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WORKERS' COMPENSATION IN THE UNITED STATES*

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Introduction

Workers' compensation was the first form of social insurance to develop widely in the United States (US). It is designed to provide cash benefits and medical care when employees suffer work-related injuries, illnesses or a disability related to their work, and survivor benefits to the dependants of workers who deaths result from a work-related incident. In exchange for receiving benefits, workers who receive workers' compensation are generally not allowed to bring a tort suit against their employers for damages of any kind.

Thomason, Burton and Hyatt (1998) define disability as one possible consequence of an injury or disease. Most immediately a person afflicted by injury or disease suffers an impairment, which is an anatomic or functional abnormality or loss, such as the amputation of a limb, blindness, or lower back sprain. Impairments can result in functional limitations or limitations in physical or mental performance such as walking or climbing. In turn, functional limitations may lead to disabilities, which refers to the inability to perform various social roles. A distinction can be made between work disability, which represents the loss of earning capacity or the actual loss of earnings, and non-work disability, which represents the effects of functional limitations on other aspects of life such as recreation and the performance of household tasks. While the origin of a disability is an injury or disease, other factors such as educational attainment or the state of the labor market also affect disability.

Thomason, Burton and Hyatt (1998) go on to say that there are at least five sets of actors involved in workers' disability: workers (including potential workers) and their representatives, employers, insurers, medical community, and government.

The workers and their representatives includes persons who may not be currently employed or even in the labor force and they can be further divided into two subgroups; disabled and nondisabled persons. Non-

disabled workers, are sympathetic to the problems of the disabled and their needs, are often obvious. They care about workplace health and safety but more typically are focused on other issues such as wages and job security and in recent years, healthcare costs.

Various persons or organizations represent the disabled and they have interests that sometimes differ from those of their clientele. For example, workers seeking compensation for disability sometimes hire attorneys to represent them. However, attorneys who are paid on a contingency fee basis, so that their compensation is based on the size of the judgment, are frequently reluctant to represent disabled claimants seeking compensation from social security programs such as workers' compensation, because of the lack of potential fees. Other evidence suggests that contingent fees sometimes induce attorneys to settle workers' compensation claims for amounts that are substantially less than the claimants would receive if claims were adjudicated.

Unions are democratic political institutions that by and large reflect the interests of their members. As previously indicated non-disabled workers, including union members, are often not interested in disability issues or even workplace health and safety but are more concerned about issues like wages and job security. Disabled persons are not likely to be well represented in the union since there are fewer numbers to begin with and since their disability often forces them out of the labor force and consequently off union membership roles.

Employers play several roles in the workers' disability system. Working conditions established by employers directly affect the incidence of work-related injuries and diseases. In addition, firm policies and practices also determine the employment prospects of the disabled as well as their compensation once employed. Employers also provide compensation to disabled workers in the form of disability or health insurance.

Insurers also play a critical role with respect to several aspects of the workers disability system. Insurers are the primary financial intermediaries between employers and workers in the workers' compensation program as well as in employer-sponsored health insurance and to a lesser extent,

disability insurance. Like employers, insurance carriers are motivated by profit and profit depends on their ability to accurately forecast costs associated with the cost of benefits paid by policy holders. Unexpected cost increases , for example, due to an unanticipated shift in the injury distribution can result in insurer losses (Thomason, Burton and Hyatt, 1998).

Then there is the medical community. While the medical community is involved in the pursuit of all goals of the workers' disability system, its primary role is to act as the systems gate keeper. This means that physicians legitimize patient complaints determining who is disabled and who is not as well as the nature and cause of disability. Physicians determine eligibility for medical treatment as well as compensation and are also significantly involved in establishing the amount of compensation due.

With regard to the role of government, prior to the industrial age, the problems with work disability were considered the responsibility of the family, the church, or the community. However, the breakdown of these institutions during the industrial revolution as well as the increased incidence of occupationally related injury and disease caused government to assume a greater role. Successive legislative initiatives in the United States since the end of the century have produced the vast array of government agencies associated with every aspect of the workers' disability system. This includes state worker's compensation agencies, the Social Security Administration (SSA), the Occupational Safety and Health Administration (OSHA), various state level OSHAs, the federal-state vocational rehabilitation program, the Veterans' Administration, the National Institute for Safety and Heath, the Equal Employment Opportunity Commission, and state insurance commissions.

This paper addresses the following aspects of the US workers' compensation system: history, a general description of the system, coverage, benefits, appeals, special funds, the possible impact on safety and experience rating, the effects of unions, the role of health maintenance organizations, a brief review of related federal government programs, and conclusions.

History

Burton and Chelius (1997) say that the rapid modernization of the US economy in the 19th and early 20th century was associated with a surge of workplace injuries, diseases, and deaths. The number and frequency of fatalities resulting from accidents are generally viewed as the most reliable overall indicators of trends in safety since fatalities are less subject to reporting errors than injuries or diseases, which are more likely to be affected by variations in record-keeping requirements under various regulatory arrangements. The peak in the number of work place fatalities was reached in 1907 when more than 7,000 workers were killed in just two industries: railroading and bituminous mining. Krueger (1990) points out that there was considerable public pressure to enact legislation that would ease pain and suffering. This led to the passage of workers' compensation insurance which was the first compulsory insurance program in the US, and this program remains the primary legal remedy for employees who are disabled because of work-related injury or illness. Workers' compensation laws require employers to purchase insurance or self-insure to provide a specified amount of cash benefits, medical care, and in some cases rehabilitation services to workers who are disabled on the job. Employer liability is independent of fault. Each of the 50 states has its own workers' compensation law and the state laws vary considerably with respect to benefit formulas and insurance premiums.

Spieler and Burton (1998) say that prior to the passage of workers' compensation laws injured employees were often without any recourse when disabled by work. The law of the 19th century generally precluded successful negligence lawsuits against employers. When employees did win these lawsuits, however, employers sometimes had to pay substantial cash awards. The result was essentially unsatisfactory for everyone. Employers confronted potential large and uncertain financial risk while at the same time workers faced destitution as the result of occupational injuries.

Workers' compensation was designed to overcome these deficiencies of the common law by reliance on two principles. First, adequate but limited benefits are provided to workers under a no-fault approach in which the worker only has to show the injury is work related, not that the employer was negligent, in order to qualify for benefits, the program provides limited liability for employers, who are required to pay for benefits prescribed by statute but are insulated from negligence suits. Workers' compensation was also intended to make employers' costs of providing benefits predictable, manageable, and insurable and to curtail the delays and expenses of lawsuits.

Workers' compensation laws were passed with strong support from both business and labor in most states during the decade after 1910. At that time, the Supreme Courts' interpretation of the US Constitution precluded federal legislation for most private sector workers. This pattern of state control has persisted with minor exceptions until today. The state-based nature of workers' compensation gives it its special character. Programs vary substantially among states, political battles over benefit adequacy, eligibility, and costs are fought at the state, not the federal level, and political arguments often focus on whether a particular state's program is either too expansive or too restrictive as compared with neighboring states programs.

Fishback and Kantor (1995) in an article that proposes to explain the support from both employees and employers for passage of workers' compensation laws, first summarized accident compensation before passage of the laws. They say that payment for job-related accidents before workers' compensation was determined according to the common law rules of negligence. Under negligence liability, an employer was expected to exercise due care in protecting his employees against work place hazards. The employer was legally obligated to hire suitable and sufficient co-workers, to establish and to enforce proper rules of conduct within the workplace 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. In order to collect accident compensation, an injured worker bore the burden of proving that his employer had failed to exercise due care in carrying out

these duties and that the employer's negligence was the proximate cause of the injury. Even if an employer was 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 risks; 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).

Proving the employer's negligence and overcoming the three defenses in a court of law was a costly and formidable task. Pushing a suit through the court system often led to delays of two to five years between the date of the accident and a final court decision. In addition, there was a great deal of uncertainty about the results of the decision. As a result, the vast majority of workers sold their rights of action in out of court settlements. Evidence from Minnesota prior to the adoption of workers' compensation suggest that 89 percent of the fatal accident cases, 78 percent of permanent partial-death disability cases, and 99 percent of the temporary disabilities were settled without the courts.

As many states were debating the adoption of workers' compensation in the early 1910's, they commissioned studies of the nature of workplace accident compensation under the negligence system in their respective states. Evidence reveals that families of married fatal accident victims bore the preponderance of the financial burden of industrial accidents. The studies which exclude railroad workers reveal that the percentage receiving no compensation at all range from 22.2 percent of Minnesota families in 1909-1910 to 69.9 percent among men killed in Illinois before 1911. On average the evidence suggests that 43 percent of the families of fatal industrial accidents victims would have received no compensation at all. After the fact, the typical family's expected compensation from the employer of a fatal accident victim would have been approximately 56 percent of one year's earnings.

Fishback and Kantor (1995) also maintain that in addition to any post-accident payments, workers received preceding compensation in the form of risk premiums in wage rates. They found some evidence of accident risk premiums to workers and that railroad workers who were in jobs with

high fatal and nonfatal accident risks received higher wages during the period from 1892 to 1909. Also as post-accident compensation for fatal accidents rose after the passage of the Federal Employees Liability Acts of 1906 and 1908 the fatal accident premium diminished.

Workers' compensation laws dramatically changed the nature of post-accident compensation by mandating that employers pay all workers for the injuries arising "out of and in the course of employment." These laws were enacted rapidly across the United States in the 1910s. Within the decade 44 states had adopted compensation legislation and by 1930 only Arkansas, Florida, Mississippi, and South Carolina had yet to enact a law.

Berkowitz and Berkowitz (1985) in their review of the history of workers' compensation say that what is puzzling about workers' compensation laws is that they ever appeared at all, let alone that all of the states adopted them between 1911 and 1948. At one time, historians thought they had a convincing explanation for the mass acceptance of these laws between 1911 and 1920. During this so-called progressive era, an outpouring of societal concern over the excesses of industrial activity occurred, and reformers succeeded in passing laws that provided protection for the worker against the result of industrial accidents. Newer research suggests a disparity between the rhetoric of the reformers and the reality of the situation. As a result of this disparity, the laws failed to live up to the expectations that the reformers created for them and that initially attracted a great deal of criticism.

Workers' compensation acted as a no-fault insurance law that required the employer to purchase insurance to cover the risk of industrial accidents that occurred in his plant. The program replaced workers' attempts to recover damages by initiating lawsuits. Berkowitz and Berkowitz (1985) say that according to available evidence, workers were beginning to enjoy considerable success at the beginning of the compensation era. In contrast to the early nineteenth century experience, juries were showing a marked sympathy toward maimed employees.

Workers' compensation shifted the tort rules governing workplace accidents from negligence liability to a form of strict liability whereby the

employer was expected to replace up to two-thirds of the workers' lost earnings for all serious accidents occurring in the work place. This change in the liability rules led to a substantial rise in the post-accident benefits paid to injured workers and their heirs.

Social reformers widely hailed the introduction of social insurance programs as bonuses to workers, presuming the substantial increase in benefits would represent the redistribution of income from employers to workers. Numerous studies suggest, however, that employers were able to pass on at least part of the cost of these employer-mandated benefits to the workers. For example, Moore and Viscusi (1990) and Gruber and Krueger (1991) have found that increases in workers' compensation benefits in the 1970s and 1980s led to substantial offsets for workers. In some cases wage reductions were larger than the expected value of the new benefits their workers received because risk-averse workers were willing to pay a substantial premium to insure themselves against a workplace accident.

Fishback and Kantor (1995) propose that understanding how wages adjusted in response to a large increase in post-accident compensation with the introduction of workers' compensation helps to resolve a major puzzle regarding the political economy of the origins of the legislation. Workers received substantial increases in their expected benefits, yet most employers supported the workers' compensation laws. Several authors 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. 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. Also surprising is that workers' support for workers' compensation was not as complete and widespread as would be anticipated from the large increase in post-accident benefits. In fact, unions in some states split on the issue and Missouri workers, when given the opportunity to vote on workers' compensation in a referenda, displayed large-scale indifference to the compensation legislation.

The presence of substantial wage offsets provides new insights into

the political support for workers' compensation. And, as Price and Fishback (1995) argued, insurance companies faced substantially greater informational problems in selling accident insurance to individual workers than in selling liability insurance to employers. By shifting the burden of insurance from workers to employers, workers' compensation benefitted risk adverse workers who were rationed out of the insurance market even if they paid for the more generous post-accident benefits through lower wages. They also argue that it is likely that many employers supported the passage of worker's compensation because they could anticipate passing a substantial portion of the costs onto their workers. Thus employers not only received the benefits of less uncertainty about their accident costs and a reduction in the animosity generated by the traditional negligence liability system that Price and Fishback (1995) have described, but they also bore a much smaller actual share of the fact of the costs than was originally presumed. Finally, insurance companies stood to gain from the passage of workers' compensation because the law enabled them to expand their coverage of workplace accident risk. In fact, the insurance industry actively supported the general idea of workers' compensation, so long as the state did not compete in the selling of the insurance.

Why, then, did reformers make such an effort to remove the system from the courts? One answer is that reformers attributed a great deal of uncertainty to the court system, an uncertainty that added to a more general feeling that the entire industrial system was out of control. As might be expected from a system that depended on the findings of a jury considering only the case before it, awards varied greatly from case to case. One worker might receive an amount to cover his or her losses, another worker, with exactly the same disability might receive nothing. Reformers continually exposed evidence that highlighted the capricious results of the court system. The Pittsburgh survey, an influential examination of industrial conditions, revealed that the families of workers who died in industrial accidents received no compensation in 88 of 304 cases that arose between 1907 and 1908. A commission investigating the situation in New York found that workers received payments from the courts in only 1 of every 8 accidents. The reformers desired a system in which every accident received consideration.

Delays in settling cases also received considerable attention from reformers who regarded these delays as a serious short-coming of the courts system. Delays caused social problems, as injured workers sought income and medical care to tide them over until they received their settlements.

The literature of reform therefore highlighted instances of delay and made it appear to be a inevitable element of the court system. In a report prepared by an Illinois commission investigating the problems of industrial accidents, stories appeared that emphasized the delays in particular cases. One such report was of the worker who fell into a vat of hot water in Chicago on July 29, 1905. Although he eventually recovered $2000, he had to endure one trial and two appeals and never received his money until December 22, 1909. Here was a case then in which the system left the worker without assurance of a settlement for nearly four years.

Still another element of the court system that disturbed reformers centered on the coercive power of insurance companies. The insurers gave workers the hope of circumventing the court system and receiving prompt settlement if they had insurance. For that reason, of 279 fatal accidents that occurred in the railroad industry in Illinois around 1910, 185 reached settlement out of court. Reformers feared that these settlements, almost always of the lump sum variety, failed to compensate the workers adequately. In the contest between workers and insurance companies, workers often found themselves at a disadvantage.

Reformers also argued that judges and juries failed to give work accident cases the careful consideration they deserved. As a result, they reached incorrect decisions and failed to consider the actual needs of the workman in making awards. Other biases also entered the system as well, such as being less generous to immigrants than to native Americans.

Moving to an account of more recent activities, Spieler and Burton (1998) in their review of workers' compensation, characterized the 1960-71 period as a time of "tranquility" with regard to costs and benefits in terms of the states legislation. During the 1960s, however, workers' compensation programs were increasingly criticized for failing to provide

adequate benefits and coverage. Maximum weekly benefits had not been amended during and after World War II to keep up with increases in the average wage, and in most jurisdictions the maximums were lower relative to wages in the 1960s than in 1940. As of 1972 the maximum weekly benefit for temporary total disability in more than half the states was less than $79.56 the national poverty level of a non-foreign born family of four. The extent of workers covered by workers' compensation, by that time, did not match the coverage of other social insurance programs including social security and unemployment insurance.

Other related developments in that era also affected the compensation programs. The number of disabling work injuries increased in the 1960s resulting in more deaths, personal disabilities, and temporary total disabilities. The 1968 explosion in a West Virginia coal mine served as a catalyst for the enactment of the federal Coal Mine, Health, and Safety Act of 1969 which provides benefits to disabled coal miners and their survivors. Many view this law as an indicator of increased federal concern regarding inadequacy of state compensation laws for occupational diseases and as a harbinger of increased federal involvement in the workers' compensation arena.

One result of this concern about deteriorating workplace safety and the increasing criticism of the workers' compensation program was the creation of the National Commission on State Workman's Compensation Laws as part of OSHA (OSHA 1970). The Commission (1972) concluded that state laws "in general are inadequate and inequitable.." The Commission made 84 recommendations designating 19 of the recommendations as essential and urged Congress to enact federal minimum standards incorporating these recommendations if the states didn't improve their laws by 1975.

Congress, however, failed to enact federal standards. One reason is that state laws were significantly improved in the 1970s in response to the threat of federal intrusion. In the 1980s, again, there was a squeeze of benefits and costs. A deceleration in workers' compensation benefits occurred in the early 1980s, in part reflecting the slower pace of state reform and the threat of federal standards vanished in the wake of the 1980

election of President Reagan. Costs of workers' compensation for all types of employers grew at a moderate rate even though by not matching the total payroll growth it would appear that costs were reduced.

The squeeze between costs and benefits in workers' compensation can be explained by macroeconomic developments. High inflation in the late 1970s and early 1980s led to high interest rates and bond yields. One consequence was that workers' compensation insurance carriers experienced higher returns on their investments, allowing them to compete for business by lowering insurance rates despite increasing benefit payments. Since insurance premiums are collected at the beginning of the policy period and benefits are paid over the course of several years insurers earned investment income on reserves. For most of the period the strategy worked. From 1979-1983 workers' compensation was a profitable line of insurance for carriers.

As Spieler and Burton report (1998) sometime in the period 1985-1991 the workers' compensation insurance industry declared itself in a crisis mode. Several factors contributed to the industry's problems. Benefit payments continued to increase rapidly, but in many states carriers were unable to gain approval from regulators for significant premium increases that the insurance industry felt were justified. As a result, the industry lost money every year between 1984-1991 even considering investment income.

During the period of 1992-1998 both benefits and costs declined substantially. Spieler and Burton (1995) conclude that there have been periods of time when the industry is doing well particularly on its investments followed by times where costs to insurers don't keep up with benefits based on macroeconomic conditions and activities in the states with regard to reforming workers' compensation laws.

Description of the Program

Krueger (1990) says that the workers' compensation system in the US

consists of 50 autonomous state laws, federal law covering federal employees, and a federal law covering longshoreman and harbor workers. The state laws operate without any restrictions or interference from the federal government.

Worker's compensation insurance is a form of no-fault insurance in which employers must pay benefits to workers who are disabled on the job in exchange for limited liability and immunity for subsequent lawsuits. The states individually set their benefit levels and coverage requirements. Unlike most other social insurance programs in the United States, eligibility for workers' compensation insurance begins the moment an employee enters covered employment. Typically, to be awarded compensation an employee has to prove by a preponderance of evidence that the injury or illness arose out of and in the course of employment. State laws unanimously cover all occupational diseases. Although employers are liable regardless of fault for workers' compensation claims, they may challenge whether the disability is work related, and they may dispute the degree of the disability.

Krueger (1990) distinguishes four main types of indemnity benefits in workers' compensation insurance. First, temporary total benefits which are paid to workers who are totally unable to work for a finite period of time. All workers' compensation claims are initially classified as temporary total cases and pay temporary total benefits. If the disability persists beyond the date of maximum medical improvement, the case is reclassified as a permanent disability. About 70 percent of all claims are for temporary total disabilities. Second, if a worker remains totally disabled after reaching maximum medical improvement, he/she is eligible for permanent total benefits. In most cases, permanent total and temporary total benefits are identical. Benefits equal a fraction, typically two-thirds of a worker's pre-disability average weekly wage, subject to a maximum and minimum payment. The maximum allowable benefit varies substantially among states, and is often linked to the worker's number of dependants.

Third, workers who suffer a disability that is partially disabling but is expected to last indefinitely qualify for permanent partial benefits. An

employee who lost the use of a limb, for example, would receive permanent partial benefits. These benefits are typically determined on the basis of a schedule that links benefits to specific impairments. Permanent partial disabilities that are not specified in the state disability schedules are compensated on a case by case basis. Fourth, dependents of those who are killed on the job are paid survivors' benefits.

Each state law requires a waiting period ranging from 3 to 7 days before indemnity payments begin. However, workers are compensated retroactively for the waiting period if the disability persists beyond the specified time.

There is a mixture of government, and self-insurance in workers' compensation. Most firms purchase their insurance from private insurance companies. Small employers are manually rated, which means they are charged a premium on the basis of the historical safety experience of their industry. Larger firms are eligible for experience-rating which adjusts the manual rate in accordance with the firm's own past safety record. Large firms also have the option to self-insure, which is equivalent to perfect experience rating. Insurance premiums only partially reflect the firm's own injury experience for the majority of workers. Finally, it should be noted that unlike unemployment insurance, workers' compensation insurance rates vary by industry even for manually related firms so there is little cross- industry subsidization.

Table 1 indicates the breakdown of benefits by type of insurer for the years 1987 through 2005. The data indicates that the benefits paid by state funds and the self-insured increased by a greater percentage, 163 percent and 159 percent respectively, relative to private carriers, 81 percent. And, that medical benefits increased by the largest percentage, 105 percent. The private insurance carriers appear to have held down the benefits they paid out relative to the other providers.

Worrall and Appel (1965) say that a worker's compensation program requires employers to provide cash benefits, medical care, and rehabilitation services to their employees for injury or illness arising out of and in the course of employment. Employers can fulfill their obligation

to provide workers' compensation coverage by purchasing insurance from a private insurance carrier or from an insurance fund run by the state or by self-insuring. Eighteen states have state funds. Twelve of these compete with private insurance carriers for business and are usually referred to as competitive state funds. The other states have exclusive state funds, and private insurance carriers are not permitted to sell workers' compensation insurance in those states. Firms that self-insure can usually do so by posting as a bond a deposit of securities with the state. Most firms are too small to meet the requirements of state law for self-insurance. Group self-insurance is permitted in some states, and firms, usually in the same industry, can jointly self-insure.

Thomason, Burton and Hyatt (1998), in the first chapter of the volume they edited on disability in the workplace, summarize the goals of the workers disability system as prevention, accommodation, and compensation of disability. They say that these goals are obviously intertwined. For example, to the extent that the system performs well with respect to the prevention or accommodation goals, their performance on the compensation goal becomes less critical. The priority given to each of these goals varies across informational systems and may shift over time.

Thomason, Burton and Hyatt (1998) go on to say that goals implied criteria by which system performance may be evaluated. Two criteria that are often used by economists to evaluate public policy are efficiency and equity. Efficiency refers to social welfare, which may be defined as the combined welfare of all individuals in society. An efficient system is one that maximizes social welfare. Similarly, to the extent that social welfare is enhanced by adoption of a particular policy that policy is said to be efficient. Equity refers to the distribution of welfare among individuals. Equity requires that individuals who are similarly situated should be treated similarly, or equity for individuals who are different in some important way should be treated differently. For example, in the context of disability, similar equity would require that individuals that suffer the same degree of loss should receive the same level of compensation. While dissimilar equity would require that individuals who experience greater losses should receive additional compensation.

They go on to argue that economists' concept of efficiency offers limited practical guidance to policy makers and program administrators. Instead, they offer several additional criteria that have been used in the social insurance field that are easier to operationalize and are frequently used as benchmarks in policy debates. First, the resources developed for a program should be adequate, that is, sufficient to accomplish the programs objectives. Second, the program's delivery system, that is, the means by which the program's objectives are accomplished, should be efficient; that is, the administrative costs associated with the given level of services should be minimized. Third, the program should be affordable; that is the program should not result in expenditures that result in serious adverse social consequences such as increased unemployment. Fourth, benefits and services should be equitable.

There is a fifth criterion that may also be used in evaluating social insurance programs which Thomason, Burton and Hyatt (1998) term system design efficiency. Each disability program has multiple goals: prevention, compensation, and accommodation. Ideally, a program change should improve performance and at least one goal without undermining the other goals. To the extent that higher benefits help meet the compensation goal, by increasing adequacy, and also help meet the prevention goal, by providing greater safety incentives to employers via experience rating, the policy change is system design efficient. To the extent that higher benefits help meet the compensation goal, by increasing adequacy, but interfere with the prevention goal, that is by encouraging workers to take risks, or interfere with the accommodation goal, by discouraging workers from returning to work, the policy change is system design inefficient. The issue of alternative results is termed a moral hazard and will be discussed in the safety section of this paper.

Finally, each of the five criterion can be applied to workers' compensation in a workers' disability system or to all the programs in the system. Thus, if you look only at the benefits provided to injured workers via a workers' compensation program, you might conclude that the benefits were inadequate, while if you consider all benefits received by the workers, including sickness and accident insurance and long term disability insurance, the benefits may be adequate. That is, one needs to consider

all the benefits in a national disability program in addition to workers' compensation. All the cash benefits provided by a temporary disability insurance plan evaluated in isolation might be inequitable but if all benefits are considered, including sick leave plans, the workers disability system may be equitable. Thus there is program adequacy versus system adequacy, program equity versus system equity. Most studies only evaluate specific programs in terms of adequacy criteria but ideally should evaluate system adequacy (Thomason, Burton and Hyatt, 1998).

Because workers' compensation is state-based it is difficult to summarize recent trends for all of the programs. The most detailed study of recent activity among the different jurisdictions is by Telles, Wang, and Tanabe (2004). What they have done is to take select twelve states and re-examine them over time. Keeping in mind that these are just twelve states a summary of their major findings are: Cost growth per claim accelerated in all states studied after 1999 and some states dramatically; average medical payments claimed were major drivers of this acceleration; the average duration of temporary disability in all the states studied states was higher in 2001 than in 1996. In some states, it was much higher. In California, the average duration of temporary disability grew almost five weeks in five years, nearly 50 percent higher than the growth in the state with the next most rapid growth. California had more cost drivers and more persistent cost growth than any other state they studied. This means that future efforts to contain the high levels of cost growth in California will have to address more issues and will be more difficult to accomplish than in the other states. Notice of injury to payers came sooner after the injury, but the first indemnity payment to the worker came more slowly in nearly all the states studied over the 1996-2001 study period. Tremendous interstate variation continued in the average cost of a claim. For example, Texas had an average total cost per claim of $5,320 that was more than twice the comparable values in the states with the lowest cost per claim, such as Indiana, with $2,071.

They also found tremendous interstate variation in the average medical cost per claim, raising questions about why medical care with similar groups of claims should be much more expensive in one state than in another. The key question is whether workers received better outcomes

in states where medical providers were paid higher prices or workers received more medical services. A very substantial interstate variation in medical costs claimed for a similar group of claims makes it important for policy makers to have a cogent answer to this question.

Substantial interstate variation was also apparent in the average indemnity benefit per claim received by injured workers for a similar set of claims. These variations were only loosely related to the minimum and maximum weekly benefit rates. The more important driver was the duration of temporary disability, the percentage of cases that received permanent-partial disability or lump sum payments in the average size of permanent-partial disability or lump sum payments. And, they found that the efficiency of the benefit delivery system was vastly different across states. The authors measure this by considering benefit delivery expenses, which were the sum of litigation, adjusting and medical cost containment expenses. Much of the interstate differences in benefit delivery expenses were due to differences in litigation and adjusting expenses. Finally, there was less interstate variation in medical cost containment expenses.

Coverage

Burton (2008) divides his discussion of coverage into coverage based on legislation (de jure) and actual coverage (de facto). He argues that there is evidence that a significant proportion of workplace injuries do not lend themselves to be easily compensated by worker's compensation benefits and it is not clear whether this under-compensation has become worse in recent years.

The National Academy of Social Insurance (2007) reported that in 2005, workers' compensation covered an estimated 128.1 million workers, an increase of 1.8 percent from 125.9 million workers covered in 2004, see Table 2. Total wages of covered workers were $5.2 trillion in 2005, an increase of 5.2 percent from 2004. After three years of declining employment in 2001-2003, the back to back increases in employment in

2004 and 2005 caused total employment to exceed the past peak in 2000. These developments reflected the condition of the overall economy. Workers' compensation coverage rules did not change significantly during the past decade.

The National Academy of Social Insurance (2007) stated that every state except Texas mandates coverage under workers' compensation for almost all private employees. In Texas, coverage is voluntary, but employers not offering coverage are not protected from tort suits. An employee not covered by workers' compensation insurance in Texas is allowed to file suit claiming the employer is liable for his or her work related injury or illness.

Many states exempt mandatory coverage for some categories of workers, such as those in very small firms, certain agricultural workers, household workers, employees of charitable or religious organization, and employees of some units of state and local government. Employers with fewer than three workers are exempt from mandatory workers' compensation coverage in Arkansas, Colorado, Georgia, Michigan, New Mexico, North Carolina, Virginia, and Wisconsin. Employers with fewer than four workers are exempt in Florida and South Carolina. Those with fewer than five employees are exempt in Alabama, Mississippi, Missouri, and Tennessee.

The rules for agriculture workers vary among states. In eleven states, in addition to Texas, farm employers are exempt from mandatory workers' compensation coverage altogether. In other states, coverage is compulsory for some or all farm employers. Because no national system exists for counting workers covered by workers' compensation, the number of covered workers and the covered wages must be estimated. The National Academy of Social Insurance (2007) estimates that around 96 or 97 percent of all US wage and salary workers are covered by unemployment insurance. They then subtracted from unemployment coverage the estimates of workers on wages that are not required to be covered by workers' compensation because of exemption for small firms and farm employers. Using these methods the Academy estimated that in 2005, 97.4 percent of all unemployment insurance covered workers and wages were covered by

workers' compensation and that they accounted for about 96 percent of wage and salary workers in the United States. Self-employed person are not covered by unemployment insurance or by workers' compensation.

Because workers' compensation coverage rules did not change between 2004 and 2005, differences in growth rates among states generally reflect changes in the states' overall employment and wages. In Texas, where workers' compensation is voluntary for employers, coverage slightly increased from 76 percent of workers in 2004 to 77 percent in 2006. Due to the unavailability of data, the Academy (2007) assumed coverage to be at 76.5 percent in 2005. Only Louisiana, Maine, and Michigan experienced a decline in the number of covered workers due to a decline in overall employment. Other states experienced an increase in covered jobs in 2005. With regard to wages covered under workers' compensation, all states registered increases in 2005 over 2004.

Benefits

C. Arthur Williams Jr. (1985), in discussing the benefits themselves, said that workers' compensation benefits can be classified as medical expense benefits, disability benefits, and death benefits. The disability benefits may in turn be divided into total and partial disability benefits. Burton (2008) offers a more general classification of benefits with three approaches. One, the 'impairment approach' which determines one amount of benefits by measuring the extent of the worker's medical impairment. The 'loss of earning capacity approach' which determines the amount of benefits by measuring the extent of loss of earnings capacity and finally the 'wage loss approach' based on the actual loss of wages. In most states the minimum weekly benefits are a feature of total disability benefits, partial disability benefits, and death benefits. The benefits provided under worker's compensation include periodic cash payments and medical services to the worker during the period of disablement for the disabling condition. They also include death and funeral benefits to the workers' survivors. Lump sum settlements are permitted under most

programs. The Social Security Administration (2007) reports that approximately three-fourths of all workers' compensation cases involve only medical benefits. Cash wage replacement benefits are categorized according to duration and severity of the worker's disability. Table 3 presents the benefits, coverage and costs of the fifty states programs for the years 2004 and 2005. The data indicates that total cash payments (29.1 billion) exceeded medical benefits, (26.2 billion) in 2005 and also as an amount per $100 of covered wages. With regard to total disability benefits a typical workers' compensation statute sets the weekly cash benefits for a totally disabled worker at two-thirds of the worker's pre-disability earnings subject to a minimum and a maximum benefit (Williams, 1985). If the worker is temporarily disabled he or she will receive this benefit either until the disability ends, or until the stated number of weeks have passed, whichever comes first. If the worker is judged to be permanently disabled, the benefit will continue until the disability ends. All but three states prescribe the same minimum weekly benefit for both temporary and permanent total disabilities. In some cases, workers return to work before they reach maximum medical improvement and have reduced responsibilities and a lower salary. In most cases they receive temporary partial disability benefits.

With regard to temporary total disability, all states except Rhode Island provide a minimum weekly temporary total disability benefit. Five of these states prescribe a minimum benefit by statute. The statutory minimum benefits provided in the other forty-four states plus the District of Columbia vary greatly as to how the minimum benefits are determined in dollar amounts awarded. Thirty of the forty-five jurisdictions with a statutorily prescribed minimum benefit express the benefit as a dollar amount. The other fifteen jurisdictions have a flexible minimum expressed as a percentage of the state average weekly wage. Twenty-three jurisdictions had a minimum benefit that permitted some workers to collect more than their actual wage loss. In most of these states however the minimum was so low that it affected few workers. Four of the twenty-three jurisdictions had a two-tier minimum that permitted workers with wages in excess of the lower minimum to collect almost all their actual wage loss. The others never permitted the worker to collect more than the actual wage loss.

Most compensation cases that involve cash payments are for temporary total disabilities. In these cases, the worker is temporarily precluded from performing his or her job or another job she or he could have performed before the injury. The Social Security Administration (2007) reports that workers typically receive two-thirds of their weekly wages with the maximum ranging from 66 2/3 percent to 200 percent but typically 100 percent.

If a worker has very significant impairments that are judged to be permanent after he or she reaches maximum medical improvement the worker receives permanent total disability benefits. Very few workers' compensation cases are found to have permanent total disabilities.

With regard to partial disability benefits, most are permanent partial disability benefits which means that the worker is not completely limited in his or her ability to go back to work and benefits can be classified as scheduled or nonscheduled permanent partial disability benefits. To receive scheduled benefits the worker must have suffered a scheduled impairment such as the loss of the use of an arm, the loss of the use of a leg, the loss of sight in one eye or specified degree of disability because of a back ailment. The benefit payable in a lump sum is typically a weekly benefit dependent upon prior earnings multiplied by a specified number of weeks that varies with the nature of the impairment. Some states have an impairment rating scheme. The weekly benefit amount is typically two-thirds of a worker's previous earnings subject to a specified minimum and maximum.

If a worker dies because of a job-related injury or disease his or her surviving spouse and children usually receive weekly benefits related to the worker's prior earnings. In about half the states, the weekly benefit is 66.66 percent of the worker's prior earnings. In most of the other states the percentage is lower for surviving spouse without children than for surviving spouse with children. In both cases the weekly benefit is subject to minimum and maximum amounts. The most liberal states continue the benefits for the spouse for life or until remarriage. Children receive benefits until they are eighteen. Some states however terminate benefits after a specified number of weeks. Benefits may also be payable to

orphaned children or payable to other dependant relatives.

Larsen and Burton, (1985), in describing special funds, say that a special fund in workers' compensation is a fund used to pay cash benefits, medical care, rehabilitation services, or administrative expenses when a certain specified contingency occurs. When the contingency occurs, the special fund is used instead of or in addition to the normal financing mechanism for workers' compensation. The special fund is financed by contributions from more than one employer or private insurance carrier, or from general revenues, or from a combination of these sources.

Special funds started with the establishment of a second-injury fund in New York State in 1916. The funds operate like insurers, in-so-far as they accumulate reserves for future losses in accordance to sound insurance principles. However, they may also utilize other techniques not ordinarily available to private insurance companies, such as compulsion and taxation. The fund mechanism has two facets: the pooling of financial resources by those who contribute to the fund, and a pooling of losses of those affected by the insured contingency. In order for the insurance mechanism to operate successfully, its financial structure must be such as to guarantee in the long run that the resources acquired shall be at least equal to the losses incurred.

The normal mechanism for benefits relies on private or state insurance carriers or self insuring employers to pay the major portion of the costs of the program. Larsen and Burton (1985) conclude that although this method of financing is reasonably successful experience has revealed several problems. They present the following problems. Some employers do not secure the payment of compensation, either by failing to purchase insurance or by not complying with the legal requirements for self-insurance. Injured workers of such employers may receive no benefits or must overcome great difficulties to obtain benefits. The second problem involves insolvency of carriers or self-insurers which can leave injured workers with no recourse. Another common problem results from inflation and gains in productivity. Workers whose benefits are frozen at a level determined by their wages at the date of injury will suffer a severe diminution in the real value of the benefits paid over an extended duration.

A related problem occurs for carriers and employers when benefits are paid over long durations. Reserves for future benefit payments are established shortly after the date of injury and may prove insufficient if the period of disability is prolonged. The problem is aggravated if benefits are adjusted through time in response to inflation.

These funds reflect the complexities of the workers' compensation program as well as the program's need to draw lines of demarcation between occupational and non-occupational injuries and illness, between short-term and long-term disabilities, and between individual and employer liabilities and collective responsibility. The funds have been structured according to the unique history of each jurisdiction and as a result there are variations among states in the purposes of financing and administration and investment and control of funds.

Larson and Burton (1985) argue that special funds have been created on a haphazard basis by the states and they classify the special funds as follows: One, second or subsequent injury funds to remove the perceived disincentive to the hiring and reemployment of handicapped workers. With second injury funds, sometimes called subsequent injury funds, the funds are used to provide workers' compensation benefits to persons with a prior impairment who suffer one or more disability. Because of the difficulty in ascertaining the amount attributable to the second injury and broad coverage, a few states established arbitrary limits to the employee's eligibility and charge the fund with liability for the balance. Two, benefit payment guarantee funds to insure that benefits due are actually paid even if the employer is not insured or if the insurer or self-insurer becomes insolvent. Three, benefit adjustment funds for long-term beneficiaries to keep compensation benefits at least partly updated in long term disability and survivor cases so as to minimize the erosion brought about by rising living costs. Four, rehabilitation funds to help provide funding of rehabilitation services and thereby restore injured workers to productive and gainful employment. Five, funds for continuation of payments in long-term cases to pay cash benefits or medical benefits in long-term disability or death cases while limiting the liability of the individual employer to a fixed maximum amount. Six, occupational disease funds to provide compensation to workers disabled by chronic diseases resulting

from employment, especially in long latency cases where the responsible employer is difficult or impossible to locate or identify.

In addition to the above which are found in a large number of cases, the following miscellaneous funds are established in only a few jurisdictions: reopen case funds, state funds for public employees, reimbursement funds, funds providing additional health benefits for children, independent medical examination funds, funds providing legal assistance to claimants, and finally, catastrophe funds. This is where several employees of the same employer are killed or permanently and totally disabled in one accident.

Boden, Reville, and Biddle (2005), in discussing the adequacy of cash benefits, say that the designers of workers' compensation programs did not intend for nonmonetary losses to be covered. Workers lost the right to receive payments for pain and suffering when they were required to give up the ability to sue negligent employers in exchange for workers' compensation benefits that were provided on a no fault basis. But presumably, they did intend for lost earnings to be covered although the question of how much of the lost earnings should be covered by workers' compensation benefits remains an unsettled issue. While benefit adequacy is a central goal of workers' compensation, other goals often come into conflict with adequacy. These include large workers' compensation costs to employers, concerns about worker fraud, and excessive time off work. Responses to these perceived problems include reducing cash benefits and limiting eligibility to workers' compensation benefits.

Boden, Reville and Biddle (2005) go on to argue that this pattern was particularly evident in the 1990s when more than half the states modified their workers' compensation laws. During that period many of the laws that were passed were designed to reduce employers' costs by either reducing benefits or limiting the number of claims filed. Table 3 indicates that employer costs for workers' compensation increased by 2.3 percent from 2004 to 2005

Traditionally, workers' compensation systems have required employers

to pay benefits to workers whose illnesses or injuries arise out of and in the course of employment. Other contributing factors like preexisting medical conditions, the aging process, and the worker's lifestyle may have contributed to work related disabilities but this did not in principle prevent workers from receiving benefits. Laws passed in the 1990s, however, limit the compensability of conditions that are not solely caused by workplace risks. They do so by creating a number of new requirements for receiving benefits. These include requiring that work be a major or predominant cause of the disability or they eliminate compensation for the aggravation of a preexisting condition or for a condition related to the aging process. Other restrictive laws allow workers to demonstrate disability only by using objective evidence. These new laws can make it much more difficult to receive compensation for chronic musculoskeletal disorders including carpal tunnel disease, noise induced hearing loss, and most back injuries. During the 1990s at least 22 states passed workers' compensation antifraud laws. And, some states began aggressive public campaigns threatening criminal sanctions for workers who filed fraudulent claims. These campaigns sent the message that it was dangerous to file a claim and that the authorities would be checking up on you, and that perhaps it was safer for even truly injured workers not to file.

In addition to limiting access to benefits, several states reduced benefit payments in the 1990s. Some reduced the weekly benefit paid, for example Connecticut and Massachusetts, while others reduced the maximum number of weeks they could be paid, even for workers with permanent disabilities.

The issue of benefit adequacy was not addressed in any of these cases. Legislators did not even have access to data on benefit adequacy. In fact, virtually the only quantified policy parameters available to legislators were cost related: incurred benefits for claims, claim frequency, changes in cause and frequency, overall costs, premium rates, insurer financial data, and so on. Weekly benefit payment parameters and benefit payment data were available but nobody could relate then to the adequacy of benefits, since losses occurred by injured workers were unknown.

Defining benefit adequacy is an important start if legislators are to

consider adequacy when they consider legislation aimed at reducing costs. Boden, Reville and Biddle (2005) approach this subject by saying that as a social insurance program workers' compensation is supposed to cushion the financial impact of injuries on workers and their families. In principle this means that cash benefits should cover much of the losses workers would otherwise incur. Benefit adequacy can best be measured by the extent to which losses are replaced. The replacement rate, benefits received as a proportion of pretax losses, is thus the fundamental measure of benefit adequacy in this program. They argue that if we accept the replacement rate as a measure of adequacy, the question of what replacement rate is adequate immediately follows. And they go on to say there is no obvious answer to this question. One approach is to make the worker whole by covering all financial losses. Under this approach, adequate benefits would be 100 percent of after-tax losses net of job related expenses plus any loss of fringe benefits and any earnings lost by other family member because of the injury. This would leave the worker financially as well off as if the injury had not occurred. In addition, high benefits would increase employer incentives to control workplace hazards. However, there are a number of reasons to consider lower replacement rates. First, providing full replacement reduces the incentive to return to work and thus may increase the overall costs of injuries. In addition, employers worry that the resulting high costs may affect their competitive position. Finally, although employers generally pay workers' compensation premiums, high premiums will reduce the demand for labor and may lead to lower wages. In this sense workers pay for a part, possibly a large part, of the cost of workers' compensation insurance in the form of lower wages. At a high enough benefit level they may prefer to receive higher wages than increased benefits. As in other forms of insurance, workers might be willing to trade incomplete coverage for a higher premium.

Boden, Reville and Biddle (2005) conclude that benefit adequacy is a central goal of worker's compensation. Yet inmost states we know little about whether cash benefits are indeed adequate. The authors' initial studies of five states have shown that, for many groups of injured workers, replacement rates do not approach the two-thirds benchmark for adequacy. This gives them cause for concern, as there is no reason to believe that

other states replacement rates will be much higher than the five states they studied. It also underlines the importance of conducting studies of adequacy in additional states.

To the extent that benefits are inadequate, it would be helpful to understand the effects of policies available to increase replacement rates. Potential policy choices include increasing weekly benefit payment levels, increasing the level of benefits paid for each percentage point of permanent disability, changing permanent disability guidelines to increase the likelihood that people with a given level of lost earning will receive permanent disability benefits, and eliminating road blocks that prevent injured workers from receiving workers' compensation benefits. Each of these policies would directly increase overall benefits payments to workers and therefore increase costs to employers. Each would buck the recent trend towards reducing benefits and eligibility (Boden, Reville, Biddle, 2005).

Alternate approaches focusing on benefits would try to improve the distribution of benefits by targeting benefits more toward groups with particularly low replacement rates or towards groups with particularly large losses. Another approach is to try after the fact to target benefits to people whose compensation turns out to be unequal to their losses. Most permanent disability systems provide benefits in expectation of losses. Sometimes people's actual losses differ substantially from what was predicted. Other avenues to improve benefit adequacy would focus on reducing lost earnings of injured workers or in reducing injury rates. Both of these approaches have the potential to increase replacement rates without increasing employer costs. One area that may have great potential is private or public policies directed at returning the injured employee to work at the employer. Studies have also shown when the pre-injury employers rehire the injured or disabled workers time lost from work is reduced substantially and the employment benefits are improved.

Boden, Reville and Biddle (2005) go on to say that to fully understand the implications of these and other policy alternatives for improving benefit adequacy additional research is required and present a detailed list of nineteen areas that they think should be answered with empirical results.

The National Academy of Social Insurance (2007) reports that private insurance carriers remain the largest source of workers' compensation benefits, see Table 1. In 2005, they accounted for 50.8 percent of benefits paid, a slight increase from the 50.2 percent of total benefits in 2004. Private carriers are allowed to sell workers' compensation insurance in all but 5 states that have exclusive state funds. These are Ohio, North Dakota, Washington, West Virginia, and Wyoming. When benefits paid under deductible arrangements are excluded privately insured benefits account for 37.1 percent of total benefits paid.

Employers are allowed to self-insure for workers' compensation in all states except North Dakota and Wyoming which require all employers to obtain insurance from the state fund. In other states, employers can self-insure their risk for workers' compensation benefits if they prove they have the financial capacity to do so. Many large employers choose to self-insure. Some states permit groups of employers in the same industry or trade association to self-insure through group self-insurance. Benefits provided under group self-insurance are included in the Academy's report (2007).

A total of twenty-six states have state funds that provide workers' compensation insurance. They include five exclusive state funds states and twenty-one others. In general, state funds are established by an act of the state legislature, have at least part of their board appointed by the governor, are usually exempt from federal taxes, and typically serve as the insurer of last resort. That is, they cover insurance coverage for employers with difficulty purchasing it privately. Not all state funds meet all these criteria. In some cases, it is not altogether clear whether an entity is a state fund or private insurer, or whether an entity is a state fund or a state entity that is self-insuring workers' compensation benefits for its own employees.

Federal programs accounted for 5.9 percent of benefits paid in 2005, see Table 1. These benefits include payments under the Federal Employees Compensation Act for civilian employees and a portion of the Black Lung benefit program that is financed by employers and paid to the federal Black Lung Disability Trust Fund. Federal benefits also include

benefits under the Longshore and Harbor Workers' Compensation Act.

The Academy (2007), discussing trends in deductibles and self-insurance, says that employers who have policies with deductibles are, in effect, self-insuring up to the amount of the deductible. That is, they are bearing that portion of the financial risk. Adding deductibles to self-insured benefit payments shows the share of the total market where employers are assuming financial risk. This share of total benefit payments rose from 19 percent in 1990 to 32.3 percent in 1996. What this means is that employers are subject to court cases from not self-insuring that part of the deductible.

The growth in self-insurance and in deductible policies in the early 1990s, as well as the downturn in self-insurance later in the 1990s probably reflects the dynamics of the insurance market that altered the relative cost to employers of purchasing private insurance vis-à-vis self-insurance.

In the late 1980s and early 1990s, when workers' compensation benefits and costs rose rapidly, many states had administrative pricing systems that set the premium levels that insurance companies could charge, and often states limited the rate of increase in premiums (Academy, 2007). As a result premiums did not rise as fast as costs. Growing numbers of employers were not able to buy insurance in the voluntary market because insurers did not want to sell insurance with premiums that were less than their expected cost.

Because states require that employers have insurance, they provide ways for high cost employers to buy it. In some states, the state fund insures all applicants. Some states use a residual market for high risk employers and require insurers underwrite a share of the residual market as a condition for doing business in the state. During the late 1980s and early 1990s, some states set premiums in the residual market that did not recognize the higher costs associated with the residual market employers. To cover the gap between premiums charged to employers in the residual market and their actual losses, residual market pools assessed fees on insurance companies based on the insurer's share of aggregate premiums written in the voluntary market in the state. As costs rose during the late

1980s, more employers ended up in the residual market, residual market losses grew and rising fees assessed on insurers drove up the price of premiums charged to employers who were not in the residual market.

The combination of rising costs and the structure of administered prices in the private insurance market encouraged employers to set up self-insured plans, which did not share all assessments to cover the costs of the residual market. Similarly insurers and employers turned to hybrid plans that combine a large deductible with private insurance as a way to lower their aggregate premiums and consequently their share of assessments to the operating losses in the residual market.

Benefits vary within a state from year to year for many reasons and the Academy (2007) presents the following list: changes in workers' compensation statutes; new court rulings or new administrative procedures; changes in the mix of occupations or industries because jobs differ in their rates of injury and illness; fluctuations in employment because more people working means more people at risk of a job related illness or injury; changes in wage rates to which benefit levels are linked; variations in health care practice patterns across states which influence the cost of medical care; fluctuations in the number and severity of injuries and illnesses for one reason or another; and changes in reporting procedures in state agencies as state agencies update their record keeping systems.

The share of benefit spending for medical care ranged from lows of less than 40 percent in some of the states to highs of over 60 percent in other states. Many factors in a state can influence the relative percentage of benefits for medical care as opposed to cash wage replacement or survivor benefits. Among them are: different levels of earnings replacement provided by cash benefits which means that, all else being equal, states with more generous cash benefits have a lower share of benefits used for medical care; differences in medical costs, medical practices, and the role of workers' compensation programs in regulation allowable medical costs; differences in waiting periods for cash benefits and statutes determining permanent disability rewards and finally, the industry mix in each state.

The Appeals System

Hyatt (2005) reviews and evaluates the appeals systems in the fifty states and says that workers' compensation statutes sought to create a set of rules that would be applied to the assessment of work injury claims for cash or medical benefits. The result was a program that determined eligibility and benefit amounts based not on fault but on whether the injury was related to work and the assignment of cash benefits based on a schedule. One goal of this approach is to effectively remove litigation from the process. Overtime, however, litigation has been reintroduced into workers' compensation which to some observers has resulted in a replication of the woes of the tort system that workers' compensation replaced.

The definitions of a 'worker', the 'workplace', and an 'injury' or 'disease' as well as the guidelines that workers' compensation claims adjudicators have at their disposable to guide them in determining whether an injury or disease rose out of, or in the course of employment, have become more ambiguous as the nature of work and employment relationships have evolved. Hyatt (2005) quotes Thomason, Hyatt, and Roberts (1998) who summarize these developments in the following way, "workers' compensation programs have become increasingly litigious, adding substantially to costs. In part these perceptions have been fueled by an expansion of the definition of disability. The scope of compensable conditions has broadened to include soft tissue injuries, repetitive strain syndromes, psychological disorders, and a variety of occupational diseases. Accurate diagnoses of these conditions is problematic so that it is difficult to establish the extent of disability."

Hyatt (2005) expands on the issues related to defining the terms that govern workers' compensation by saying that the traditional model of a worker employed in a manufacturing facility or a construction site has represented fewer workers in each decade dating back to the advent of workers' compensation. Workers are now more likely to suffer

disabilities that do not have an immediate onset, such as repetitive strain and other soft-tissue injuries. Increasingly, injuries and disease occur for which work may have been only one of many contributing factors. And workers are now more likely to work outside of a traditional workplace such as in their homes or out of their vehicles. Indeed it may even be the case that some of the changes in the workplace, for example hiring independent contractors whom an employer may not be responsible for providing workers' compensation coverage have been driven to a degree by the cost to the employer of workers' compensation. Workers' compensation legislation and policy have lagged behind the evolution of work and work related injuries. To a large extent, the statutory language and legal doctrines used to determine which workers are covered and which injuries and diseases are work-related are remnants of the early twentieth century.

Policy vacuums in workers' compensation often result in denials of claims that are unfamiliar, which then draw appeals from the injured workers or by the acceptance of unfamiliar claims which then draws appeals from employers.

Evaluation and Assessment and the Impact on Safety

Smith (1992) says the longest standing set of programs designed, at least in part, to reduce workplace risk is workers' compensation. Each state has its own system for compensating the victims of occupational injury but the systems share common features. It is the rate setting characteristics of workers' compensation systems that are designed to reduce work place risk and these characteristics have two anticipated effects. The first is industry effect. That is, firms in higher risk industries pay higher basic premiums called manual rates. These premiums are charged to each firm in the industry as a fraction of its total payroll costs so it can be argued that the higher premiums in a dangerous industry both raise the overall unit cost of its output and increase the costs

of its' labor relative to capital. Resulting incentives to reduce output and economize on the use of labor in high risk industries should contribute toward an economy-wide reduction in injuries by reallocating labor from more dangerous industries to safer ones.

The second effect on safety is related to the experience rating of premiums. To the extent that a firm's own injury experience is reflected in its premiums, there is an induced incentive for it to consider investing in safety. If its' injuries fall so will its' workers' compensation premiums.

Experience rating, however, is imperfect. Injury rates have a random component to them, and it is difficult to distinguish a firm's true level of risk from this random component except in very large firms. One result is that, in modifying a firm's manual rate, the weight given to its own experience increases with firm size. Typically, a 50 percent reduction in injury costs would result in no decline in premiums for a firm of seven employees. However, additional efforts to separate the true from the random component of a firm's injury rate result in its injury experience being averaged over several years thereby effectively delaying for over four years the full effect on the premium of a permanent decline in the firm's injury rate.

Smith (1992) goes on to say that the anticipated safety effects of the workers' compensation program are based on an implicit assumption that market forces fail to assess firms for the cost of injury to their workers. Put differently, the higher insurance costs imposed on firms with more risky workplaces can ultimately reduce injury only if the labor market fails to impose on employers, through for example compensating wage differentials for higher risk levels, the full cost of uncompensated losses suffered by injured workers. If market forces are fully operative, reducing ex-post losses by increasing workers' compensation benefits will result in smaller ex-ante compensating wage differentials and the tendency will be for employer costs and injury rates to remain unchanged.

Indeed, it must be noted that to the extent that the market works well, but experience rating is imperfect more generous workers' compensation benefits could cause an increase in workplace risk. If the expected ex-

post losses from injury are reflected in workers' wages, increased workers' compensation benefits will be accompanied by a reduction in the compensating wage differential. This reduction will be larger among higher risk firms because their expectation of injury is greater. If insurance premiums are set at the industry level and do not vary with the experience of individual firms both risky and relatively safe firms in each industry will face the same insurance rate increases, with the result that labor costs in risky firms fall relative to those in safer firms. Employment tends to shift toward the relatively risky firms and the incentives for each firm to improve safety have actually been reduced (Smith, 1992).

It is unclear just how well the labor market works in providing ex-ante payment for ex-post losses. Compensating wage differentials for the risk of death have been widely found by several authors. It is hard to ascertain the non-pecuniary losses involved to judge whether they are fully compensating. Compensating wage differentials for non-fatal risks have been even more difficult to establish although it is not uncommon to find positive wage differentials for the risk of injury and negative wage differentials associated with higher workers' compensation benefits.

Durbin and Butler (1998) review the effects of workers' compensation on employer and employee behavior, and say that for a variety of reasons related to the structure of labor markets, economic incentives facing employers and employees, the availability and quality of empirically sound data and the specific types of governmental intervention, evaluating or designing the optimal mix of workplace safety strategies remains difficult. One of the largest fundamental issues facing those interested in workplace safety involves its measurement. On the surface this might not seem to be such a large problem. Certainly information is available from various governmental agencies at both the state and federal level on the number and costs of workplace accidents. In addition workers' compensation insurance premium and cost information are also available.

It is widely known for example that over the past few decades there has been a general escalation in the costs of workplace accidents. Since 1960 the cost of workers' compensation insurance, the major financial vehicle through which employers fund the cost of industrial accidents, has

increased. Consistent with this cost growth, both the frequency and severity of injuries compensated through the workers' compensation system have also increased.

However, underlying these numbers is an incentive disconnect between employers and workers that in some ways contaminates their use as measures of workplace safety. The problem is that workers' compensation costs and workplace accident data typically reported by the Bureau of Labor statistics reflect both intrinsic workplace safety and the financial incentives to report claims generated by the existence of workers' compensation benefits and the availability of insurance coverage. These financial incentives create an incentive disconnect that makes workers' compensation costs and accident data unreliable measures of workplace safety.

Durbin and Butler (1998) go on to summarize predictions concerning workplace safety, particularly how workers' behavior changes in the face of insurance benefits. First, the safety efforts of individual workers are a decreasing function of expected workers' compensation benefits that is, as benefits increase workers will pay less attention to safety. Second, since higher benefits decrease safety effort and less safety effort increases the risk of injury, higher benefits increase injury risk. Finally the probability of injury is a decreasing function of wages as wages increase the probability of an injury decreases. Since workers' compensation benefits do not usually cover the full loss of wages.

A number of researchers have observed that these intuitions relate to opportunity costs. As benefits increase, all else the same, the cost of being disabled decreases, that is loss from not pursuing safety diminishes and both the probability of injury and participation in the workers' compensation program increases because of what is called, risk-bearing moral hazard responses. Stated differently, the existence of workers' compensation benefits may induce risk-bearing behavior which may give rise to additional injuries. Workers who know they are covered may actually have more injuries. Risk-bearing moral hazard may be operative for employers as well, especially those who self-insure or who are experience rated. However, the incentives that employers face as benefits

increase are opposite to those of employees. Since insurance shifts some of the costs of injuries to firms, insured firms will have more incentives to decrease injury risk in the workplace.

A second way that insurance benefits change behavior is through reporting effects. Workers may claim that a condition arose from a job injury when they may not qualify for disability benefits or where an employer may not provide health benefits. Workers may also file a workplace injury claim to gain the indemnity or lost wage benefits in response to changing economic conditions. If, for example, they fear immediate job layoff these behaviors are fundamentally different from prior risk bearing changes. Such changes in reporting behavior induced by changes in insurance coverage are known as claims reporting moral hazard. As in the risk bearing model the key incentive response in claims reporting moral hazard is that higher insurance benefits lower the opportunity costs of filing a claim.

Additional claim filing by employees is just one avenue through which claims reporting moral hazard works. Claims reporting moral hazard also increases bserved claim severity where workers extend claim duration when benefits are higher. Managers or employers may also choose to channel a management or productivity problem into the workers' compensation system. These all represent types of claims reporting moral hazard.

Moral hazard does not relate to ethics per se, but rather in the present context moral hazard refers to the extra costs incurred due to the increased use of the disability system by an individual. These additional costs are indirectly born by other workers and employers through higher costs for health and insurance benefits and offsetting reductions in wages and profitability. Offsetting reductions in wages means that workers pay for part of the workers' compensation system and other health benefits through a reduction in their wages.

Durbin and Butler (1998) argue that the social science literature is quite convincing that workers in particular respond to the economic incentives provided by cash or indemnity benefits. And, that the

empirical research looks particularly at the secular increase in indemnity benefits which occurred since the early 1970s, in part as a result of the recommendations of the National Commission on State Workers' Compensation Laws. Without moral hazard, changes in indemnity benefits should not cause systemic change in claims. Instead, what has been observed is that both claim frequency as measured on a per capita or per dollar of payroll basis and severity increases as benefits increase. The evidence indicates that claim frequency rises from 3 percent to 8 percent every time there is a 10 percent increase in the real level of benefits. Taken together the available research suggests that there may be a divergence between reported workers' compensation costs and the intrinsic level of safety whenever claims reporting moral hazard is important.

Butler (1994) in an earlier paper says that other studies suggest that a 10 percent increase in benefits is accomplished by a 4 to 10 percent increase in the reporting of claims. Changes in statutory benefits cannot fully account for the cost increase in workers' compensation and since the real safety environment in every industry seems to be getting no worse the workers' compensation costs increases would appear to result from moral hazard reporting responses. That is in order to be informative some measure of workplace safety must somehow deal with this potential influence of claims reporting moral hazard responses. Or, even though safety may be the same or have become better in the workplace examining workplace safety through workers' compensation claims may lead one to believe that safety has gotten worse.

Experience rating is also an important insurance pricing mechanism for promoting safety. Since experience rating ties a firm's benefit costs to its premiums, experience ratings should induce firms to invest in safety in order to lower their insurance costs. Durbin and Butler (1998) claim that this is a naïve approach to examining changes in safety which estimates the impact of experience rating to see where the claims fell as statutory benefit levels rise. This is a naïve approach because of the moral hazard incentive disconnect that insurers of workers' compensation claims will be a poor indicator of workplace safety.

Smith (1992) says that, dating back to the report of the US National

Commission on State Workers' Compensation laws in 1972 which recommended that benefits for injured workers be increased as a way to improve employer safety incentives, analysts have striven to measure and understand the empirical relationship between workers' compensation benefits and injury rates. The results are as clear as any in the field of applied economics. That is, there is a positive relationship between benefits and recorded injuries. He argues that explaining the tendency for an increase in benefits to cause increases in reported injuries has proven more difficult than measuring it because distinguishing real from reporting effects is not trivial. There are at least three aspects of the relationship between recipient and benefits that have to be analyzed. First there are the real safety effects, that is, the actual level of workplace risk that may arise with benefit levels for either of two reasons. A perfectly experience rated system may have been imposed on a perfectly functioning labor market so that as benefits rose and workers ex-post losses became smaller employer safety incentives declined. Second, as workers perceive that the cost of injury has fallen they may become less careful in their behavior and more prone to injury. Then there is the duration effects, that is improved benefits might elicit longer healing periods among the injured workers an outcome that could signal the kind of moral hazard problems inherent in reporting biases. In other words all other things being equal time away from work or, the healing period increased when benefits rose. Then there is the reporting effect. For an injured worker, reporting the injury, filing a claim, and pressing for higher benefits by trying to convincingly establish a greater extent of physical impairment are time-consuming activities. If benefits are relatively low, workers may choose not to bother with the inevitable reports to be filed and medical evaluations to be undertaken. However, as benefits rise, injured workers may be more likely to both file claims and seek to have their injuries categorized as permanent thus qualifying them for larger indemnity benefits. However, as benefits rise workers also have more incentives to file bogus claims which might exaggerate the extent of their disability.

Smith (1992) raised the possibility, in an earlier paper, that some off the job injuries are now being compensated as job related. That means that if workers are seeking compensation for injuries occurring off the job the injuries involved would probably be difficult to diagnose, relatively

easy to conceal, and reported early in the work shift. More importantly the propensity to report strains and sprains early in the day increases on Monday and on days following a three-day weekend.

Smith (1992) concludes that evidence that workers' compensation has reduced injuries in the workplace is minimal. If either program has had a benign effect on risk levels which is itself doubtful it is almost certain that these effects are quantitatively small. Real safety effects are clearly swamped by reporting effects. That means that it is difficult to know what are the real safety effects.

Unions Effects

Schurman, Weil, Landsburgis and Israel (1998) discuss the role of unions and collective bargaining in preventing work-related disabilities and say that from its earliest days to the present, a major purpose of organized labor has been to use collective economic and political power on behalf of worker's health and welfare. To that end unions have employed a range of strategies and tactics from direct actions in the work place and community to collective bargaining to politics and legislative pressure and consumer boycotts. At the same time it is also true that labor unions have sometimes traded health and safety standards for other benefits, even when faced with strident demands from their members to protect them from known debilitating hazards. And unions have sometimes opposed regulatory and policy changes aimed at certain kinds of health and safety risks. For example, unions have often opposed mandatory non-smoking policies. However, despite these internal factors and despite the fact that unions face legal and internal political difficulties in their role as advocates for increased occupational safety and health, even labor's harshest critics generally know that unions have played a significant role in the dramatic reduction in injuries and illnesses in this century.

Schurman, Weil, Landsburgis and Israel (1998) go on to say that there are several general reasons to expect that unions will increase the

effectiveness of various mechanisms for promoting workplace health and safety. They may use their bargaining power to secure higher risk premiums. They may also use their expertise and comparative advantage to collect and interpret information on workplace hazards to bargain and enforce stronger health and safety provisions in collective agreements. And they may also use collective power to obtain contractual guarantees against unjust dismissal, which allows workers to exercise their rights under the law and also to seek worker's compensation claims. Empirical evidence generally supports the claims that unionized workers appear to have greater access to worker's compensation benefits. They point out that unions pursue improved workplace safety and help through collective bargaining in four ways. First, unions negotiate higher pay in exchange for higher risk, thereby creating or enhancing compensating wage differentials and labor markets. Second, unions bargain specific contract language mandating certain policies and standards to which management agrees to adhere. Third, they negotiate health and safety committees, or other structures, for which workers may influence the employer's policies and practices to address workplace health and safety problems. Fourth, the attempt to influence higher level management policies such as changes in technology or the design of workplace practice that could have major implications on safety and health outcomes.

Labor, in particular several large major manufacturing unions played a major role in the development of the Occupational Safety and Health Act in 1970 as well as state safety laws following that. Virtually all unions representing workers in the manufacturing and construction sectors and many of the unions representing service and public sector workers maintain national level departments for health and safety. One of the major functions of these departments is to monitor and participate in the standard setting process. In the legal arena and also with regard to the standards for a new machine that will require the workers, probably, to work harder.

Worker's compensation requires injured workers covered by the programs to file a claim with the designated state agency. Once filed, the designated agency determines whether the individual qualifies for benefits and if so the level and length of benefits. Unions potentially can provide assistance to the injured worker in securing compensation. A number of

studies indicate that unions increase the likelihood that union members will receive benefits relative to comparable non-union workers. One estimate is that a 10 percent increase in the proportion of unions in an industry is associated with a 10 percent increase in the number of workers' compensation claims filed. This is true even controlling for injury and benefit rates. Larger effects for unions have also been found. Hirsch, McPherson and Dumont (1997) support these results and suggest that differences in union as compared to non-union workplaces arise because workers are provided with information from the union representatives, supervisors are more likely to inform injured workers about worker's compensation filing procedures and less likely to discourage workers from filing claims, workers are also less likely to fear being penalized for filing claims and management has less discretion and ability to monitor workers and penalize them for questionable claims. These findings suggest that communication of relevant information to workers about their rights under worker's compensation is an important determinant of whether or not they receive worker's compensation.

Health Provider's Effects

Butler, Hardwig and Gardner (1997) in examining the relationship between health maintenance organizations (HMOs) and workers' compensation say that health events that have made precipitated entrance into the disability system need to be viewed in the larger context of the workplace environment. If workers, managers, and doctors are maximizing their preferences then whether a health event becomes compensable under workers' compensation depends in part on the level of wages and benefits the worker receives, where the worker's are in their training, how satisfied they are with their working conditions, how the manager deals with productivity failure among employees and how healthcare providers are reimbursed. The authors' argue that the disability system becomes not just a rehabilitation experience when health conditions are serious enough that it could become an alternative to working itself, an alternative that depends on more than just the objective

nature of the health event itself. They show in their paper that this incentive for healthcare providers to affect the form of the worker's compensation payment affects the behavior of the system. Because, for any given pool of health conditions, the greater the proportion of those conditions that can be classified as work related the higher will be the income of the HMO provider.

HMO physicians are differentially influenced by fee for service payment practices in all workers' compensation programs. Fees for service doctors are paid the same when treating a broken bone, from an accident at home, as they do for the same type of break occurring on the job. The fact that an on the job injury is compensable in worker's compensation systems makes no difference to them. However, it does make a difference to the HMO since treating an injury compensable on worker's compensation insurance represents a net increase in its income. Since the HMO is paid on a fee-for-service basis, the worker's compensation injuries, on top of the capitation amount results in the HMO being financially better off if more treatments are classified as work related. This also suggests that doctors in HMOs have an incentive to classify health conditions that might otherwise only be marginally work-related or non-work related as having arisen in the course of or out of the worker's employment under workers' compensation. This is especially true for cumulative trauma conditions which may have a long latency period and be difficult to monitor whether they are work related or not.

Related Government Programs

There are a large number of other government programs, particularly federal programs that also impact on workers' benefits and health and safety on the job. The National Academy of Social Insurance (2007) describes these as: The Social Security Disability Insurance Program and the accompanying Medicare program which provides cash and medical benefits to disabled workers and is the largest of these programs in terms of total benefits. The Federal Employees Compensation Act of 1916, which

in 2005 paid over $2,462 million of which 27 percent were for medical care. This compensates federal employees since federal employees are not covered by the standard state worker's compensation system. The Longshore and Harbor Workers' Compensation Act, which requires employers to provide workers' compensation protection for longshore, harbor, and other maritime workers, which was originally enacted in 1927. Private employers cover longshore and harbor workers by purchasing private insurance or self-insuring. There is also the Black Lung Benefits Act, enacted in 1969, which provides compensation for coal miners with Black Lung Disease and their survivors. This program has two parts. Part B is financed by federal general revenues and administered by the social security system and was administered by the social security administration system until it was shifted to the US Department of Labor. Part C is paid through the Black Lung disability trust fund, which is financed by coal mine operators who make a contribution on coal that is mined and sold in the United States. Another piece of legislation is the Energy Employees Occupational Illness Program Act, which provides lump sum payments up to $150,000 to civilian workers and/or their survivors who become ill as a result of exposure to radiation, beryllium, or silica in the production or testing of nuclear weapons. Medical benefits are awarded for the treatment of covered conditions and in 2005 the total benefits were $393 million. There is also the Radiation Exposure Compensation Act of 1990 which provides lump sum compensation payments to individuals who contracted certain cancers and other serious diseases as a result of exposure to radiation, during nuclear weapons tests, or during employment in underground uranium mines. These lump sum payments are specified in law and range from $50,000 to $100,000. Then there is the Veterans of Military Service Act. US military personnel are covered by Federal Veterans Compensation programs through the Department of Veterans Affairs. There is also the Railroad Employees and Merchant Seaman's Act where the federal laws specify employee benefits for railroad worker involved in interstate commerce and merchant seamen. These benefits are not worker's compensation benefits, and therefore not usually included in discussing worker's compensation legislation. Instead these programs provide health insurance and short-term and long-term cash benefits for ill or injured workers whether or not their conditions are work related. Under federal laws, these workers also

retain the right to bring suits against their employers for negligence in the case of work related injuries or illnesses.

The Academy (2007) says that there is coordination between worker's compensation and social security disability benefits. If a worker becomes eligible for both worker's compensation and social security disability benefits, one of the programs will limit benefits in order to avoid excessive payments relative to the worker's past earnings. The social security amendments of 1965 require that social security disability benefits be reduced so that the combined total of worker's compensation and social security disability benefits would not exceed 80 percent of the worker's prior earnings. States, however, were allowed to establish reverse offset laws whereby worker's compensation payments would be reduced if the workers receive social disability benefits. This reverse offset shifts the cost to social security that would otherwise fall upon the workers' compensation employer or insurer. Legislation in 1981 eliminated the state's option to adopt this reverse offset law, but the 16 states that already had such laws were allowed to keep them.

As of December 2006, about 6.8 million disabled workers and 1.8 million of their dependents received social security disability benefits. About 1.4 million of these individuals had some connection to worker's compensation or some other public disability benefit. Social security disability benefits grew rapidly in the early 1970's and then declined through the 1980's after the policy changes in the 1970's and 80's reduced benefits and tightened eligibility rules. From 1990-1996, social security benefits again rose as claims and allowance increased, particularly during the economic recession of 1990-1991.

The National Academy of Social Insurance (2007) reports that the trend in worker's compensation benefits as a share of covered wages follows a different pattern. Total worker's compensation benefits, that is cash and medical combined, were less than social security disability benefits during the 1970's but grew steadily throughout the 1970's and surpassed social security disability benefits in the mid 1980's. When social security benefits flattened-out during the mid 1980's, worker's compensation benefits continued to grow at a rapid rate. Then worker's

compensation payments declined as a share of covered wages in 1992-2000 as social security benefits rose.

The opposite trends in worker's compensation and social security disability benefits during much of the last 25 years raises the question of whether retrenchments in one program increased the demand placed on the other and vice versa. The substitute ability of social security disability benefits and workers' compensation for workers was severe, and long-term disabilities that are, at least arguably, work related, or might be exacerbated by the demands of work has received little attention by researchers and is not well understood. A recent study finds that work related disabilities are much more common than might previously have been thought both among older workers in general and among recipients of social security disability benefits in particular. More than one-third of 51-61 year olds whose health limits the amount of work they can do become disabled because of an accident, injury, or illness at work. Of those receiving social security disability insurance, a similar portion, 37 percent, attributed their disability to an accident, injury, or illness at work.

Conclusions

Workers' compensation in the US is a state administered program designed to provide cash benefits and medical care when workers suffer work-related injuries, illness or disability related to their work. There are fifty different systems rather than a single unified program. The structure of workers' compensation is the result of the individual states starting programs early in the 20th century when the federal government was not viewed as the vehicle for alleviating individual and family problems. This history is similar to that of the beginning of unemployment insurance benefits by the states. However, the start of unemployment benefits occurred shortly before the Great Depression of the 1930's when public opinion and the political will in the US shifted to a desire for federal government solutions. National programs followed; Social Security, a role for the federal government in unemployment insurance, and wage and

hour legislation.

The following generalizations are offered. Many of these are the result of the 50 state structure of workers' compensation as well as changes in the labor market, technology and the economy. There are significant differences among the states regarding benefits and the definition of coverage. The political debate within states over benefits and coverage often revolves around inter-state comparisons and political power rather than objective data and independent analysis. Questions regarding the measurement of benefits, coverage and whether increases in benefits increase or decrease worker safety remain unresolved.

Greater insight into worker safety questions might be obtained by a shift in investigation from macro to micro analysis. That is, researchers' examination of the results of increases in benefits on illness or injury may be improved with the use of the techniques of behavioral economics.

As the states move to limit benefits without a discussion of the adequacy of benefits the losses incurred by injured workers remains unknown or not part of the discussion.

The states have also moved to shift the cost of programs to the federal government. This has resulted in the recent shifting of the largest burden of compensating employees for injury and illness to federal programs such as Medicare.

Changes in how work is undertaken, the environment and medicine have raised a number of issues not present at the birth of workers' compensation. Among these are: should new illnesses discovered by medical research be treated as work or non-work related and how to treat injury and illness when employees spend significant amounts of time working at home or away from a single site.

Table 1
Workers' Compensation Benefits, by Type of Insurer, 1987-2005 (in millions)

Year	Total	Percent Change in Total	Private Carriers	State Funds	Self-Insured	Federal	Medical	Percent Medical
1987	$27,317	11.0	$15,453	$4,084	$5,082	$2,698	$9,912	36.3
1988	30,703	12.4	17,512	4,687	5,744	2,760	11,507	37.5
1989	34,316	11.8	19,918	5,205	6,433	2,760	13,424	39.1
1990	38,237	11.4	22,222	5,873	7,249	2,893	15,187	39.7
1991	42,187	10.9	24,515	6,713	7,962	2,998	16,832	39.9
1992	44,660	5.9	24,030	7,829	9,643	3,158	18,664	41.8
1993	42,925	-3.9	21,773	8,105	9,857	3,189	18,503	43.1
1994	43,482	1.3	21,391	7,398	11,527	3,166	17,194	39.5
1995	42,122	-3.1	20,106	7,681	11,232	3,103	16,733	39.7
1996	41,960	-0.4	21,024	8,042	9,828	3,066	16,739	39.9
1997	41,971	0.03	21,676	7,157	10,357	2,780	17,397	41.5
1998	43,987	4.8	23,579	7,187	10,354	2,868	18,622	42.3
1999	46,313	5.3	26,383	7,083	9,985	2,862	20,055	43.3
2000	47,699	3.0	26,874	7,388	10,481	2,957	20,933	43.9
2001	50,827	6.6	27,905	8,013	11,839	3,069	23,137	45.5
2002	52,416	3.1	28,151	9,308	11,803	3,154	24,310	46.4
2003	55,066	5.1	28,581	10,542	12,758	3,185	25,832	46.9
2004	56,074	1.8	28,150	11,110	13,559	3,256	26,356	47.0
2005	55,307	-1.4	28,107	10,756	13,186	3,258	26,219	47.4

Source: National Academy of Social Insurance, 2007.

Table 2

Number of Workers Covered under Workers' Compensation Programs and Total Covered Wages, 1989-2005

Year	Total Workers		Total Wages	
	(in thousands)	Percent Change	(in billions)	Percent Change
1989	103,990		$2,360	
1990	105,500	1.5	2,506	6.2
1991	103,700	-1.7	2,567	2.4
1992	104,588	0.9	2,719	5.9
1993	106,503	1.8	2,819	3.7
1994	109,582	2.9	2,965	5.2
1995	112,377	2.6	3,143	6.0
1996	114,773	2.1	3,337	6.2
1997	118,145	2.9	3,591	7.6
1998	121,485	2.8	3,885	8.2
1999	124,349	2.4	4,151	6.8
2000	127,141	2.2	4,495	8.3
2001	126,972	-0.1	4,604	2.4
2002	125,603	-1.1	4,615	0.2
2003	124,685	-0.7	4,717	2.2
2004	125,863	0.9	4,953	5.0
2005	128,141	1.8	5,212	5.2

Source: National Academy of Social Insurance Estimates, 2007.

Table 3

Comparison of Workers' Compensation Benefits, Coverage, and Costs, Total United States, 2004-2005, Summary

Aggregate Amounts	2004	2005	in Percent
Covered workers (in thousands)	125,863	128,141	1.8
Covered wages (in billions)	4,953	5,212	5.2
Workers' compensation benefits paid (in billions)	$56.1	$55.3	-1.4
Medical benefits	$26.4	$26.2	-0.5
Cash benefits	$29.7	$29.1	-2.1
Employer costs for workers' compensation (in billions)	$86.8	$88.8	2.3
Amount per $100 of covered Wages			In amount
Benefits paid	$1.13	$1.06	-$0.07
Medical payments	$0.53	$0.50	-$0.03
Cash payments to workers	$0.60	$0.56	-$0.04
Employer costs	$1.75	$1.70	-$0.05

Source: National Academy of Social Insurance, 2007.

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美國職業災害補償制度

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摘　要

在美國的社會保險制度中，職業災害補償制度爲其制度型態之一，其主要對象是針對遭受職災傷病、失能、死亡的勞工和其受撫養遺屬，提供現金以及醫療給付，同時，受領之後即不得再向雇主主張侵權行爲之索賠。

本文試圖透過對美國職業災害勞工補償制度之歷史、制度架構、適用範圍、給付項目、申訴程序、特別基金、職災預防效果、經驗費率、工會的影響、健康照護組織的角色和聯邦政府的相關措施等分項，來簡介美國制度的立法背景以及其運作概況。

最後，本文論及美國因爲其法制設計，使的各州有不同的立法內容，形成不同的給付標準和內涵，造成同是職災，各州卻有不同處理方式的問題，因此現在各州有把職災制度交由聯邦政府統一處理的傾向。

關鍵詞：美國職業災害補償制度

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