a southern dummy variable to control for any “southern” effect that is not already captured by the other independent variables. The impact of the southern dummy on adoption is positive. Thus, there appears to be no unmeasured peculiarity about the South that caused workers’ compensation to be adopted more slowly there.³³

“Contagion” Effect

When workers’ compensation was first being considered, employers raised some concern that the legislation would put them at a cost disadvantage relative to their competitors in neighboring states. Given this attitude, employers may have been more willing to endorse workers’ compensation when they were assured that their rivals in other states had similar labor costs. In an attempt to measure such a “contagion” effect, we reestimated the hazard equation including a variable that measures the proportion of nearby states that had adopted workers’ compensation by the end of year $t-1$.³⁴ The results, reported in Column (2) of Table 4, suggest that states were more likely to enact workers’ compensation if nearby states had adopted before them. An OSD change in the contagion variable raised the probability of adopting the law by only 2.2 percentage points and the coefficient from the hazard analysis is not statistically significant.³⁵ Comparisons of the last two columns of results in Table 4 show that inclusion of the contagion effect has relatively little impact on the remaining results.

Summary Remarks

Employers, workers, and insurers all actively supported the introduction of workers’ compensation. Each expected to gain from the legislation. Employers anticipated a reduction in labor friction as well as a reduction in the gap between what they paid for insurance and what injured workers received. Workers expected better insurance against workplace accident risk, even though

they “bought” it through lower wage rates. In essence, they could reduce their precautionary saving once the law mandated that employers bear the majority of the financial burden of industrial accidents. Insurers believed that the shift to workers’ compensation would reduce problems with adverse selection, and thus they could expand their coverage of workplace accidents, as long as the state did not become an insurer itself. These gains could only be realized through the passage of workers’ compensation because the courts in the early 1900s did not allow employers and workers to write workers’ compensation-style private contracts allowing workers to waive their rights to negligence suits prior to the accident. Thus, instead of being imposed from the top-down or bottom-up, workers’ compensation was enacted because a broad-based coalition of divergent interests saw gains from reforming the negligence liability system.

The catalyst that united these interest groups in their lobbying for workers’ compensation was an apparent crisis in the liability system that governed workplace accident compensation. Across the country during the early years of the twentieth century, the combination of increasing workplace accident risk and laws and court decisions expanding employers’ liability served to increase the uncertainty of the traditional negligence system. By 1910 workers were joined in their dissatisfaction with the negligence liability system by employers. Criticism of the negligence system was widespread across the United States by 1910, thus resulting in the rapid adoption of workers’ compensation legislation across the country.

Some states enacted workers’ compensation more quickly than others, providing an opportunity to empirically test our hypothesis that a liability crisis sparked the adoption of the legislation at the national level. Estimation of a discrete-time hazard model predicting the timing of adoption confirms that in states where the liability crisis was relatively more severe, the legislation was enacted more swiftly. In addition, workers’ compensation was more likely to be adopted in areas where organized labor and manufacturing employers had more political strength. Support for workers’ compensation

was not limited to narrowly defined economic interest groups. Greater support among the electorate for the broad-based program of Progressive Era reformers, as embodied in the support for Theodore Roosevelt in 1912, appears to have contributed to earlier adoption of workers' compensation in a number of states. In general, workers' compensation was not the result of one interest group using the political process to extract benefits at the expense of others; it was a political issue that united a broad-based coalition of workers, employers, and insurance interests attempting to solve a crisis in the negligence liability system.

Data Appendix

Data Sources and Descriptions of Quantitative Variables

This appendix describes the sources of the variables used in the hazard-model analysis reported in Table 4 and for the data underlying Tables 2 and 3.

Workers' Compensation Laws

The years in which states enacted their workers' compensation laws are Clarke and Frincke (1921), Hookstadt (1918, 1919, 1920, 1922), Jones (1927), U.S. Bureau of Labor Statistics Bulletins 126 (1913), 203 (1917), 243 (1918), 332 (1923), 423 (1926), and 496 (1929), and for the states adopting after 1930 we consulted their session laws directly.

Variables Characterizing Employers' Liability Laws

Information on the status of each state's employers' liability laws was collected from a variety of sources: Fessenden (1900, pp. 1157-1210), U.S. Department of Labor (1903, pp. 1363-64), Clark (1908 and 1911, pp. 904-11), and U.S. Bureau of Labor Statistics Bulletins 111 (1913), 148 (1914), and 370 (1925).

Insurance Measures

The employers' liability and accident insurance premiums that were collected in each state are reported in the Spectator Company's Insurance Year Book, 1900 through 1930. For many states there were not separate listings for accident and employers' liability insurance, which is why we have combined the two types of insurance. Although the Year Book was published each year, the volumes sometimes did not contain information for the current year, but repeated data from an earlier year. When data were missing in the years before workers' compensation was introduced, we filled the gaps using a straight-line interpolation of the years surrounding the missing year. In some cases the employers' liability and accident insurance data were missing for the year of adoption. In that case we estimated the data using an extrapolation procedure in which we multiplied the ratio of accident and employers' liability insurance to life insurance from the previous year and multiplied that ratio by the amount of life insurance sold during the year of adoption. We could not use straight-line interpolation to estimate the value for the adoption year because workers' compensation dramatically changed the nature of the employers' liability insurance market.

The life insurance premiums are the sum of ordinary and industrial life insurance premiums, also from the Year Book. For years with missing insurance-premium data, we multiplied the reported life-insurance-in-force measure by the ratio of premiums to insurance-in-force over the period for which we had data. In some cases we still had missing data, because insurance-in-force was not reported, so we filled those years with straight-line interpolations between adjacent years. We deflated the life insurance premiums using the CPI (1967 = 100). In the discrete-time hazard analysis we use the ratio of accident and employers' liability premiums to life insurance premiums as an independent variable.

Index of Workplace Accident Supreme Court Cases

The index of supreme court cases dealing with workplace accidents is based on counting all non-railroad, street railroad, and railroad non-train cases in each state's Supreme Court Reports. In searching for cases, we began with the following headings in the volumes' indexes: master-servant liability, negligence, employer liability, assumption of risk, fellow servant, contributory negligence,

personal injuries, and other headings referenced from those. We carefully read each case to insure that it dealt with a workplace accident, and not a dispute over wages for example. For each state, we then created an index that used the average number of cases from 1904-1906 as the base. We use an index of the cases, instead of the actual number of cases adjudicated, because there were differences in the structure of court systems across states that might have led to differences in the number of cases reaching the state supreme court level.

We eliminated railroad train cases because railroad workers who were injured in the course of interstate commerce after 1908 were covered under the Federal Employers' Liability Act. Workers' compensation laws covered non-railroad cases, street railroad cases, and some railroad cases if the person was not involved in interstate commerce. Typically, railroad workers in the non-train category were ones who were not likely to be involved in interstate commerce and probably were covered by a workers' compensation law.

Index of Accident Risk

The index of manufacturing accident risk is based on the workers' compensation premiums that Ohio employers paid into the Ohio State Insurance Fund in 1923, and the distribution of manufacturing employment in 1899, 1909, 1919, and 1929. The index is a weighted average of the accident risk in each state's manufacturing industries, where the relative danger in each industry is held fixed over time. The only reason a state's index would change over time is because of changes in the relative employment in each industry. Our measure of the relative danger in each industry is workers' compensation premiums that employers in a wide range of industries paid per \$100 on the payroll into Ohio's state-run compensation fund in 1923. The premiums were reported in Ohio Industrial Commission (1923). The workers' compensation premiums are a reasonable measure of the relative danger across industries because the Ohio Industrial Commission experience-rated the premiums such that industries paid higher premiums if they generated relatively more accident costs. We chose Ohio premiums because the state had a broader set of industries than most other states for which data were available. The employment data for each industry in each state, which are used as the weights in the weighted average calculation, represent the average number of wage earners in the industry. The data are from the U.S. Bureau of Census (1902, volume 7; 1913, volume 9; 1923, volume 8; 1933, volume 3). The risk index for the intervening years was calculated using a straight-line interpolation.

Manufacturing Firm Size and Value Added

The percentage of manufacturing establishments employing less than 20 workers and more than 500 workers were reported by the Census for the years 1899, 1909, 1914, 1919, 1929, and 1939. We used straight-line interpolations to fill the intervening years. The data were collected from the U.S. Bureau of the Census (1902, volume 7, pp. 336-67; 1913, volume 8, p. 469; 1917, pp. 422-25; 1923, volume 8, p. 90; 1933, volume 1, pp. 72-73; 1943, volume 1, p. 169).

Manufacturing value added per manufacturing worker was reported in the manufacturing censuses of 1899, 1904, 1909, 1919, 1921, 1923, 1925, 1927, 1929, and 1931. The values were deflated using the CPI (1967 = 100, series E135 in U.S. Bureau of the Census 1975, p. 211). Values for the intervening years were determined using straight-line interpolation. Hand trades were excluded. Data from 1899, 1904 and 1909 are from U.S. Bureau of the Census (1913, volume 8, pp. 542-44); 1914 data are from U.S. Bureau of the Census (1917, pp. 171-73); data for 1921, 1923, and 1925 are from U.S. Bureau of the Census (1928, pp. 1283-87); 1919, 1927, and 1929 are from U.S. Bureau of the Census (1933, volume 1, pp. 17-20); and 1931 data are from U.S. Bureau of the Census (1935, p. 21).

Employment Shares in Agriculture, Manufacturing, and Mining

The percentages of gainfully employed workers in agriculture, manufacturing, and mining were reported in the population censuses for the years 1900, 1910, 1920, and 1930. See U.S. Bureau of the Census (1902, volume 2, p. 508; 1913, volume 4, pp. 44-5; 1923, volume 4, p. 48; 1933, volume 5, p. 54). Straight-line interpolation was used to fill the intervening years.

Unionization Index

The union index implicitly assumes that the national unionization rates across industries in 1899, 1909, 1919, and 1929 were the same across states. For each of the four manufacturing census years, we calculated a weighted average of the unionization rates across each state's manufacturing industries. The weights are the shares of the manufacturing wage earners in each industry. We used Whaples' (1990, pp. 434-47) estimates of the unionization rates in each manufacturing industry from 1909. We then followed Whaples' procedure to recalculate his 1919 unionization rates across industries and to derive estimates for 1899 and 1929 using information on union membership from Wolman (1936). The average number of wage earners was reported by the U.S. Bureau of the Census (see the Accident Risk section above for sources).

To fill in the years between 1899, 1909, 1919, and 1929 for each state, we interpolated based on movements in the ratio of U.S. trade union membership (Wolman 1936, p. 16) to nonagricultural employment (series D-127 in U.S. Bureau of the Census 1975, p. 137).

State Governments' Spending on Labor Programs

State government spending on labor programs includes spending on factory inspection, labor bureaus, mining inspection, bureaus of labor statistics, boards of arbitration, boiler inspector, and free employment bureaus. The data were collected from appropriations to state labor departments reported in the states' statutes. For each state-year observation we collected the appropriations for factory inspection, boards of conciliation and arbitration, bureaus of labor, bureaus of labor or industrial statistics, free employment bureaus, boiler inspection (but not ship boiler inspection), mining inspection, industrial welfare commissions, and industrial commissions from the states' session laws. In many states appropriations were given for all labor spending without separating out what share went to each division. In a few states, Iowa for example, the statute volumes offered the exact amounts spent by the state treasurer. Some states were either missing appropriations volumes or the appropriations were unnecessarily obtuse. In those states we used interpolations to fill any gaps. In interpolating we tried to be sensitive to the fact that many states were on a two-year cycle and often gave the same amount of appropriations in both years of the cycle. Maryland and Michigan offered extremely uninformative appropriations information. For Michigan we collected the appropriations data from the Michigan Auditor General's Annual Report for years between 1900 and 1920. For Maryland we collected information from the Maryland Bureau of Statistics and Information, Annual Reports.

We deflated the expenditures using the CPI (1967 = 100) and then divided the real expenditures by an estimate of the number of workers gainfully employed in the state. The employment estimate was determined by calculating the share of total U.S. gainfully employed in each state for the years 1900, 1910, 1920, 1930, and 1940 from series D-26 in U.S. Bureau of Census (1975, pp. 129-31). The shares between the census years were calculated using straight-line interpolations. We then multiplied the shares for each state and year by total employment in the U.S. in each year (series D-5 in U.S. Bureau of Census 1975, p. 126) to create an estimate of employment in each state.

The Political Composition of State Legislatures

The variables indicating political power shifts in each state legislature are based on the number of Republicans, Democrats, and other party members in each chamber of the state's legislature at each legislative session. For each state we sought information on the political structure of the state legislature from legislative manuals, state bluebooks, House and Senate journals, newspapers, and historical listings. In many of the southern states the legislatures were overwhelmingly Democratic and many of the bluebooks did not bother to list party affiliations.

To fill in any gaps we encountered, we used information from the New York Secretary of State, Manual, for the years 1925-1940. The information there seems reasonably accurate when matched up against information we collected from states' bluebooks. For the earlier years we collected information from the Chicago Daily News Almanac and Yearbook, 1918-1930, Tribune Almanac, 1900-1909, and World Almanac and Encyclopedia, 1910-1918. There is still probably some measurement error in the data because some sources disagree on the exact party splits of the legislatures because some legislators may have changed parties mid-course or because people died and vacancies were filled.

We determined whether the legislature was in session by examining the frequency of each state's legislative sessions, as reported in U.S. Bureau of the Census (1918, pp. 62-63). However, because some states held special sessions during the period under investigation, we examined the statute volumes for each state to determine all of the years that the legislatures met.

Presidential Voting Information

We calculated presidential voting information using the Congressional Quarterly Inc. (1975, pp. 281-91). Socialist votes include votes for socialist candidates and in 1924 votes for LaFollette in 1924. The values for years between presidential elections are based on straight-line interpolations between election years. The Progressive voting measure in 1912 is the percent voting for Roosevelt for president in 1912. For years between 1908 and 1912 values were derived from a straight-line interpolation between zero in 1908 and the value in 1912. After 1912 the values are the 1912 value on the grounds that the progressive ideas espoused by Roosevelt in 1912 were subsumed under other parties.

Southern Dummy

The dummy for southern states gives a value of one to Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

Labor Laws in the Various States

To create the labor law index in Table 2, we created a series of dummy variables that took on a value of one if the state had enacted various labor laws, and zero otherwise. The index includes the following laws that were supported by organized labor: minimum wage laws, union trademark laws, laws protecting labor organizations, mothers' pension laws, anti-blacklisting laws, armed guard laws, laws stating that labor agreements were not conspiracies, laws preventing the false use of labor membership cards, laws limiting injunctions, laws exempting labor organizations from antitrust laws, laws against employers not telling incoming workers about the existence of a strike, laws allowing the incorporation of labor unions, and laws prohibiting contracts that restrain workers from joining labor unions. The index also considers laws that unions opposed: anti-boycotting laws, laws preventing conspiracies against workmen, laws preventing the enticement of workers, laws preventing interference for workers in all industries, laws preventing interferences for workers only in railroad industries, laws

against the intimidation of workers, and laws against picketing. We also created a dummy variable indicating whether the state had a general women's hours law, which took on a value of one if there was a women's hours law covering manufacturing, mercantile, or other types of occupations. The information regarding the status of these labor laws in each state were obtained from the Department of Labor's series "Labor Laws of the United States and Decisions of the Courts Related Thereto." The volumes include U.S. Commissioner of Labor (1892, 1904, 1908) and U.S. Bureau of Labor Statistics Bulletin Numbers 148 (1914), 370 (1925), 552 (1931), and 590 (1933). The women's hours laws were collected from Smith (1929). Data for intervening years and the years that the laws were adopted were obtained from the states' statutes.

To compute the overall labor law index we vector-added the dummy variables that represent the pro-labor laws described above and the women's hours law and subtracted those dummy variables that indicate laws that were inimical to labor's interests. Finally, to this measure, we added an estimate of the share of men covered by men's hours laws. For each state we calculated the number of men working in industries and occupations -- such as public employment, railroads, street railroads, mining, and others -- that were covered by an hours law and divided this number by the total male employment in 1910. Although some states had a general law declaring men's hours restrictions, the vast majority of these laws were passed in the 1800s and were rarely enforced. In order to give some weight to the fact that a state had a general men's hours law, even though it was rarely enforced, we added 0.1 to our estimated percentage of men covered by an hours law. We used 1910 gainful employment as the basis for our calculation because we wanted the labor law index to capture changes in the laws and not changes in employment. The men's hours law data are from Brandeis (1966, pp. 540-563). The number of males 10 years and over gainfully employed in each industry by state in 1910 was collected from U.S. Bureau of the Census (1913, volume 4, pp. 96-151).

FOOTNOTES

1. See Stigler (1971), Peltzman (1976), and Becker (1983) for theoretical treatments of the role of interest groups in shaping regulations. Their models are rich enough to allow for either a “capture” or multiple interest group framework. For the classic work on “rent-seeking,” see Tullock (1967). Goldberg (1976) and Williamson (1976) discuss situations in which interest groups might lobby the government to correct a market imperfection, and the resulting legislation enhances economic efficiency. Finally, Poole and Rosenthal (1993), in their study of the origins of the Interstate Commerce Commission (ICC), claim that broad-based political coalitions have been underemphasized as facilitators of government intervention. We can see these various views of the sources of government intervention in the empirical work on the origins of the ICC. Early research on the ICC argued that the railroads captured the agency from the beginning, while Gilligan, Marshall, and Weingast (1989) more recently have found that short-haul shippers and railroads combined forces to pass the ICC. Poole and Rosenthal alternatively emphasize that broad-based political coalitions were more important to the introduction of the ICC than narrow economic interest groups.
2. Lubove (1967) explains employers’ support for workers’ compensation in similar terms. He argues that employers sought the legislation because state legislatures and the courts were increasingly favoring injured workers in their efforts to collect compensation. By contrast, Weinstein (1967) argues that employers supported workers’ compensation as a way to undermine the growing movement among workers to unionize.
3. An employer was legally obligated to hire “suitable and sufficient” co-workers; to establish and to enforce proper rules of conduct within the work environment; to provide a safe workplace; to furnish safe equipment; and to provide employees with warnings and suitable instructions in the face of dangerous working conditions. Whether an employer met these standards was left to a judge’s or jury’s decision. Landes and Posner (1987, pp. 85-87), citing Justice Learned Hand’s formula, claim that due care meant that the employer was to prevent an accident when his costs of prevention were lower than the expected costs of the accident (i.e., losses to the accident victim times the probability of the accident).
4. For descriptions of the employers’ liability system, see Clark (1908), Weiss (1935), and Epstein (1982).
5. See New York Commission on Employers’ Liability (1910), Eastman (1910), Clark (1911), Ohio Employers’ Liability Commissions (1911), Dodd (1936), Somers and Somers (1954), Lubove (1967), Weinstein (1967), Berkowitz and McQuaid (1988), and Buffum (1992).
6. These figures, we should note, are gross compensation and ignore the legal expenses that the victim’s family often paid. Legal expenses might have consumed 12 to 23 percent of the payments to families under negligence liability, and a much lower percentage under workers’ compensation.
7. A study of accident compensation under the employers’ liability system in Minnesota in 1909-1910 found that 89 percent of fatal accident cases, 78 percent of permanent partial disability cases, and 99 percent of the temporary disabilities were settled without the courts. See Minnesota Bureau of Labor, Industries, and Commerce (1909-1910, pp. 167-87).

8. For a summary of modern studies showing the impact of employer mandates on wages, see Moore and Viscusi (1990), Gruber and Krueger (1991), and Gruber (1994).
9. Of the 461 establishment funds surveyed by the U.S. Commissioner of Labor (1909, pp. 339, 538-53) in 1908, 69.2 percent received no funding at all from employers. Eight percent of the funds received more than 50 percent of their funding from employers. Employers, across the sample, contributed an average of 10.6 percent of the funds' reserves.
10. For an analysis of states' decisions to enact state workers' compensation funds, see Fishback and Kantor (1996).
11. Premium estimates are from the Cyclopedia of Insurance (1906, pp. 4 and 161; 1913, pp. 4 and 117; 1921, pp. 229-30, 287-88, and 465). Premiums collected for employers' liability insurance grew from \$15.8 million in 1905 to \$36.8 million in 1911, an annual growth rate of 1.15 percent. Continued growth at that pace would have led to premiums of \$129.5 million in 1920, \$41.5 million more than the actual level of employers' liability insurance of \$86 million. Premiums for accident insurance did not display the same shortfall. Premiums for accident insurance grew from \$13.6 million in 1905 to \$18.8 million in 1911, a growth rate of 1.055 per annum. Continued growth at that pace leads to a prediction of \$30.5 million in 1920, which equals the actual level of \$30 million. Employers' liability insurance still grew because interstate railroad workers were under negligence liability, as were workers in several states. A better comparison would be to examine the changes in insurance within each workers' compensation state.
12. Weiss (1935, p. 568) and Clark (1908, pp. 13-16) argue that the common law in all states but Georgia made contracts null and void that were designed to relieve employers from accident liability. However, the Georgia Code of 1895 included specific legislation that nullified such contracts. In addition to the common law rulings, Clark found that 27 states had statutes voiding such contracts, but many were statutes only pertaining to the railroad industry. States with laws preventing contracts in railroading included Arkansas, Florida, Iowa, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, South Carolina, South Dakota, Texas, Virginia, and Wisconsin. States with general laws were California, Colorado, Georgia, Indiana, Massachusetts, Montana, and Wyoming (constitution). Missouri had a law covering railroads and mining and Nevada had a law covering railroads, mines, and mills (we treated these as general laws). Alabama had a similar law in its 1907 Code that Clark missed because he reported on the Code of 1896. Some states later passed additional laws against the contracting.

The statutes and the common law did allow for relief benefit contracts in which workers waived their rights to suits if they accepted relief benefits after an injury occurred. The Pennsylvania Supreme Court held that an agreement to accept benefits, whereby acceptance waived a worker's right to action, was not contrary to public policy inasmuch as it was not the signing of a contract prior to the injury, but the acceptance of benefits subsequent to the accident. Such an ex post contract merely allowed workers to choose between a set of benefits or a lawsuit. But if there were a lack of mutuality, or the defendant company failed to show that it assumed a fair portion of the burden of relief-fund benefits, even the ex post acceptance of benefits did not bar a suit for damages.

When workers' compensation was passed, only two states -- Arizona and New Hampshire -- gave workers the option to choose between a lawsuit and the compensation

benefits after the accident. Both states allowed the employer the defense of contributory negligence if the worker chose to go to court. The U.S. Bureau of Labor Statistics (1917, pp. 74-75) stated that this feature of the law may explain why only 19 employers accepted the act in New Hampshire. In Arizona employers joined the system because the Arizona law was compulsory. Arizona completely revamped its law in the 1920s. It should be noted that in states where the law was elective and the employer accepted, but the worker rejected, the workers' compensation system, then the employer retained his three defenses in a negligence suit. In some states the defenses were abrogated if the employer failed to follow safety statutes or if the employer was guilty of willful misconduct.

13. The United States lagged behind other industrial countries in the adoption of workers' compensation. By 1900 Austria, Denmark, Finland, France, Germany, Great Britain, Italy, and Norway had instituted workers' compensation schemes. And by 1907 Belgium, Greece, Hungary, Luxembourg, Netherlands, New Zealand, Russia, Spain, Sweden, and various British colonies also had enacted legislation.
14. We created a workplace-accident-risk index based on each state's industrial mix and the premiums that employers in each industry paid per \$100 on the payroll into the Ohio State Workmens' Compensation Fund in 1923 (see Ohio Industrial Commission 1923). Ohio had a wide range of industries and the Ohio Industrial Commission sought to price the insurance based on actuarial experiences. We matched the premiums for each industry with the average employment in that industry in each state in 1899 and 1909. The risk index is the weighted average of the insurance premiums across industries using the average employment in each industry as weights. Changes in the risk index between 1899 and 1909 are caused only by changes in the distribution of employment across various types of manufacturing. The index rose from 1.3 in 1899 to 1.5 in 1909.
15. States had a wide range of laws specific to the railroad industry, but the focus here is on nonrailroad activity because interstate railroad accidents did not fall under the domain of states' workers' compensation laws. The vast majority of railroad accidents were covered by the Federal Employers' Liability Acts of 1906 and 1908. Some nontrain, noninterstate commerce accidents were handled under state workers' compensation laws, however.

In addition, about 8 more states in 1900 had laws that restated the common law without changing any of the basic negligence rules.
16. The cases include all nonrailroad cases and railroad nontrain cases because these were the types of accidents covered by workers' compensation laws. The trend in Table 2 is unchanged when railroad cases are included. Including railroad cases, the number of state supreme court cases rises from 220 in 1900 to 640 in 1909, declines to 551 in 1910, and rises to 609 in 1911.

We ran trend regressions for each state and found that in 31 states the number of cases increased statistically significantly. In 16 states there was no statistical trend and in one state there was statistically significant downward trend. Thus, the pattern for the United States shown in Table 2 was widespread across the country, and not driven by a handful of litigious states.
17. This 11-fold increase in employers' liability premiums contrasts with a 6-fold increase in all types of insurance premiums. See Washington Industrial Insurance Commission (1912, p. 19) and Washington Insurance Commissioner (1902, pp. 47, 60; 1910, p. 28; 1911, p. 41).

18. We ran trend regressions for each of the states and found that in 39 states there was a statistically significant increase in the ratio. In 7 states there was no statistical trend and in 2 states there was a statistically negative trend.
19. Ohio State Federation of Labor (1915, pp. 23-25).
20. State-level regressions show that in 31 states real spending on labor issues increased at a statistically significant trend. In 8 states there was no statistical trend and in 4 there was a statistically negative trend, primarily because nominal spending remained constant over the period. Five states had no spending on labor issues during the period.
21. For an example of early labor department advocacy of workers' compensation, see Minnesota Bureau of Labor Statistics (1893, pp. 117-55).
22. The Maryland legislature in 1902 was the first to actually adopt a compensation law that set out to provide guaranteed benefits to injured workers in several hazardous industries. But because the legislation gave the insurance commissioner judicial powers and deprived injured workers the right to a jury trial, it was ruled unconstitutional two years after its passage. And in 1909 the Montana legislature passed a compulsory compensation law that pertained only to the coal mining industry. Although the law required both employer and employee contributions into a cooperative insurance fund, it still allowed an injured employee (or his family) to sue for damages under the old liability system. Since the law forced the employer to bear a double burden, the Montana Supreme Court ruled it unconstitutional in 1911 (Weiss 1935, p. 571).
23. We should emphasize that examining the timing of adoption does not fully capture the extent to which various interest groups influenced the workers' compensation laws because support for the legislation was widespread. The political battles were not necessarily fought over whether or not to enact workers' compensation, but instead over the specific features--level of benefits, state versus private insurance--the law would contain. From state-level case studies, we know that disparity in interest group strength played important roles in establishing benefit levels and preventing or adopting state insurance. For example, see Kantor and Fishback (1994), and Fishback and Kantor (1996).
24. For examples see Becker (1983) and Gilligan, Marshall, and Weingast (1989).
25. This technique was used in Pavalko's (1989) and Buffum's (1992) earlier studies of the adoption of workers' compensation and is widely used in tests of search models. We focus on the period from 1909 to 1930 because of the substantial changes in the attitudes of employers and labor unions during the course of the period 1900 to 1908. As noted in the text, organized labor's attitude toward workers' compensation reversed in 1909, thus the measure for organized labor would have a different impact before and after 1909. When we estimate the hazard equation including information from the 1900 to 1930 period, we obtain largely the same set of results, but not surprisingly, the effects are muted relative to those reported in Table 4.
26. We used an index of state supreme court cases rather than the absolute number because the appellate systems in various states differed, and the number of cases reaching the supreme court may have differed for state-specific reasons unrelated to an increase in employers'

liability. By creating an index of supreme court activity, with the 1904-1906 average as the base year, the measure corrects for these differences and better reflects a rise in liability.

27. The impact of manufacturing and agricultural interests cannot be effectively separated using data on the shares of employment. The correlation between the percentages of the labor force in manufacturing and agriculture is -0.88. When both are included in the analysis the impact of manufacturing is smaller and positive and the impact of the agriculture share is very small and negative. Neither effect is statistically significant, we believe, because of the collinearity of the two variables.
28. Pavalko (1989) suggested this argument but mismeasured the variable, using total value instead of value added in her calculation.
29. The general impression of the development of progressivism at the national level is of a rise to a peak in the 1912 presidential election. After 1912 many of the progressive ideas were incorporated in both the republican and democratic party platforms. To match this rise and leveling off in each state, we constructed the Roosevelt voting variable to start at zero in each state in 1908 and then to rise through straight-line interpolation to the value in 1912. From 1912 onward the variable retains its 1912 level. We have also run the analysis using the 1912 values throughout with very little change in the results reported. We also reran the analysis allowing the progressive variable to fall back to zero by 1916. In those cases the progressive variable has very little impact.
30. Buffum (1992, p. 48) found that a power shift in either legislature enhanced the probability of adopting a workers' compensation law.
31. There was one exception to this observation. In 1919 the Non-Partisan League gained control of the upper house of the North Dakota legislature, while the lower house had been captured by the Non-Partisans in 1917.
32. We chose a general power shift measure, as opposed to a party shift measure, because there was substantial variation across states in the attitudes of Republicans and Democrats. In many settings both the Republican and Democratic parties established support for a workers' compensation measure in their state platforms. Out of 17 power shifts identified in our sample, 10 were shifts from Republican to Democrat, 5 were shifts in the other direction, one was a shift from Republican to an even split, and there was one shift from Republican to Nonpartisan League in North Dakota.
33. We were sensitive to the issue of unmeasured heterogeneity across states in the sample, so we experimented with dummy variables representing much smaller geographical groupings. Estimation of the model with dummy variables for eight of the nine census regions led to results similar to those reported in Table 4. We have also estimated the model using dummy variables for groupings of two and three states, and the results were qualitatively similar to those in Table 4. We are unable to estimate the model with a dummy variable for all but one of the states due to problems of perfect collinearity with the remaining variables in the analysis.

34. Nearby states include states in the same census region (of 9 regions) and other contiguous states. We have experimented with other measures of contagion, the number of states in the entire United States that have adopted and a time counter. The basic results remain the same.
35. When we experimented with other variables that may capture the contagion effect, such as a time trend or the number of other states within the entire United States that had adopted the legislation, the results were nearly identical. When a time trend and the neighborhood adoption variable were included together, the impact of the neighborhood adoption variable remained strong and statistically significant, while the coefficient of the time trend was small and statistically insignificant. The results of the remaining variables were very similar to those reported in column 3 of Table 4.

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Table 1**The Rise in Accident Risk in the Early Twentieth Century**

Year	Coal-Mining Fatality Rates (per 100,000 Days Worked)	Railroad Fatalities per Million Man Days	Railroad Nonfatal Accidents per Million Man Days
1890	1.17		
1891	1.43		
1892	1.47	10.4	114.9
1893	1.34	10.3	119.8
1894	1.50	7.7	98.8
1895	1.56	7.6	108.5
1896	1.54	7.4	119.7
1897	1.42	6.8	110.6
1898	1.43	7.5	121.0
1899	1.47	8.0	126.1
1900	1.62	8.4	130.6
1901	1.51	8.7	134.3
1902	1.72	8.3	141.3
1903	1.57	9.5	159.5
1904	1.72	9.12	168.4
1905	1.71	8.30	165.0
1906	1.62	9.06	176.9
1907	2.08	9.28	179.4
1908	1.85	7.40	179.2
1909	n.a.	5.92	170.2
1910	1.77	6.80	192.3
1911	1.66		

Table 1 (continued)

Sources: Coal mining fatality rates are the number of bituminous coal miners killed in accidents per thousand employed divided by the average number of days the mines were open in that year (Fay 1916, pp. 10-11). Ohio accidents are from Ohio Department of Inspection of Workshops, Factories, and Public Buildings (1904, p. 188; 1905, p. 375; 1906, p. 975; 1907, p. 884; 1908, p. 390; 1909, p. 982; 1910, p. 334, and 1911, p. 731). The railroad fatality and nonfatality rate divides the number of railroad employees killed (series Q404) and injured (Q405) from U.S. Bureau of the Census (1975, p. 740) by the total man hours worked by railroad employees from the sample, as reported in Kim and Fishback (1992).

Table 2**The Changing Atmosphere of Workplace Accident Liability**

Year	State Spending on Labor Issues per Employed Worker (1967\$)	Labor Law Index	Number of States with Nonrailroad Employer Liability Laws that Limit Employers' Defenses	Number of State Supreme Court Cases about Nontrain Workplace Accidents	Total Premiums for Employer Liability and Accident Insurance (millions of 1967\$)	Ratio of Employer Liability and Accident Insurance Premiums to Life Insurance Premiums
1900		1.69	8	154	63.7	.062
1901		1.89	8	205	78.2	.067
1902		1.97	11	238	90.3	.072
1903	\$.135	1.52	12	266	95.3	.070
1904	.144	1.49	12	284	106.4	.072
1905	.149	1.48	13	318	120.5	.080
1906	.149	1.50	14	339	134.6	.084
1907	.157	1.56	19	379	147.6	.095
1908	.188	1.58	19	446	159.1	.096
1909	.190	1.69	21	484	165.1	.094
1910	.185	1.75	23	436	202.4	.112
1911	.209	2.05	23	490	225.3	.115

Sources: See the Data Appendix.

Table 3**Years in Which States First Adopted a Workers' Compensation Law**

Year	States Adopting
1910	New York
1911	California, Illinois, Kansas, Massachusetts, Nevada, New Hampshire, New Jersey, Ohio, Washington, Wisconsin
1912	Maryland, Michigan, Rhode Island
1913	Arizona, Connecticut, Iowa, Minnesota, Nebraska, Oregon, Texas, West Virginia
1914	Louisiana, Kentucky
1915	Colorado, Indiana, Maine, Montana, Oklahoma, Pennsylvania, Vermont, Wyoming
1917	Delaware, Idaho, New Mexico, South Dakota, Utah
1918	Virginia
1919	Alabama, Missouri ^a , North Dakota, Tennessee
1920	Georgia
1929	North Carolina
1935	Florida, South Carolina
1939	Arkansas
1948	Mississippi

^a The Missouri General Assembly passed a workers' compensation law in 1919, but it failed to receive enough votes in a referendum in 1920. After another referendum in 1922 and an initiative in 1924, Missouri voters finally approved a workers' compensation law in a 1926 referendum (see Kantor and Fishback 1994).

Notes: Maryland (1902) and Montana (1909) passed earlier laws specific to miners that were declared unconstitutional. New York passed a compulsory law in 1910 and an elective law in 1910, the compulsory law was declared unconstitutional and then re-passed in a new form in 1913. The Kentucky law of 1914 was declared unconstitutional and was replaced by a law in 1916.

Sources: See the Data Appendix

Table 4**Economic Impact of Changes in Variables on the Probability of Adopting Workers' Compensation, 1909-1930, Derived from Parameters Estimated in Discrete-Time Hazard Model**

Variables	Means	Impact of changes on the probability of enacting workers' compensation (absolute value of t-statistic of underlying regression coefficient) ^a	
Baseline Probability		0.051	0.049
<u>Changes in Workplace Accident Liability:</u>			
Employers' liability law limiting common law defenses	0.388 (0.488)	0.060 (2.45)	0.055 (2.32)
Employers' liability law restating the common law	0.141 (0.348)	-0.001 (0.66)	-0.009 (0.54)
Ratio of employers' liability and accident insurance premiums to life insurance premiums	0.113 (0.048)	0.051 (2.98)	0.053 (3.04)
Index of workplace accident supreme court cases (1904-1906=1) lagged one year	1.897 (2.63)	0.024 (1.92)	0.019 (1.51)
Manufacturing accident risk index	1.789 (0.659)	0.025 (0.91)	0.012 (0.45)
<u>Interest Group Influence:</u>			
Percentage of manufacturing establishments with less than 20 workers	0.823 (0.068)	0.013 (0.43)	0.019 (0.58)
Percentage of manufacturing establishments with more than 500 workers	0.775 (0.661)	0.189 (2.96)	0.148 (2.47)
Manufacturing value added per worker (000s; constant 1967 dollars)	4.451 (1.39)	0.056 (2.06)	0.056 (2.08)
Percentage of labor force employed in manufacturing	22.12 (11.08)	0.095 (2.08)	0.118 (2.30)
Percentage of labor force employed in mining	2.319 (3.61)	-0.001 (0.68)	0.001 (0.08)
Manufacturing unionization index	9.484 (4.604)	0.173 (3.44)	0.143 (2.99)
Life insurance premiums per worker (constant 1967 dollars)	45.76 (18.48)	-0.009 (0.44)	-0.015 (0.78)

State spending on labor-related bureaucracy per worker (constant 1967 dollars)	0.159 (0.177)	-0.022 (1.56)	-0.019 (1.38)
<u>Political Climate:</u>			
Power shift in at least one branch of legislature	0.132 (0.339)	0.017 (1.26)	0.016 (1.18)
Power shift in both branches of legislature	0.083 (0.399)	0.008 (0.68)	0.008 (0.71)
Progressive vote for Roosevelt in 1912 presidential election	38.93 (18.44)	0.115 (4.31)	0.092 (3.54)
Percent of presidential vote for socialist	3.673 (3.296)	0.019 (0.81)	0.019 (0.86)
Southern state dummy variable	0.541 (0.499)	0.080 (2.13)	0.074 (2.04)
<u>“Contagion Effect”:</u>			
Percentage of nearby states that had adopted workers’ compensation $t-1$	0.277 (0.316)		0.022 (1.29)

^a The impact of changes for continuous variables is based on a one-standard-deviation change in each of the continuous variables, holding the other variables constant at their sample means. The marginals of the dummy variables are based on switches from 0 to 1, centered at the mean for the variable, holding all else constant. The baseline probability was computed at the sample means of all the variables. The t-statistics in parentheses are the tests on the coefficients in the hazard model; they cannot be used to construct confidence intervals for the measures of the impact of the variables.

Sources: See the Data Appendix.

Note: The sample includes 48 states with 242 state-years.